



# **INFRARED LED AND PHOTOTRANSISTOR**

CATALOG

# Table of contents

About Us .....	3
Product Overview.....	4
<b>INFRARED LEDs</b>	
<b>Gull Wing</b>	
521-5004F / Top View 850nm .....	5
521-5005F / Top View 940nm .....	5
<b>0402</b>	
599-1AA0-147IRF / Top View 850nm.....	10
599-1AC0-147IRF / Top View 940nm.....	15
599-1GC0-147IRF / Side View 940nm .....	20
599-3GA0-147IRF / Side View 850nm.....	25
<b>0603</b>	
599-10A0-147IRF / Top View 850nm .....	30
599-10C0-147IRF / Top View 940nm.....	35
599-17A0-147IRF / Top View 850nm With Dome Lens.....	40
599-17C0-147IRF / Top View 940nm With Dome Lens .....	45
<b>0805</b>	
599-11A0-147IRF / Top View 850nm.....	50
599-11C0-147IRF / Top View 940nm .....	55
<b>1206</b>	
599-1KA0-147IRF / Reverse Mount 850nm.....	60
599-1KC0-147IRF / Reverse Mount 940nm.....	65
599-12A0-147IRF / Top View 850nm .....	70
599-12C0-147IRF / Top View 940nm.....	75
599-15C0-147IRF / Top View 940nm With Dome Lens .....	80
599-35A0-147IRF / Top View 850nm With Dome Lens .....	85
<b>1208</b>	
599-1QC0-147IRF / Side View 940nm.....	90
<b>1209</b>	
599-1EA0-147IRF / Side View 850nm With Dome Lens.....	95
599-2EC0-147IRF / Side View 940nm With Dome Lens .....	100
<b>2812 PLCC-2</b>	
599-4HA0-147IRF / Side View 850nm.....	105
599-4HC0-147IRF / Side View 940nm.....	110
<b>3528 PLCC-4</b>	
598-2JA0-103IRF / Top View 850nm With Dome Lens.....	115
598-2JC0-103IRF / Top View 940nm With Dome Lens.....	120
<b>3528 PLCC-2</b>	
599-4FA0-147IRF / Top View 850nm.....	125
599-4FB0-147IRF / Top View 880nm.....	130
599-4FC0-147IRF / Top View 940nm .....	135
<b>PHOTOTRANSISTORS</b>	
<b>0603</b>	
599-30C0-147PTF / Top View 940nm.....	140
<b>0805</b>	
599-11C0-147PTF / Top View 940nm .....	145
<b>1206</b>	
599-32C0-147PTF / Top View 940nm.....	150
<b>1208</b>	
599-3QC0-147PTF / Side View 940nm.....	155
<b>3528 PLCC-2</b>	
599-4FC0-137PTF / Top View 940nm .....	160
OE Product Showcase.....	165



## About us

Dialight is a market leader within the LED indication and signals communities, with millions of products used in most markets throughout the world. Our story began in 1938 in Brooklyn, NY, producing panel indication components for military aircraft and industrial applications. In 1971, shortly following the inception of the LED, we launched our first LED component product. In 1995 came our introduction of the first LED vehicle light and traffic signals in North America, followed by the first ever hazardous location certified LED lighting system. We have continued to revolutionize the use of LEDs to provide superior indication products, vehicle lights, traffic signals as well as lighting for structural towers and industrial work sites around the world.

Dialight Signals & Components continues the development specifically in the area of optoelectronic components, traffic, vehicle and rail lighting products. We boast a first rate team of engineers with a knowledge base that provides the best in technology development and superior product functionality and durability. We remain the industry authority in LED board level through hole and surface mount indication, with an exceptional range of the revolutionary PRISM® SMDs and OPTOPIPE® Light Pipes. Having expanded LED technology into our legendary panel mount line and based LED bulbs, Dialight offers the widest range and most reliability of indicator products. It is our commitment to our customers to continue to provide these reliable, high quality LED products, with best in class service and support, for decades to come.

We see a world transformed to be safer, more productive, and environmentally friendly through the use of LEDs. With the most options and the highest quality, it's not just a light; it's a Dialight.





## High-Performance IR LEDs and Phototransistors for Precision Optical Sensing

Dialight's IR LEDs and phototransistors are engineered for high-performance optical sensing, signaling, and non-contact detection. Our IR LEDs emit infrared light in the 850–940 nm wavelength range and are available in both surface-mount (SMD) and through-hole configurations. Optimized for use with matching phototransistors, these components deliver reliable performance in compact and demanding applications.

### FEATURES:

- Infrared emission wavelengths: 850 nm and 940 nm
- Available in SMD (1.9mm gullwing) and 5mm through-hole (THT) versions
- High radiant intensity with water-clear lenses
- Phototransistors matched for wavelength sensitivity
- RoHS compliant and lead-free
- 3D CAD models and C-drawings available for design support

### BENEFITS:

- Enables reliable non-contact sensing and remote signaling
- Consistent performance in demanding environments
- Simplifies integration into compact circuit board layouts
- Low power consumption for energy-efficient designs
- Ideal for high-reliability applications in industrial and consumer markets

### APPLICATIONS:

- Remote controls and IR data transmission
- Industrial automation and safety sensors
- Proximity and object detection sensors
- Optical encoders and positioning systems
- Consumer electronics and smart appliances
- Medical instrumentation and lab diagnostics
- Security systems and motion detectors



## 521 SERIES Gull Wing Infrared SMD LED

850 and 940nm

### MECHANICAL / SPECIFICATIONS

PART NUMBERS:

850nm: [521-5004F](#)

940nm: [521-5005F](#)

DIMENSIONS:

1.9mm round lens

2.8mm package height

STANDARD PACKAGING: 1500 pcs / reel

OPERATING TEMPERATURE:

-40°C to +85°C (-40°F to +185°F)

STORAGE TEMPERATURE:

-40°C to +85°C (-40°F to +185°F)

### CERTIFICATIONS & RATINGS

RoHS Compliant

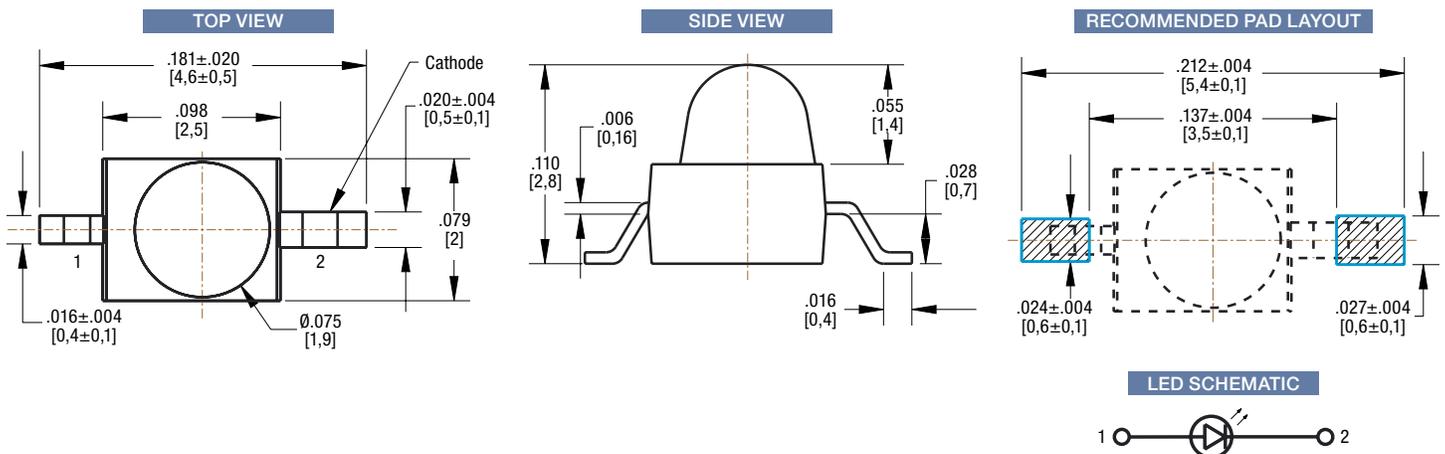
### FEATURES & BENEFITS

- Subminiature package IR LED
- Spectrally matching to Silicon phototransistor
- Gull wing leads for SMT application

### APPLICATION

- Security Systems
- Industrial Electronics
- IR Data Transmission
- Remote Control
- Smoke detector

### DIMENSIONS inches [mm]



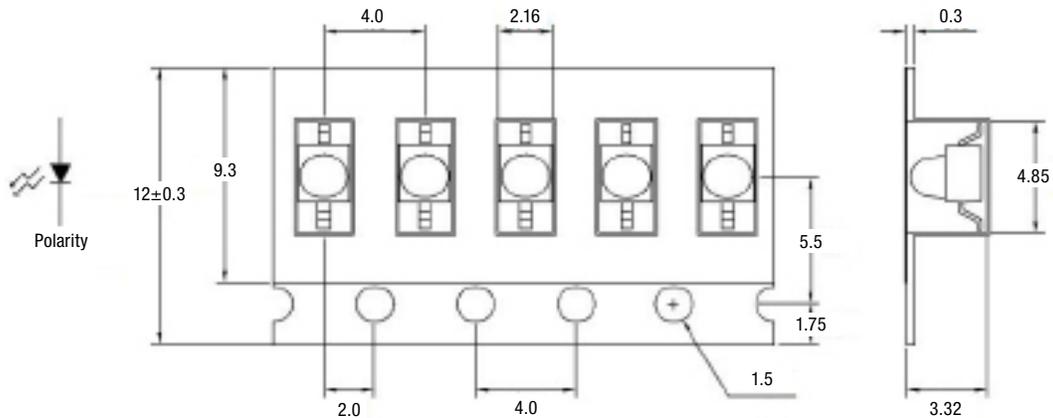
ELECTRICAL/OPTICAL CHARACTERISTICS AT 25°C

Part Number	Emitted Color	Lens Color	Radiant Intensity (mW/sr)			Aperture Radiant Incidence (mW/cm <sup>2</sup> )			Peak Wavelength (nm)			Forward Voltage (V)			Viewing Angle (°deg.)	Reverse Current (µA)
			Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
			If=20mA												(Ir) VR=5V	
<a href="#">521-5004F</a>	IR Non-Visible	Water Clear	5	10	20	0.71	1.42	2.84		850			1.2	1.6	20	100
<a href="#">521-5005F</a>	IR Non-Visible	Water Clear	1.6	5	12	0.22	0.71	1.71		940			1.2	1.6	20	100

ABSOLUTE MAXIMUM RATINGS AT 25°C

Part Number	Power Dissipation (mW)	Forward Current (mA)	Reverse Voltage (V)	Peak Forward Current *(mA)	Operating Temperature (°C)	Storage Temperature (°C)
<a href="#">521-5004F</a>	100	50	5	1000	-40°C to +85°C	-40°C to +85°C
<a href="#">521-5005F</a>	100	50	5	3000	-40°C to +85°C	-40°C to +85°C

TAPE AND REEL SPECIFICATION



TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES  
521-5004F

Fig.1 Forward Current vs. Forward Voltage

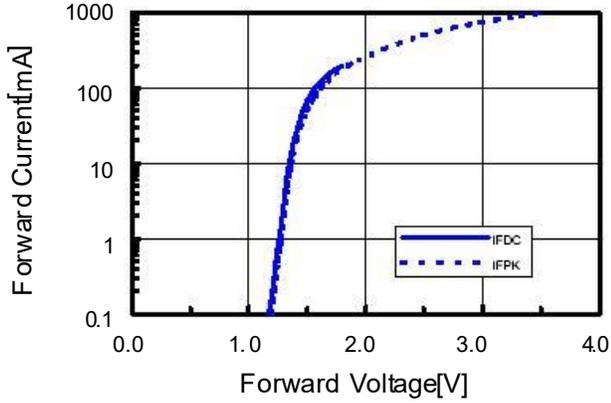


Fig.2 Relative Radiant Power vs. Wavelength

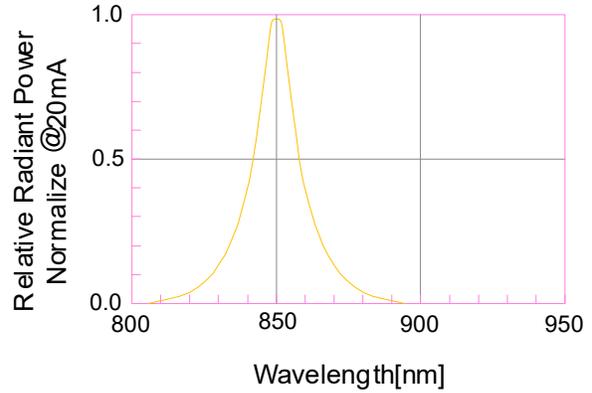


Fig.3 Relative Radiant Power vs. Forward DC Current

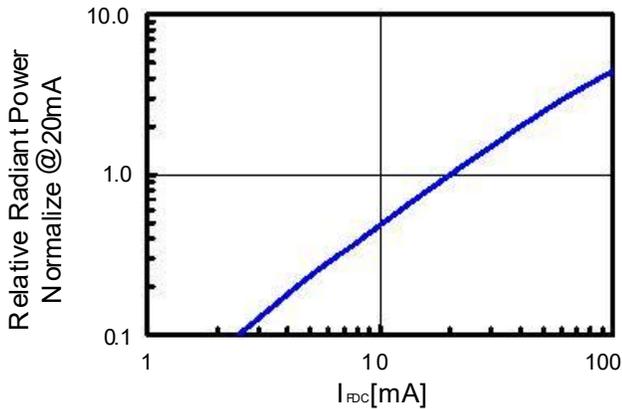


Fig.4 Relative Radiant Power vs. Forward Peak Current

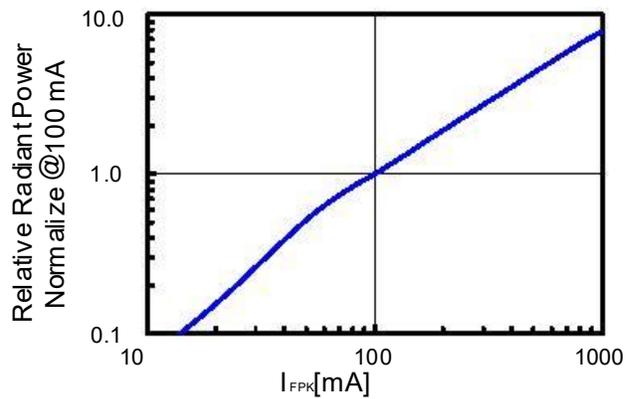


Fig.5 Forward DC Voltage vs. Temperature

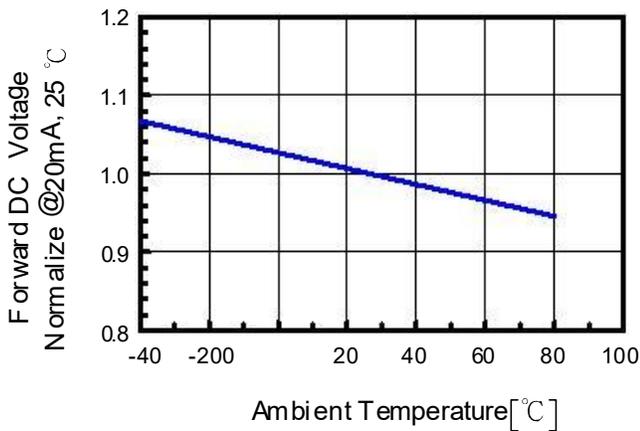
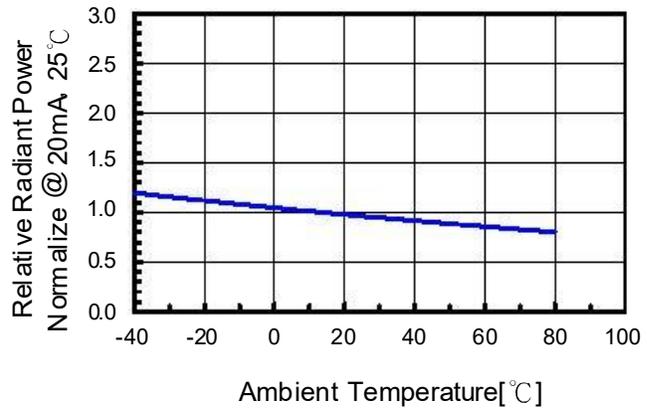


Fig.6 Relative Radiant Power vs. Temperature



TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES  
521-5005F

Fig.1 Forward Current vs. DC Forward Voltage

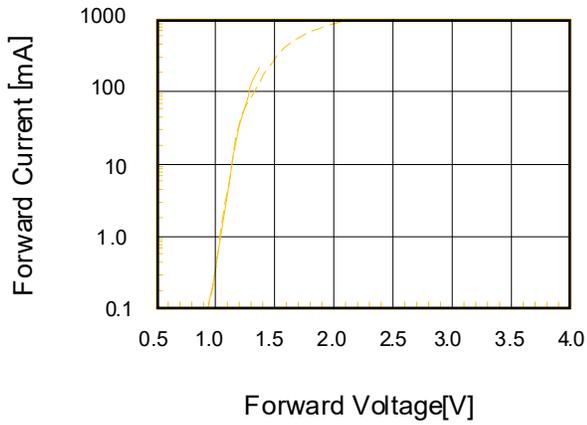


Fig.2 Relative Radiant Intensity vs. Wavelength

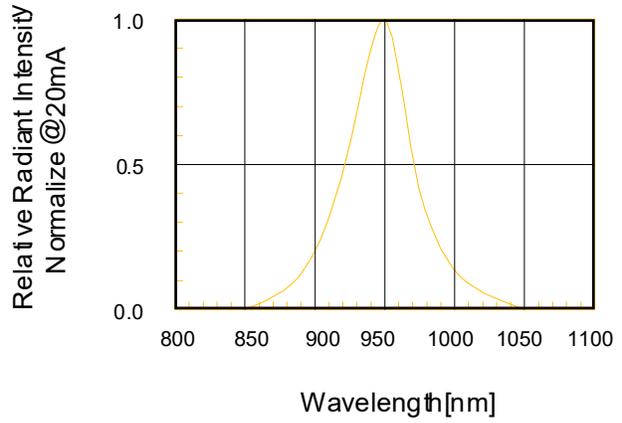


Fig.3. Relative Radiant Power vs. Forward Peak Current

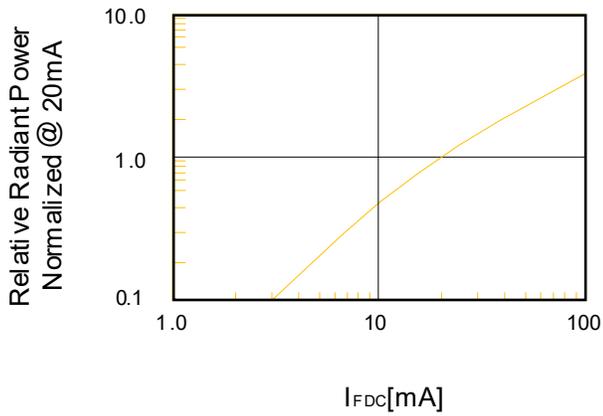


Fig.4 Relative Radiant Power vs. Forward Peak Current

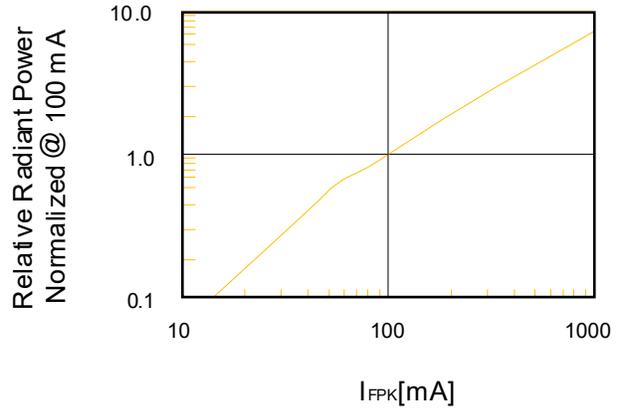


Fig.5 Forward DC Voltage vs. Temperature

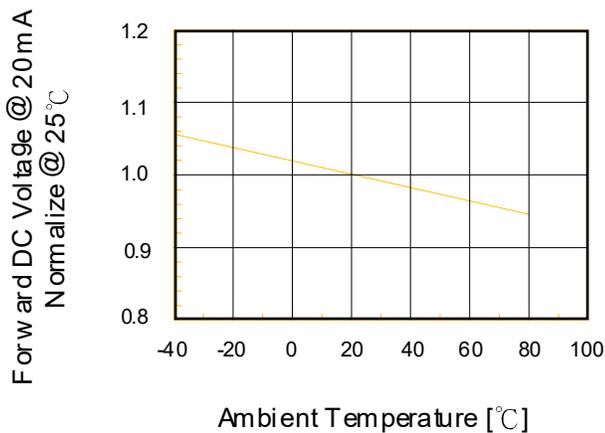
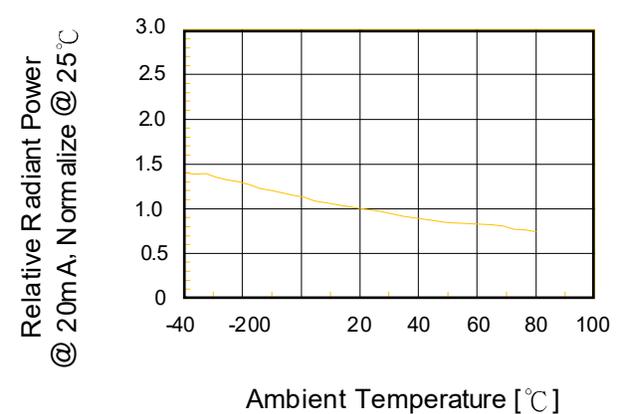


Fig.6 Relative Radiant Power vs. Temperature

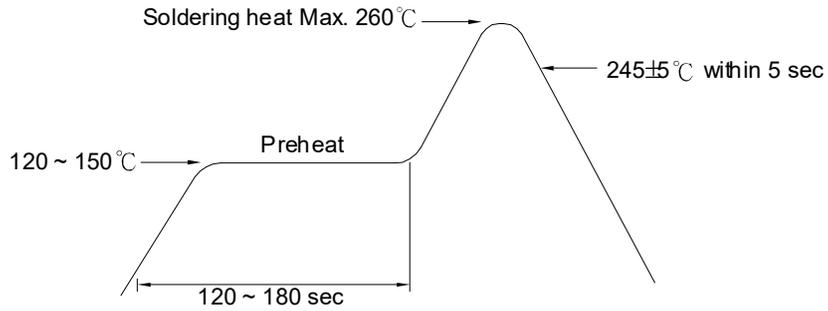


RECOMMENDED SOLDER PROFILE

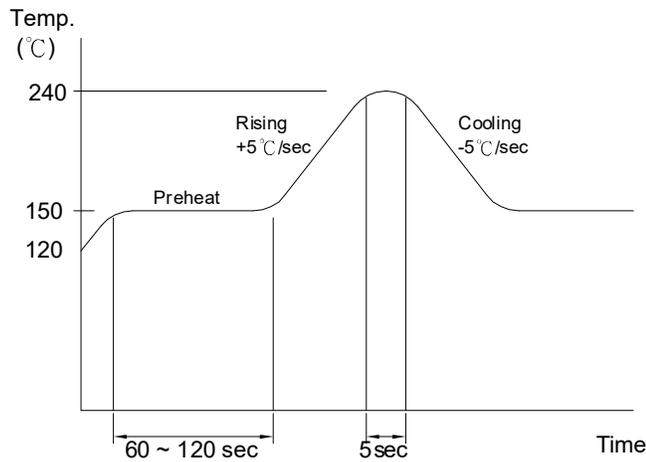
1. Hand Solder

Basic spec is  $\leq 280^{\circ}\text{C}$  3 sec one time only.

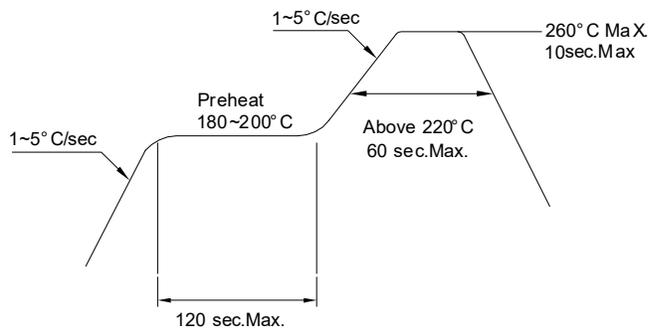
2. Wave Solder



3-1. LEAD Reflow Solder



3-2 PB-Free Reflow Solder

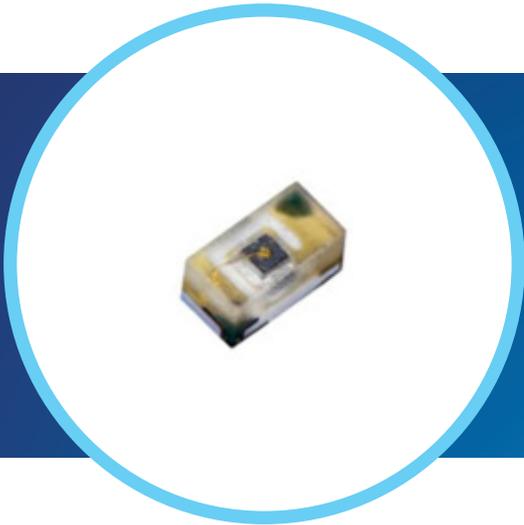


Reflow Soldering should not be done more than two times.



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
0402 Package Top View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-1AA0-147IRF](#)

DIMENSIONS:  
1.0 x 0.5 x 0.5mm

LENS COLOR:  
Clear

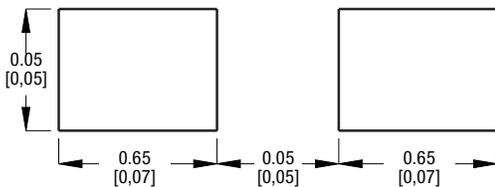
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

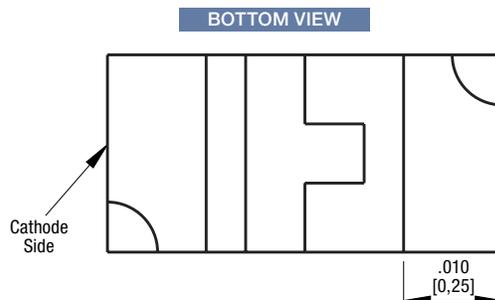
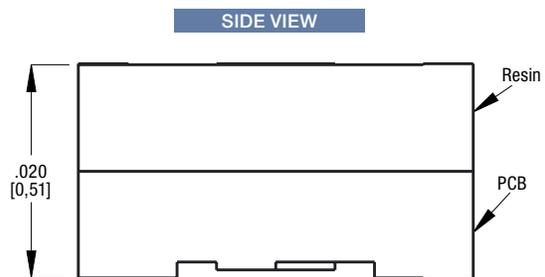
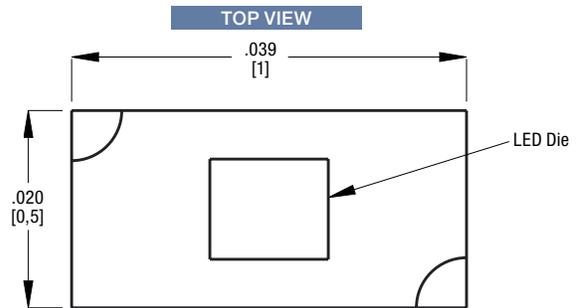
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS** inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Range	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

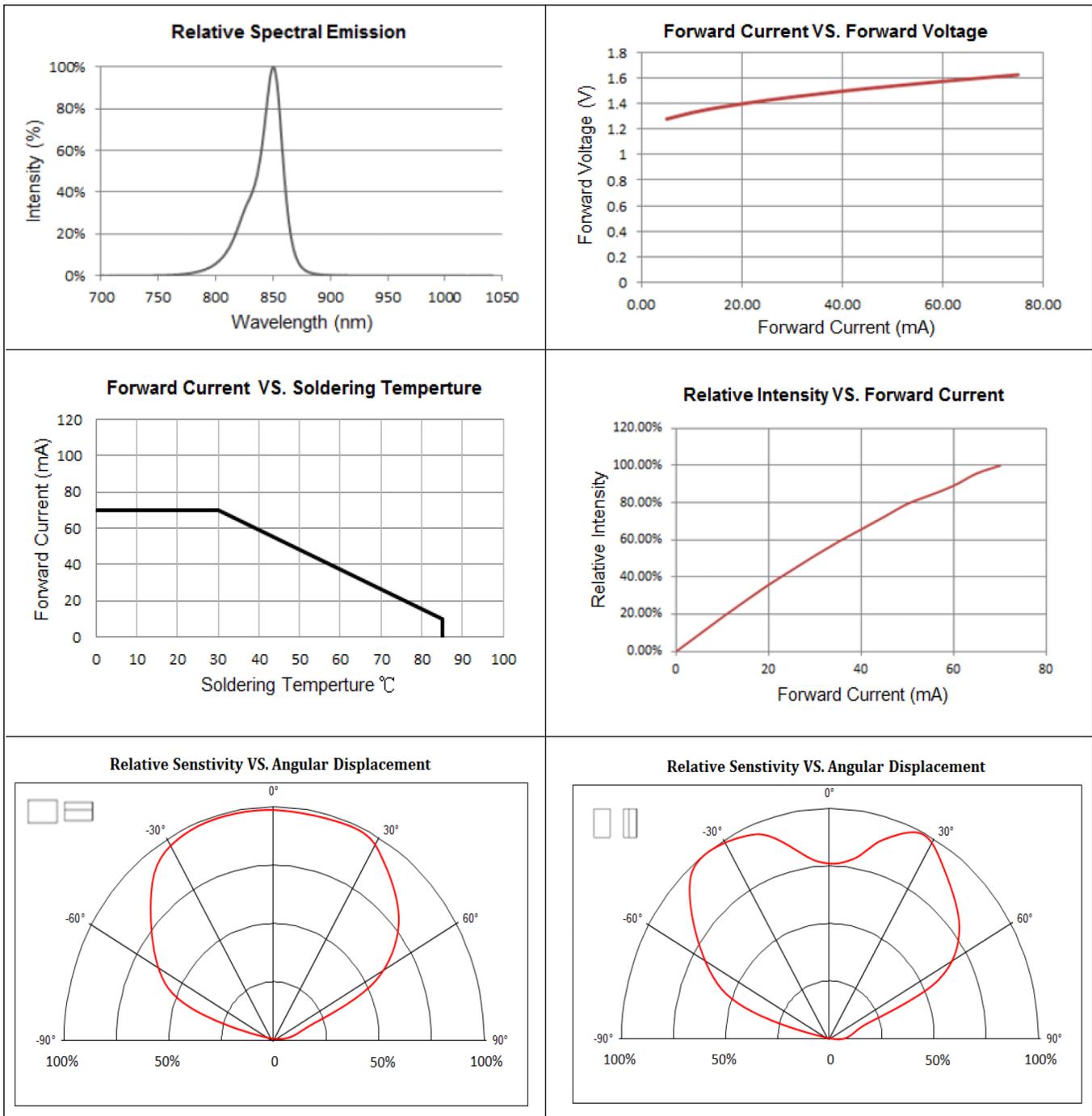
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

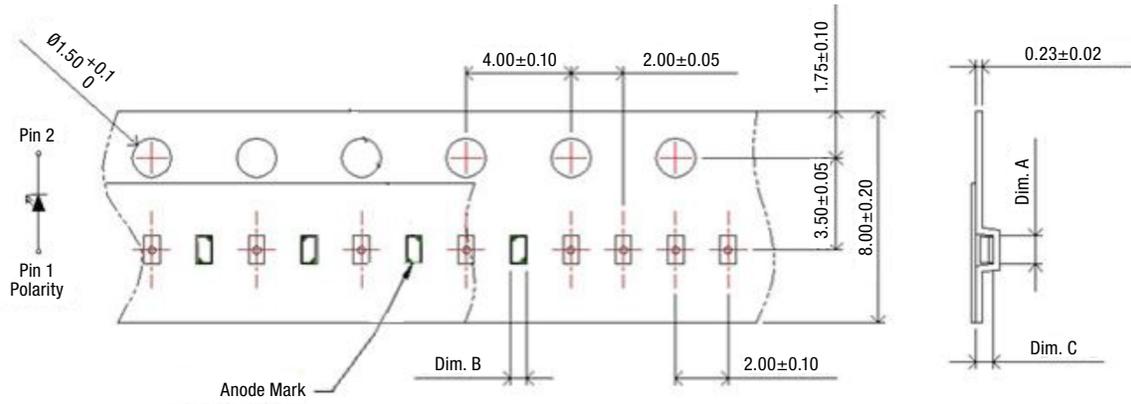
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=70mA$	3.0	5.5	7.5	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=70mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=70mA$		42	-	nm
$V_F$	Forward Voltage	$I_F=70mA$	-	1.55	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	Angle of Half Intensity (X)	$I_F=70mA$	-	140	-	deg
	Angle of Half Intensity (Y)		-	140	-	

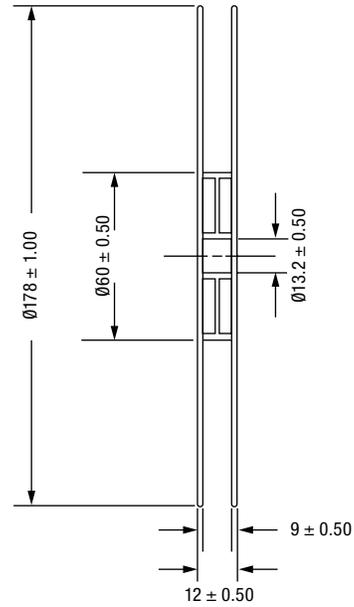
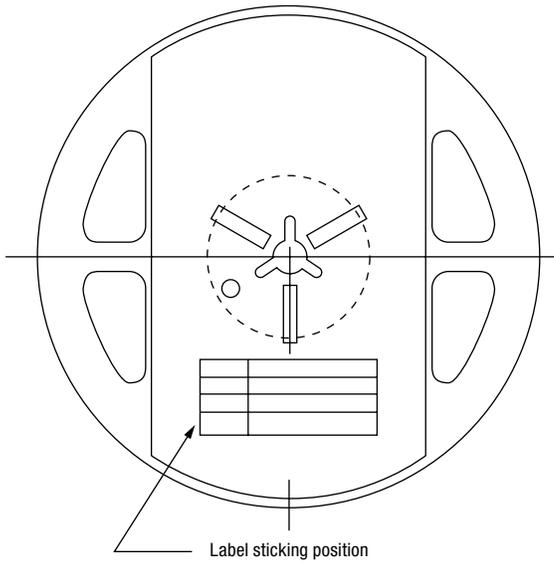
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.10±0.05	0.60±0.05	0.66±0.05	4K



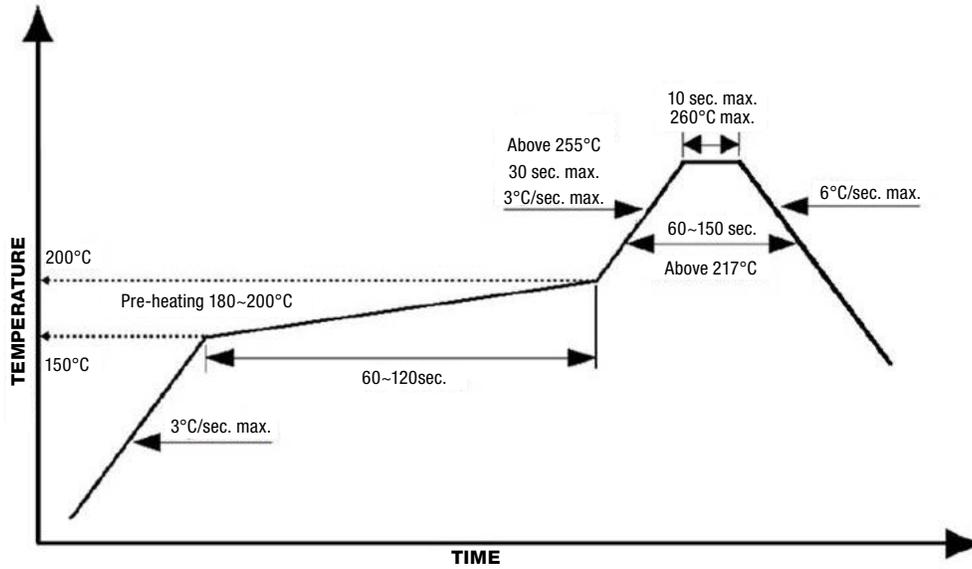
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

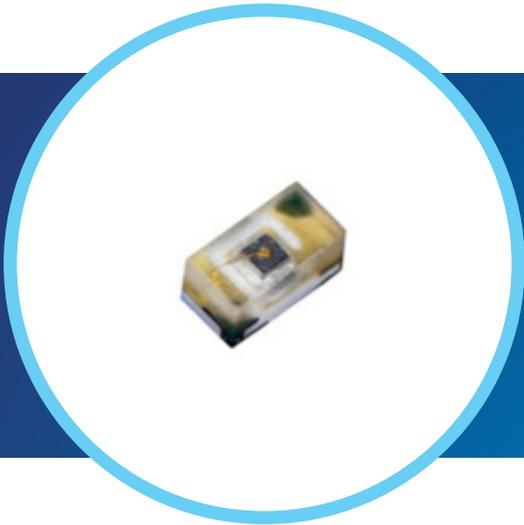
- 1. Operating temp.: Above 220°C, 60 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
0402 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-1AC0-147IRF](#)

DIMENSIONS:  
1.0 x 0.5 x 0.5mm

LENS COLOR:  
Clear

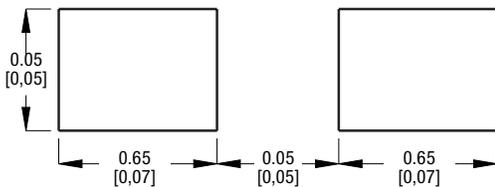
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

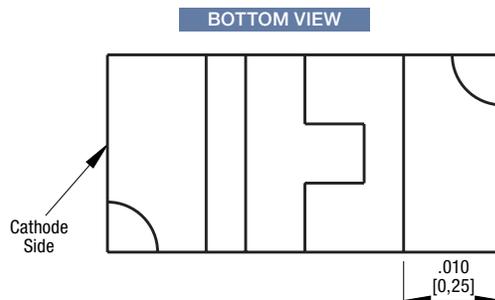
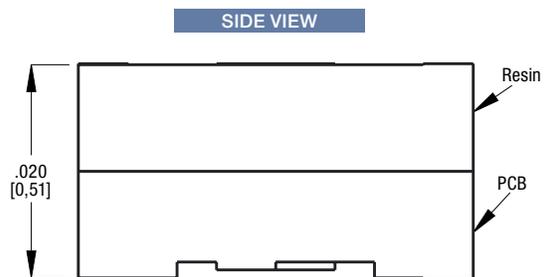
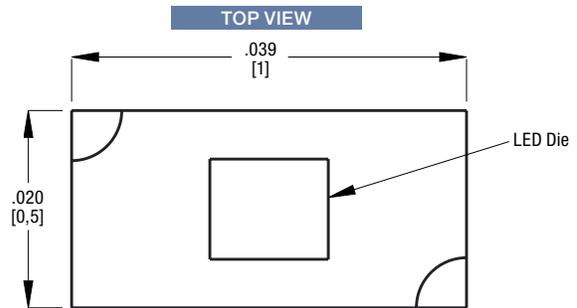
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS** inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Range	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	A	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

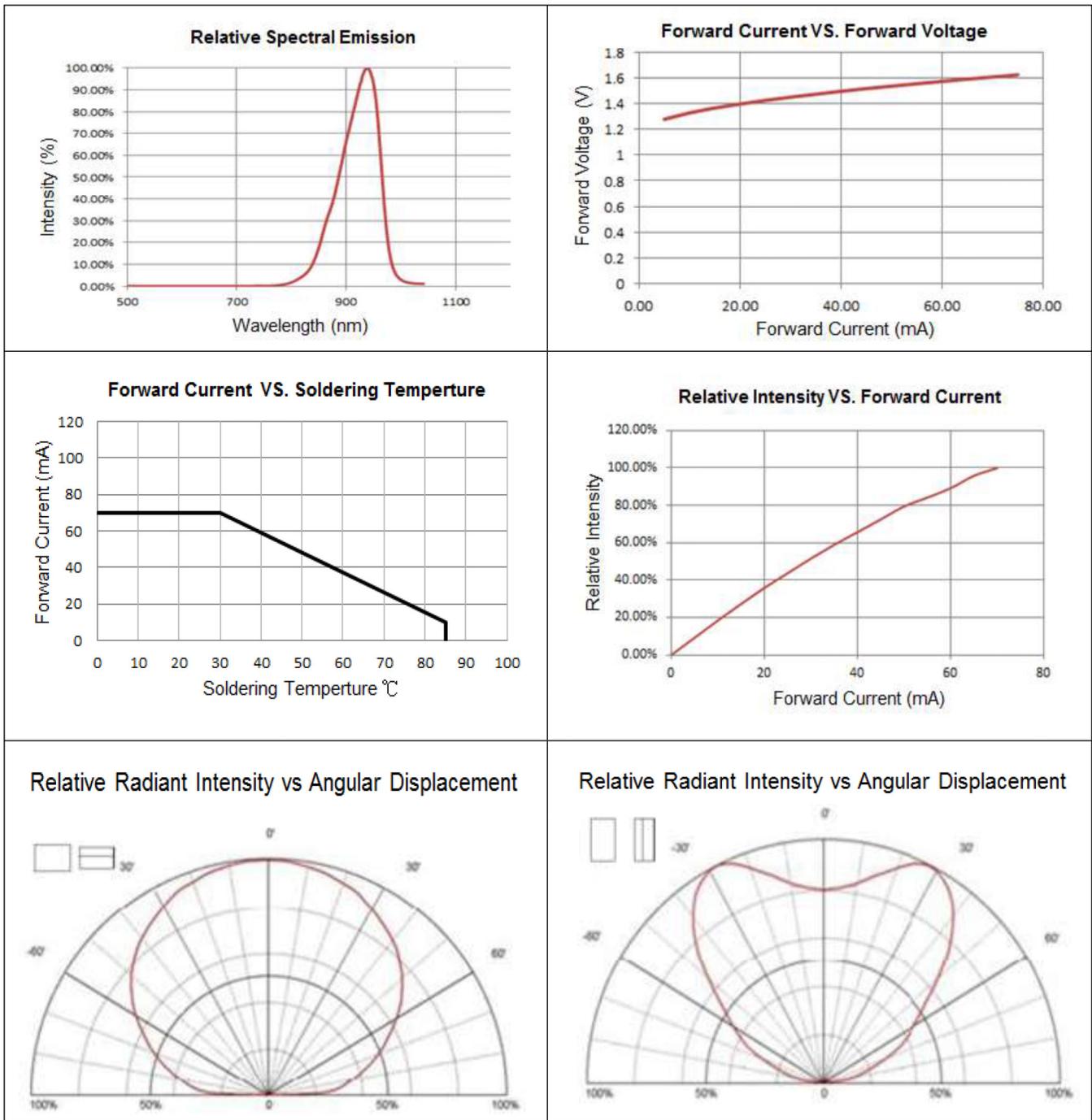
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

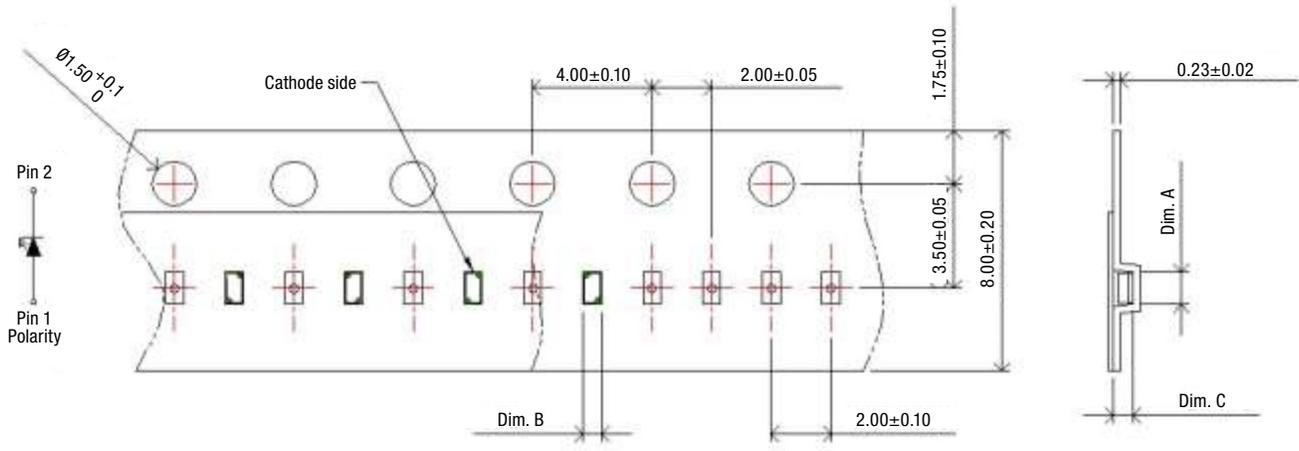
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=70mA$	4.0	4.5	7.5	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=70mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=70mA$		42	-	nm
$V_F$	Forward Voltage	$I_F=70mA$	1.4	-	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	Angle of Half Intensity (X)	$I_F=70mA$	-	140	-	deg
	Angle of Half Intensity (Y)		-	140	-	

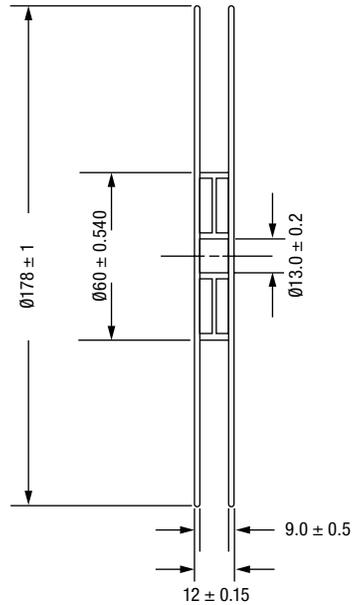
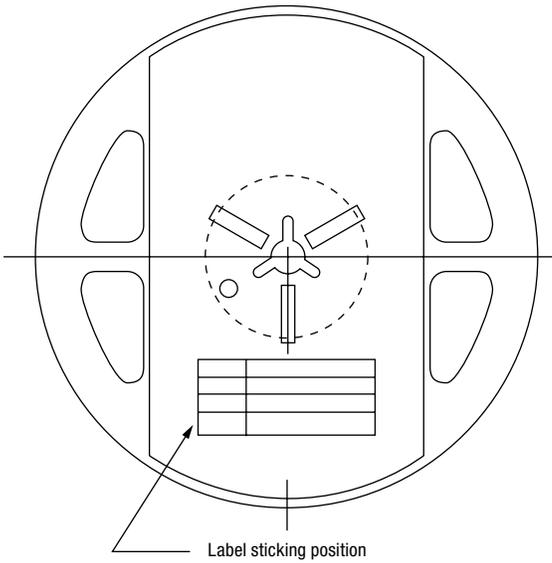
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.10±0.05	0.60±0.05	0.66±0.05	4K



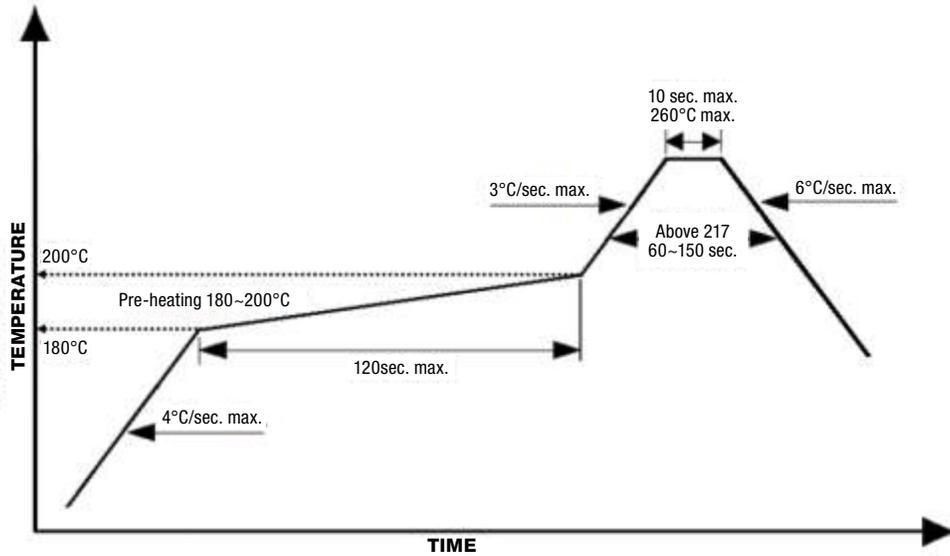
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 220°C, 60 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
0402 Package Side View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-1GC0-147IRF](#)

DIMENSIONS:  
1.0 x 0.55 x 0.3mm

LENS COLOR:  
Clear

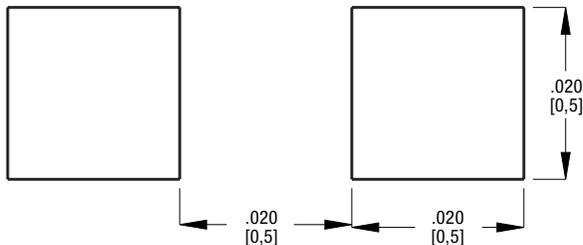
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

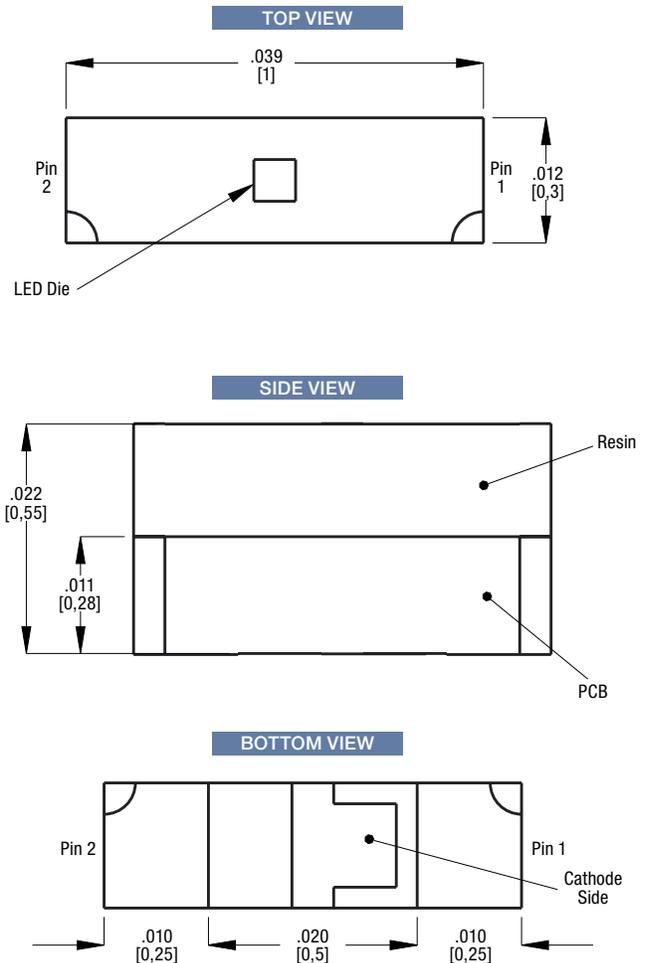
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	50	mA	
$I_{FP}$	Peak Current	250	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

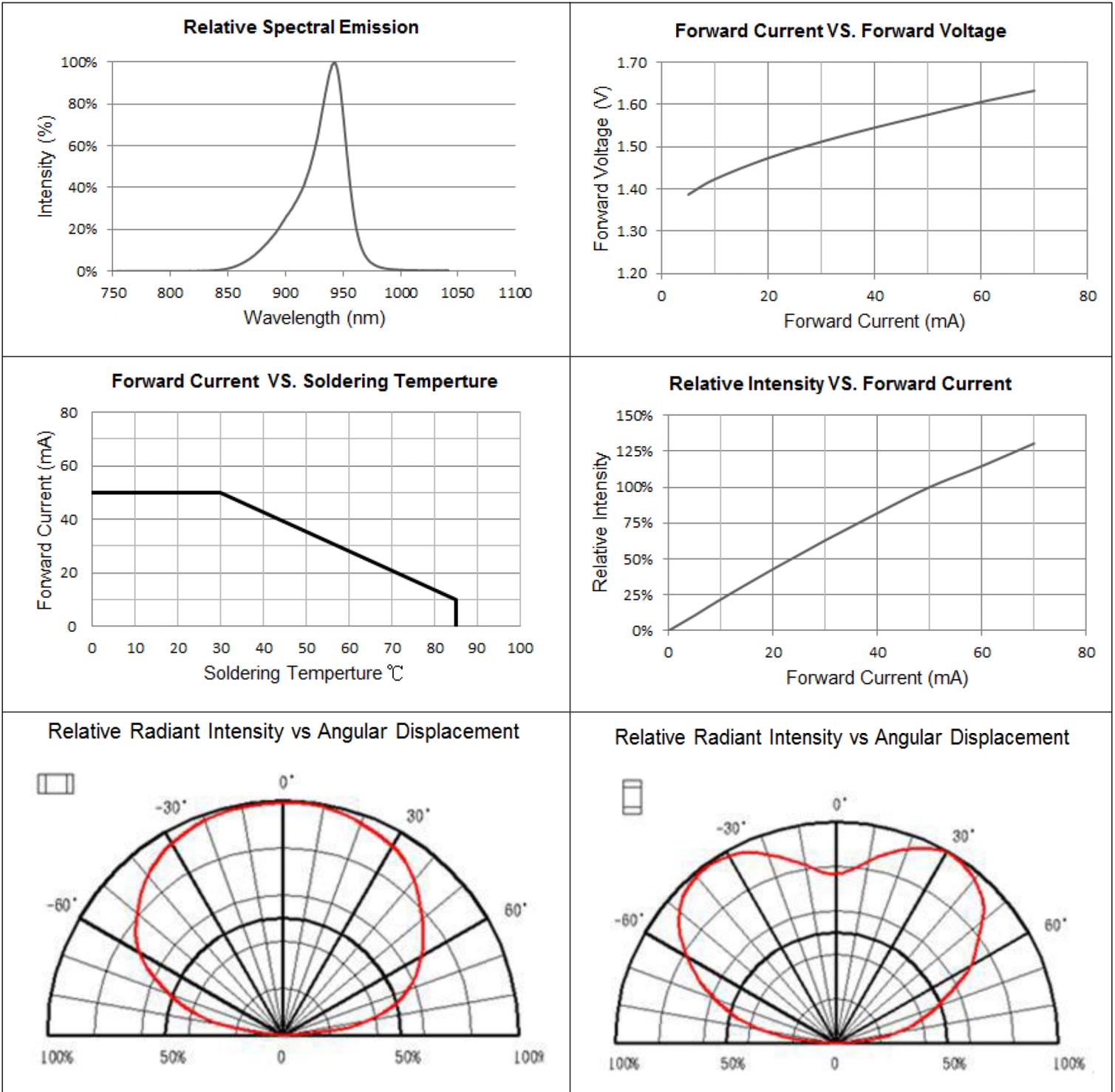
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

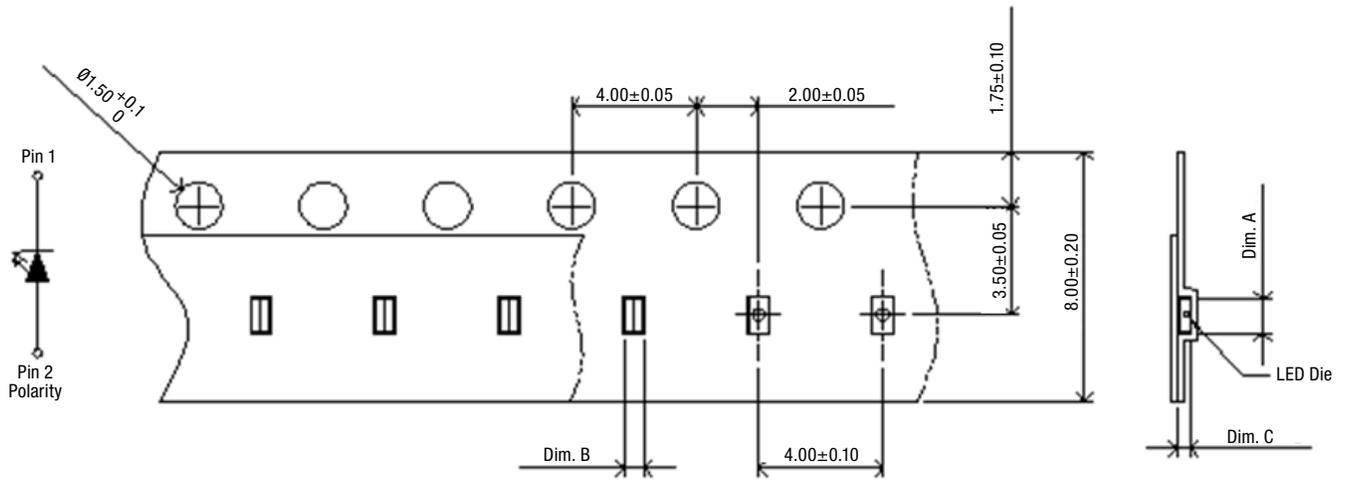
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=50mA$	3	-	7.5	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=50mA$	920	940	960	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=50mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=50mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=50mA$	-	140	-	deg
	Angle of Half Intensity (Y)		-	140	-	

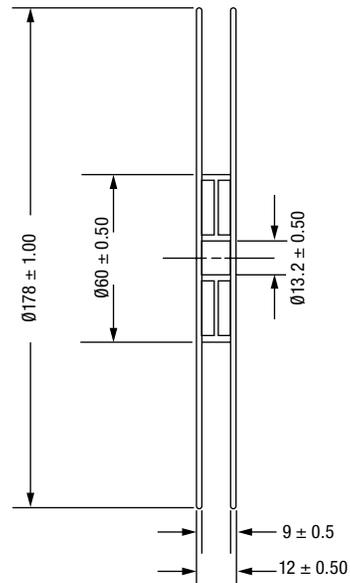
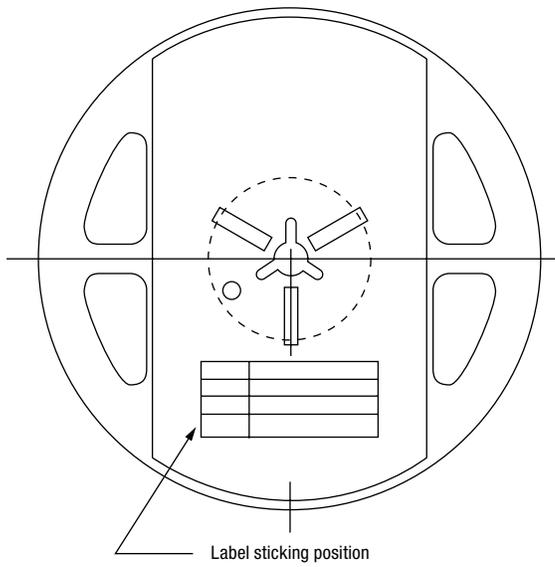
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.20±0.05	0.65±0.05	0.42±0.05	4K



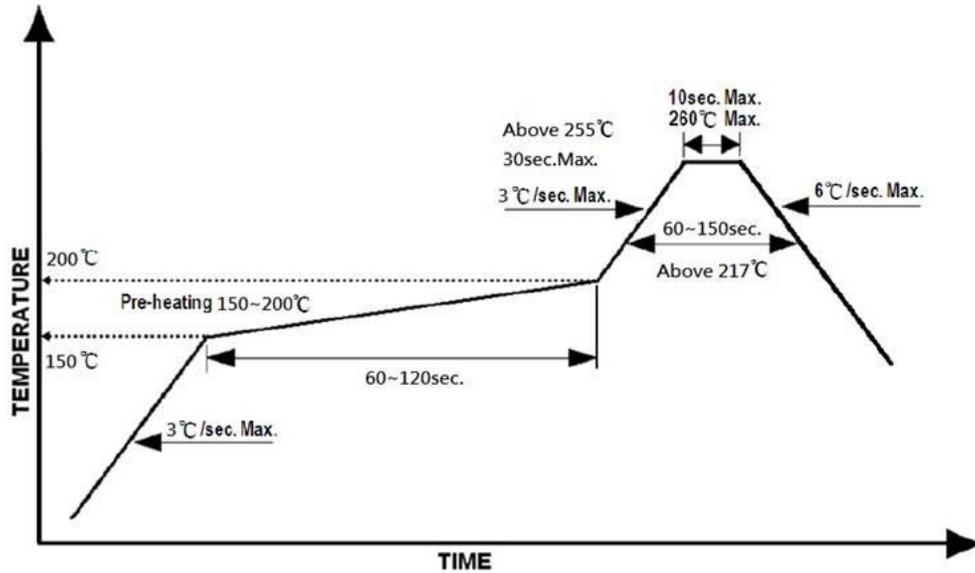
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
0402 Package Side View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-3GA0-147IRF](#)

DIMENSIONS:  
1.0 x 0.55 x 0.3mm

LENS COLOR:  
**Black**

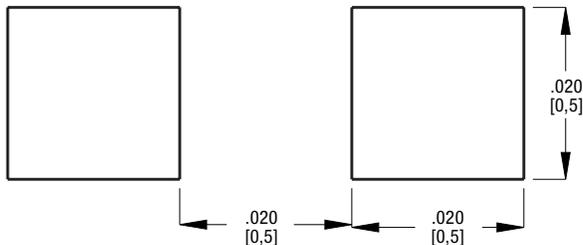
LENS MATERIAL:  
**Epoxy**

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

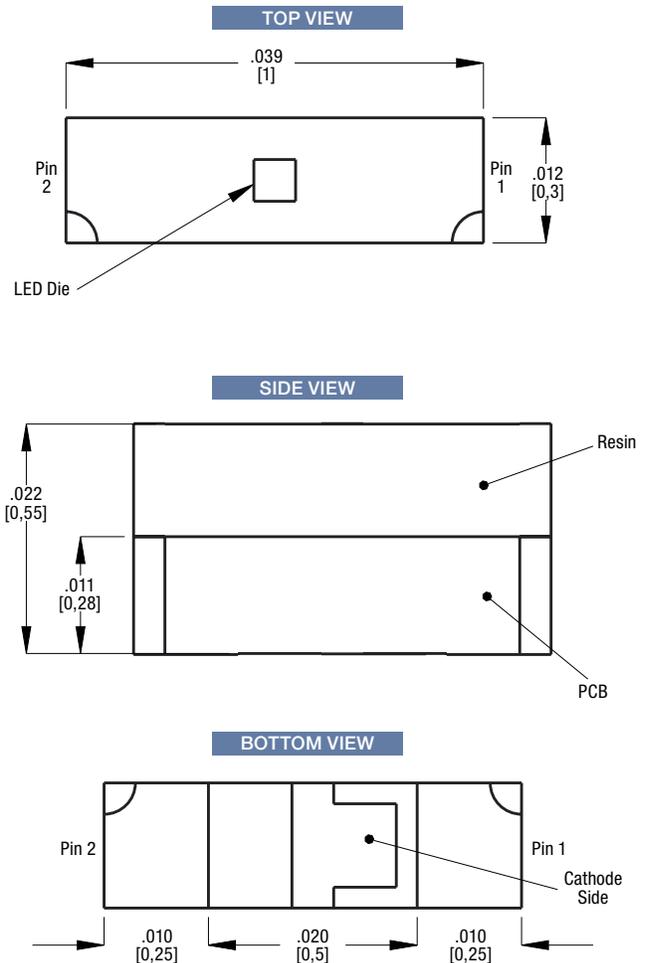
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS** inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	50	mA	
$I_{FP}$	Peak Current	250	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

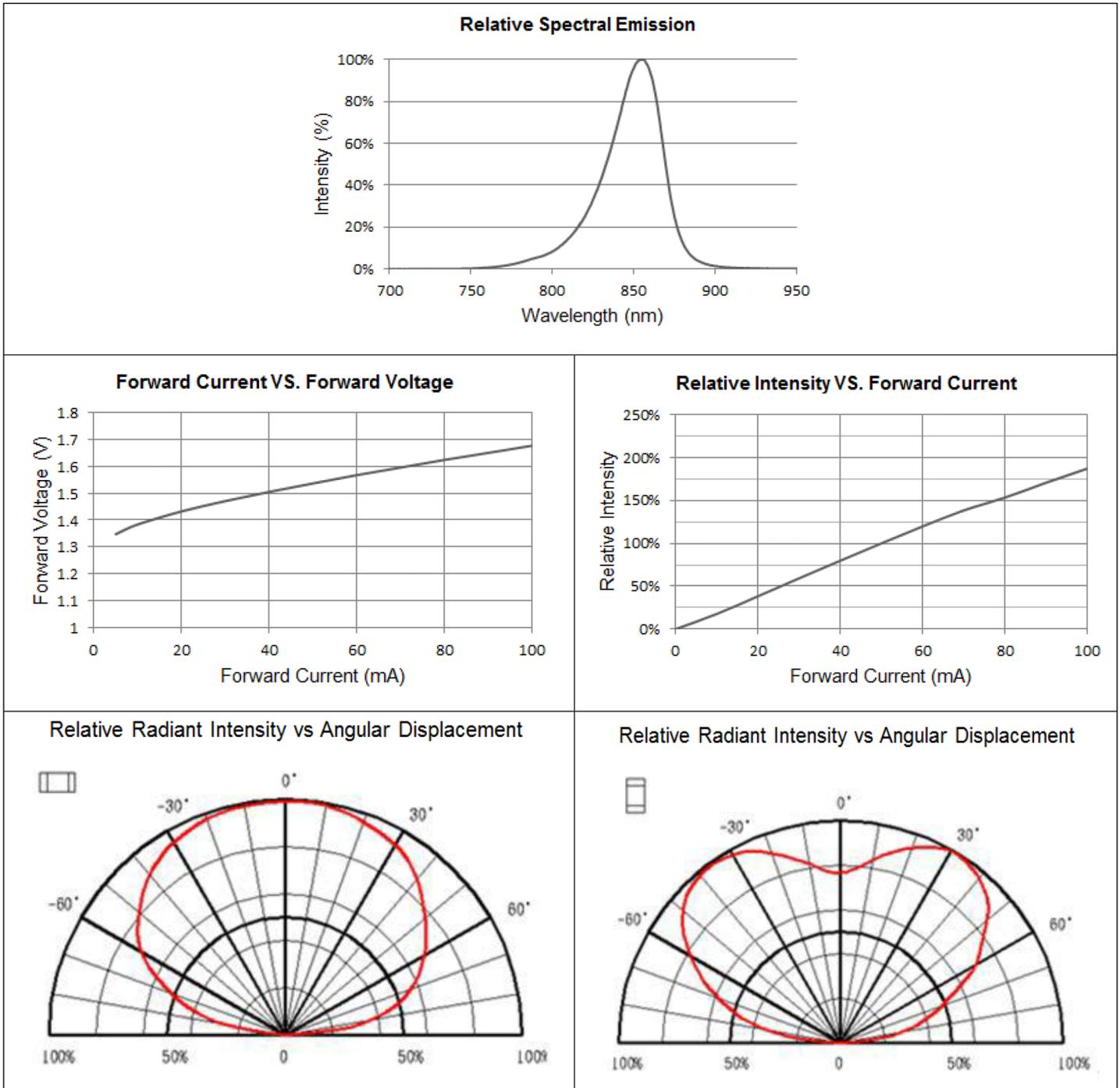
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

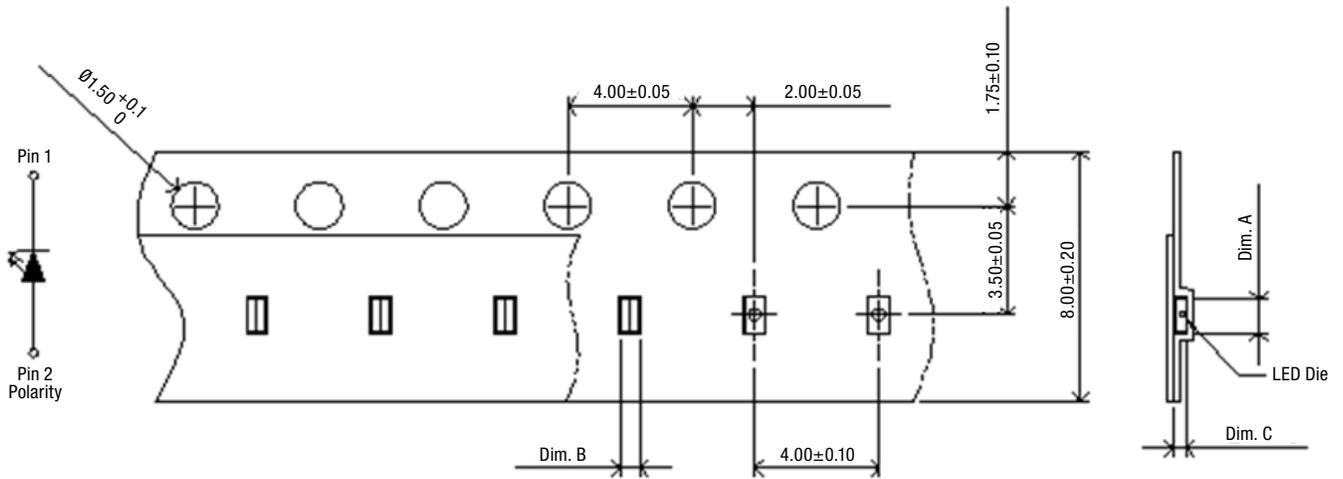
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=50mA$	4	-	7.5	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=50mA$	830	850	870	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=50mA$		40	-	nm
$V_F$	Forward Voltage	$I_F=50mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=50mA$	-	140	-	deg
	Angle of Half Intensity (Y)		-	140	-	

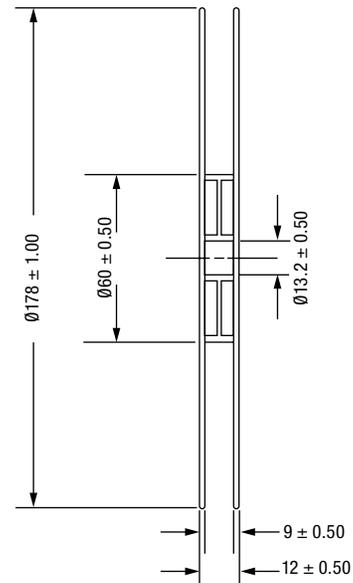
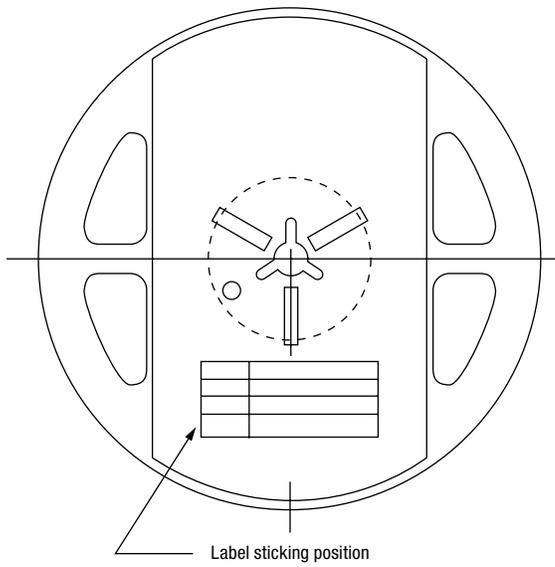
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.20±0.05	0.65±0.05	0.42±0.05	4K



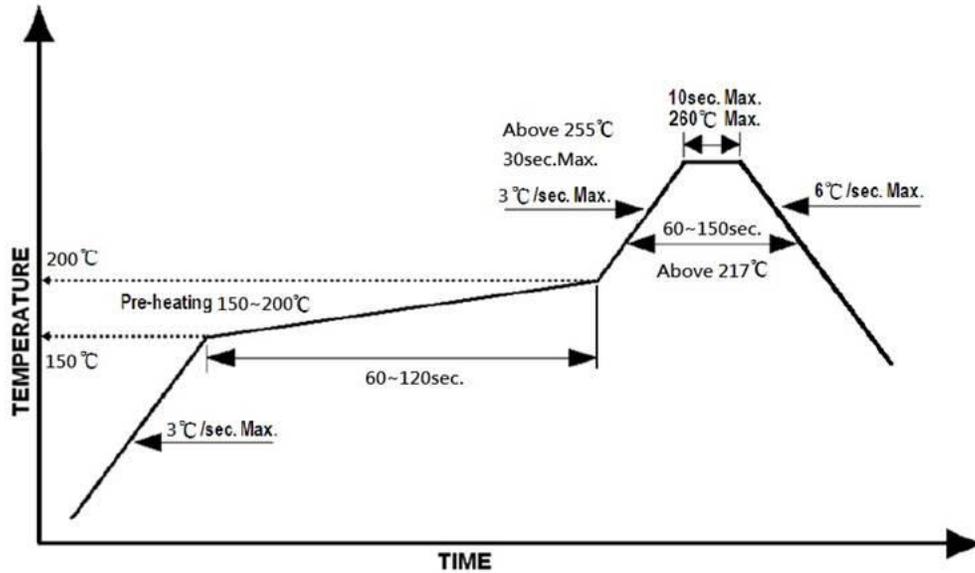
Unit: mm

### REFLOW SOLDERING

Recommended soldering paste specifications:

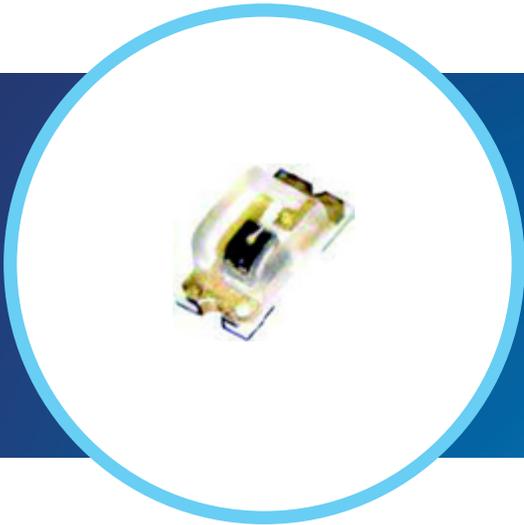
1. Operating temp.: Above 217°C, 60~150 sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

### LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
0603 Package Top View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-10A0-147IRF](#)

DIMENSIONS:  
1.6 x 0.8 x 0.66mm

LENS COLOR:  
Clear

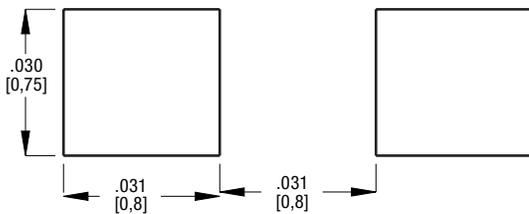
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

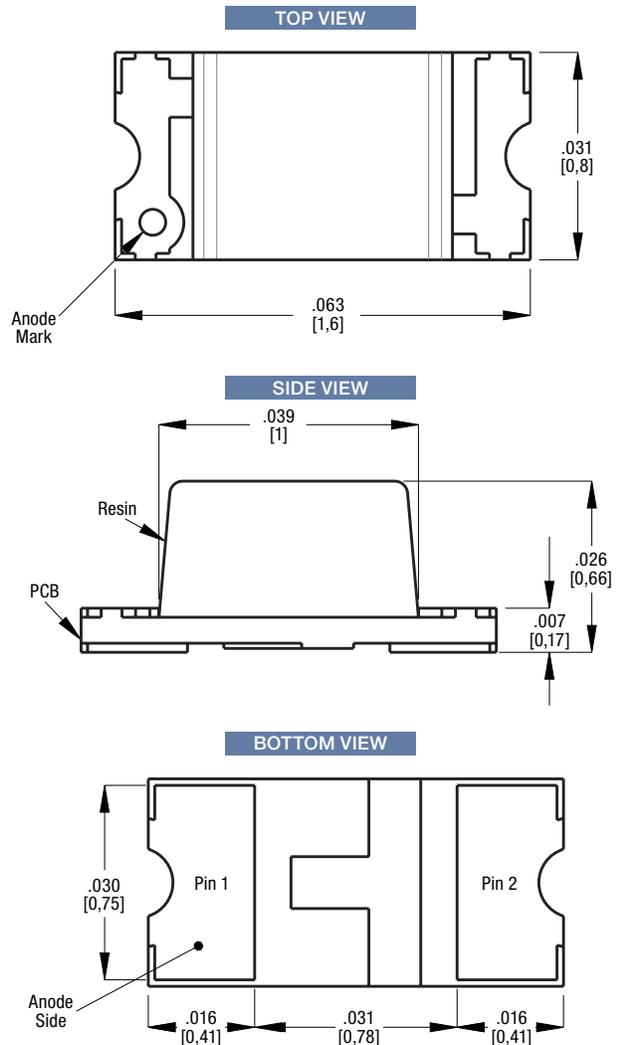
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

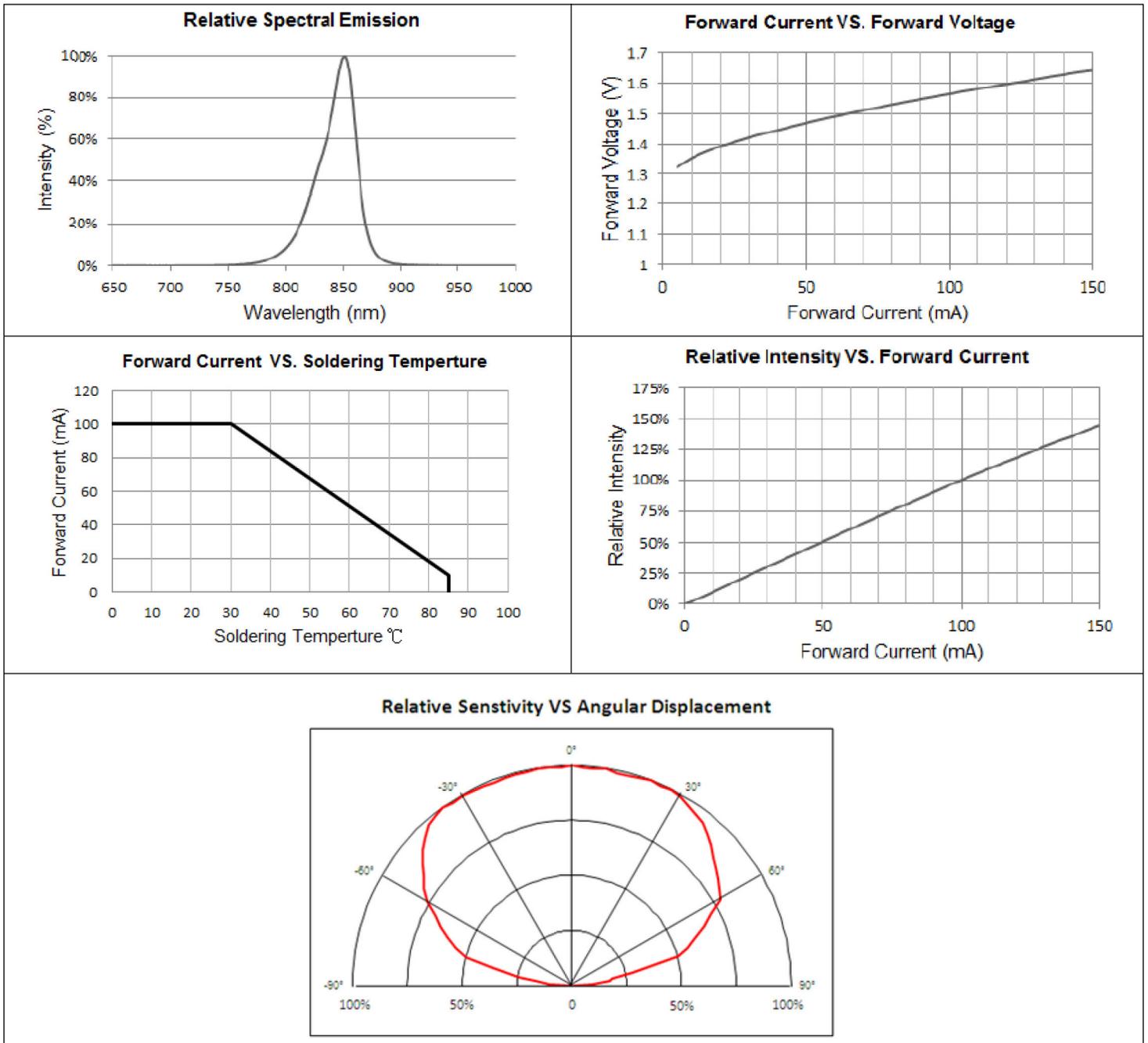
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

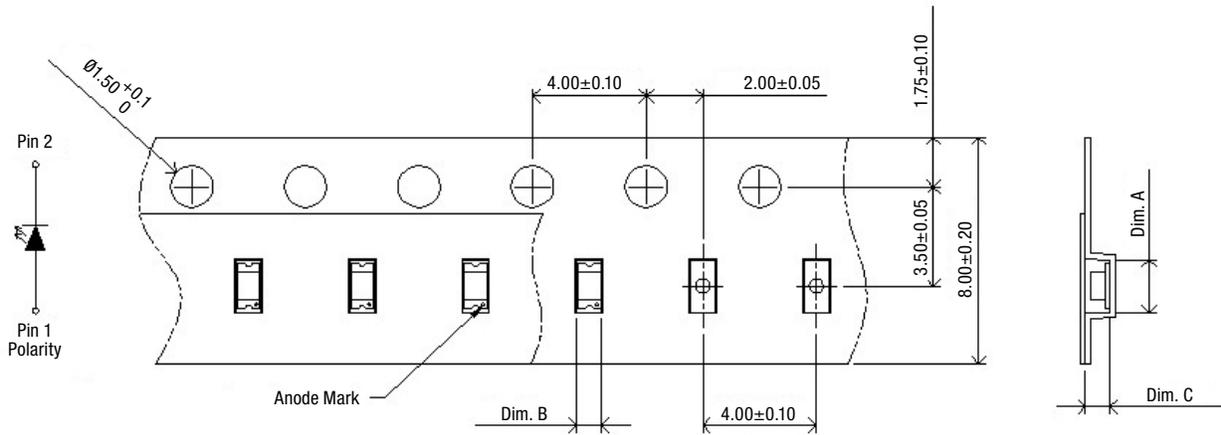
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=100mA$	7.5	8.45	12.5	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=100mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=100mA$	-	30	-	nm
$V_F$	Forward Voltage	$I_F=100mA$	1.2	-	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity	$I_F=100mA$	-	140	-	deg

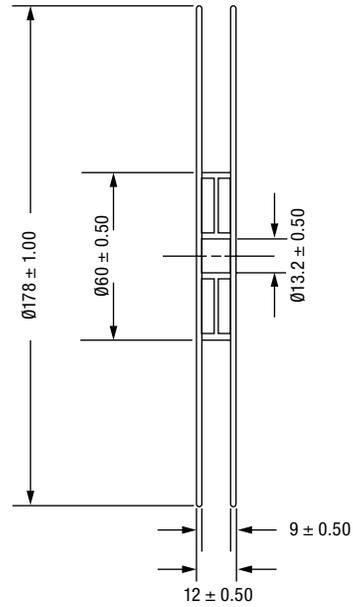
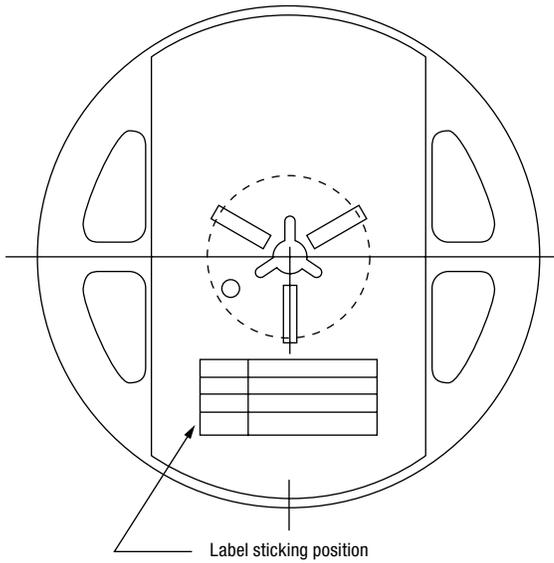
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.85±0.05	0.88±0.05	0.85±0.05	4K



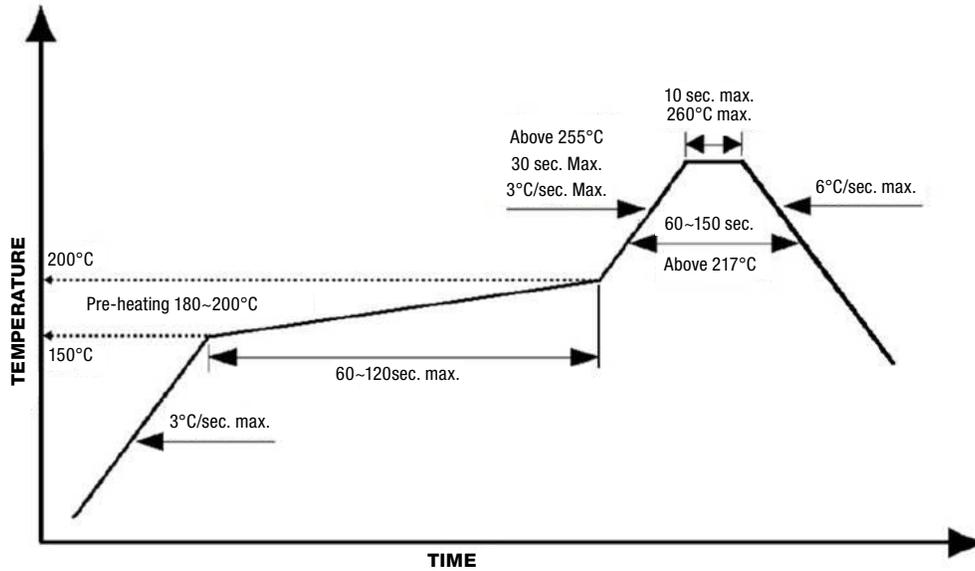
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

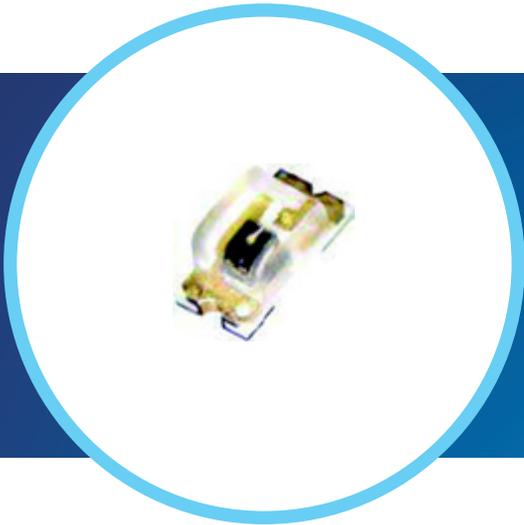
- 1. Operating temp.: Above 217°C, 60~150 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
0603 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-10C0-147IRF](#)

DIMENSIONS:  
1.6 x 0.8 x 0.66mm

LENS COLOR:  
Clear

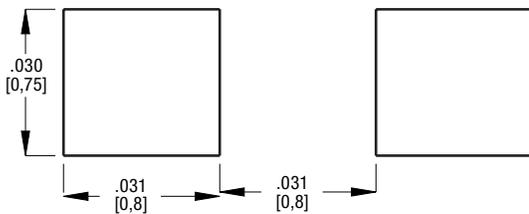
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

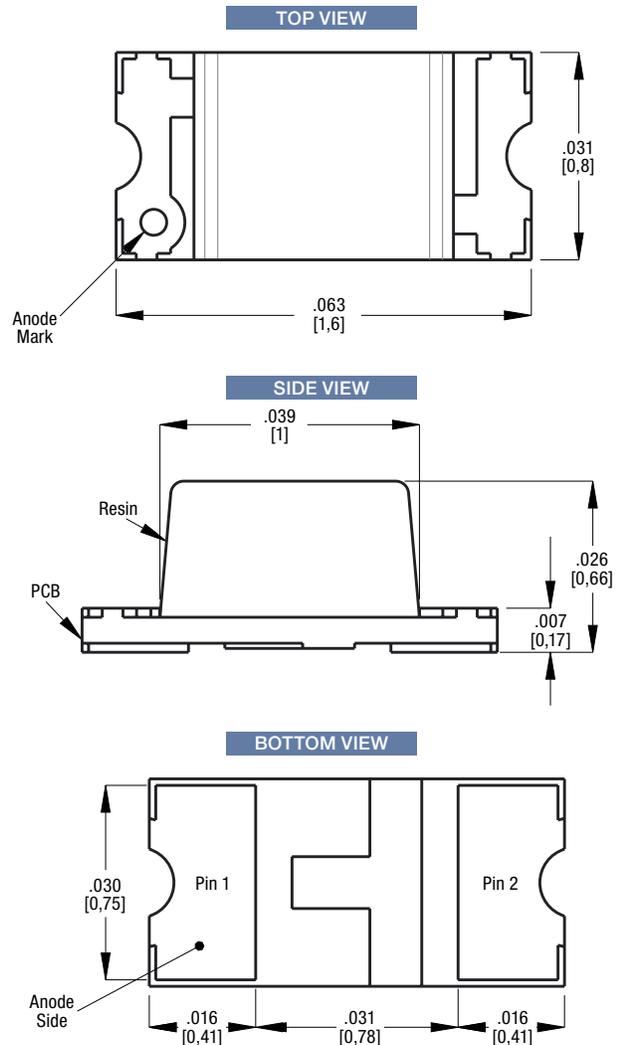
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

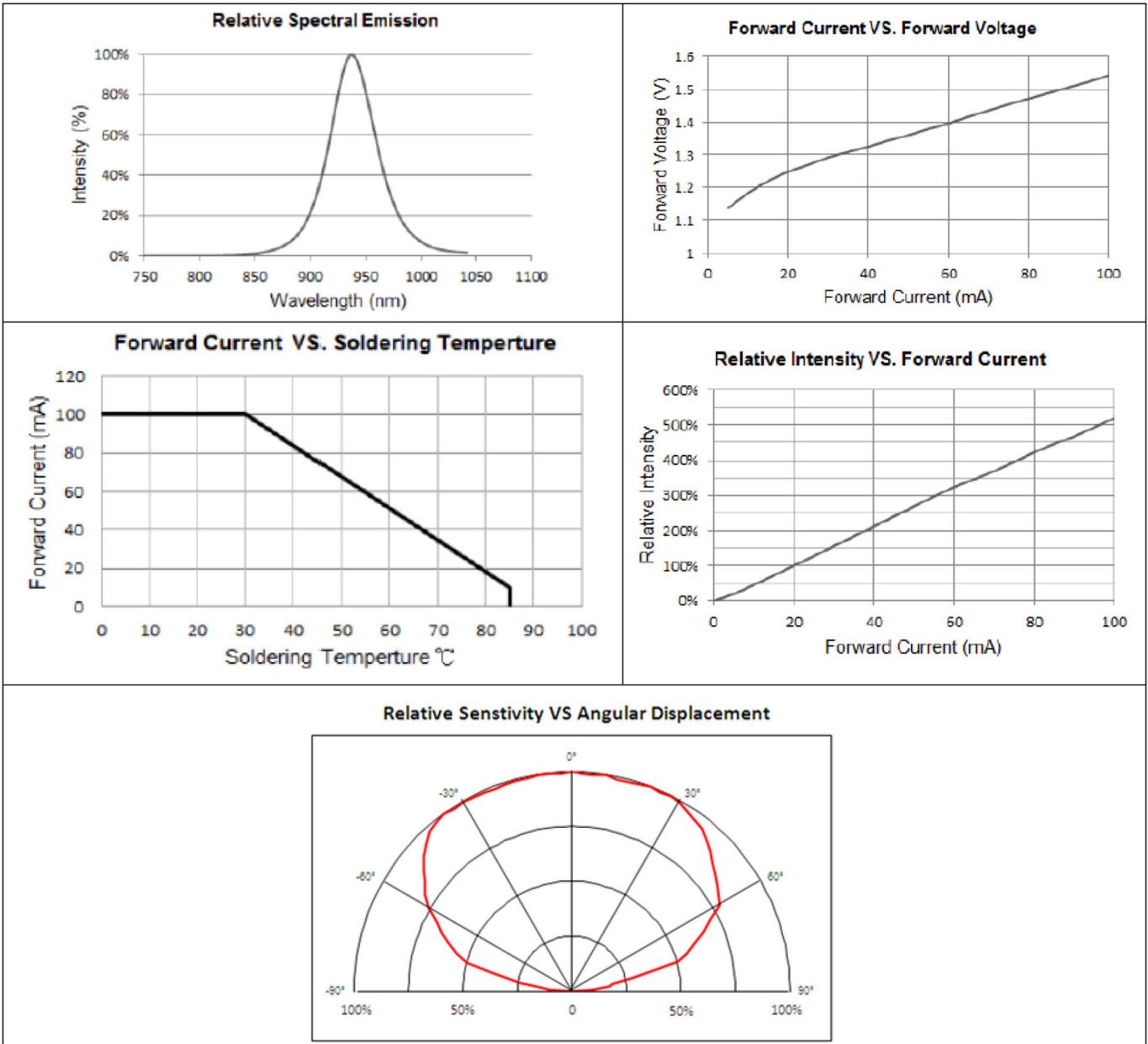
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

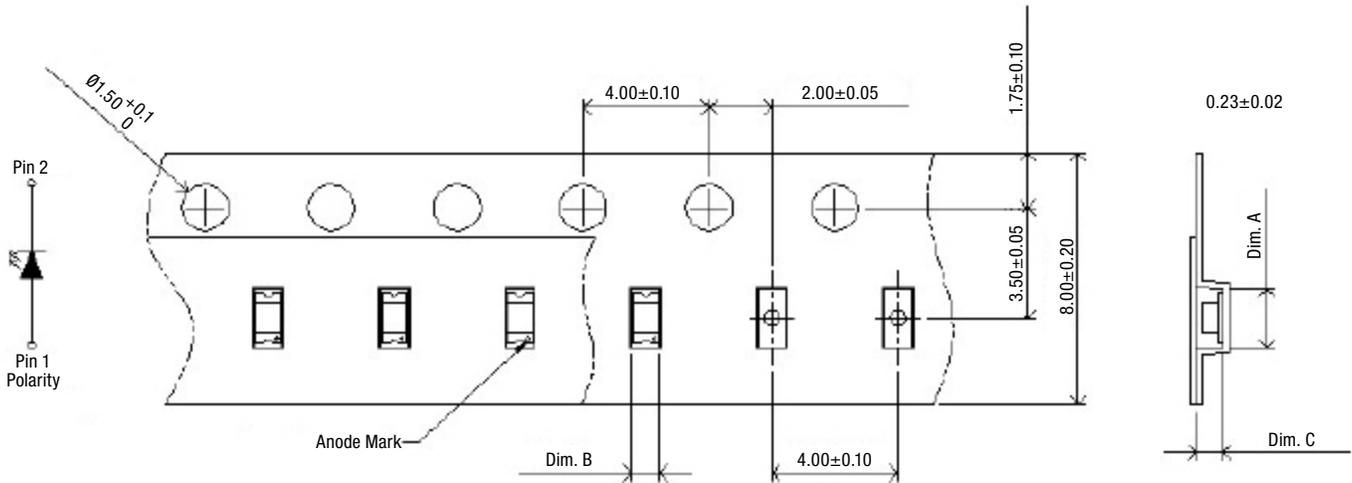
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	1	-	4	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=20mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity	$I_F=20mA$	-	140	-	deg

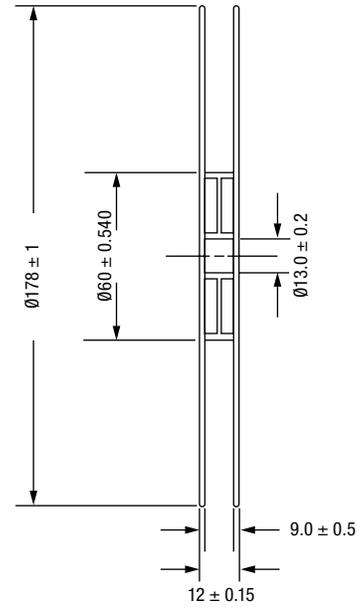
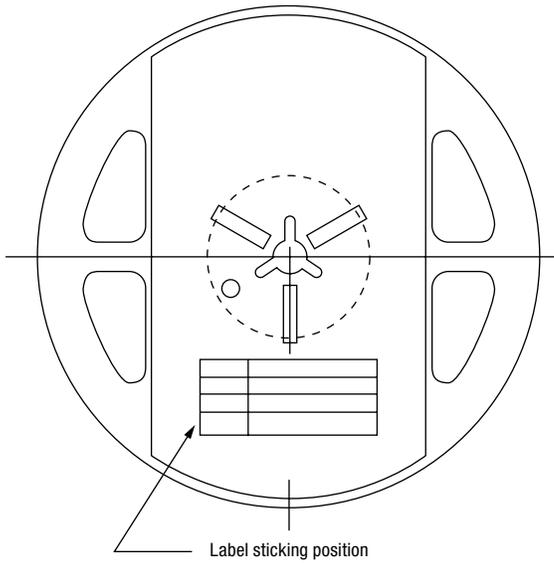
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.85±0.05	0.88±0.05	0.85±0.05	4K



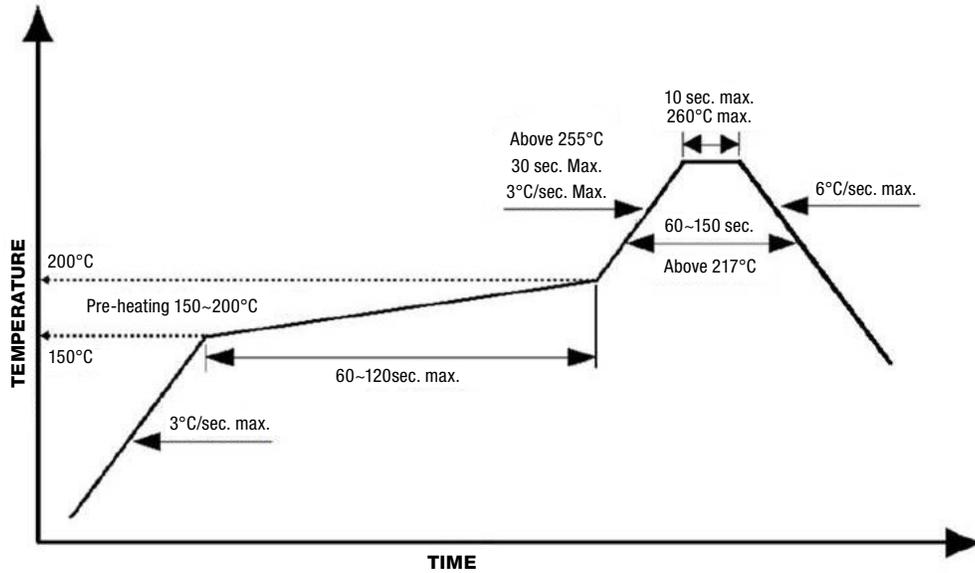
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
0603 Package Top View 850nm  
With Dome Lens

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-17A0-147IRE](#)

DIMENSIONS:  
1.6 x 0.8 x 0.95mm

LENS COLOR:  
Clear

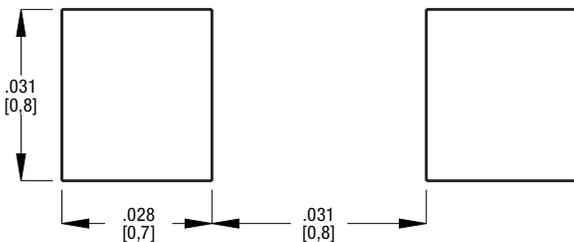
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

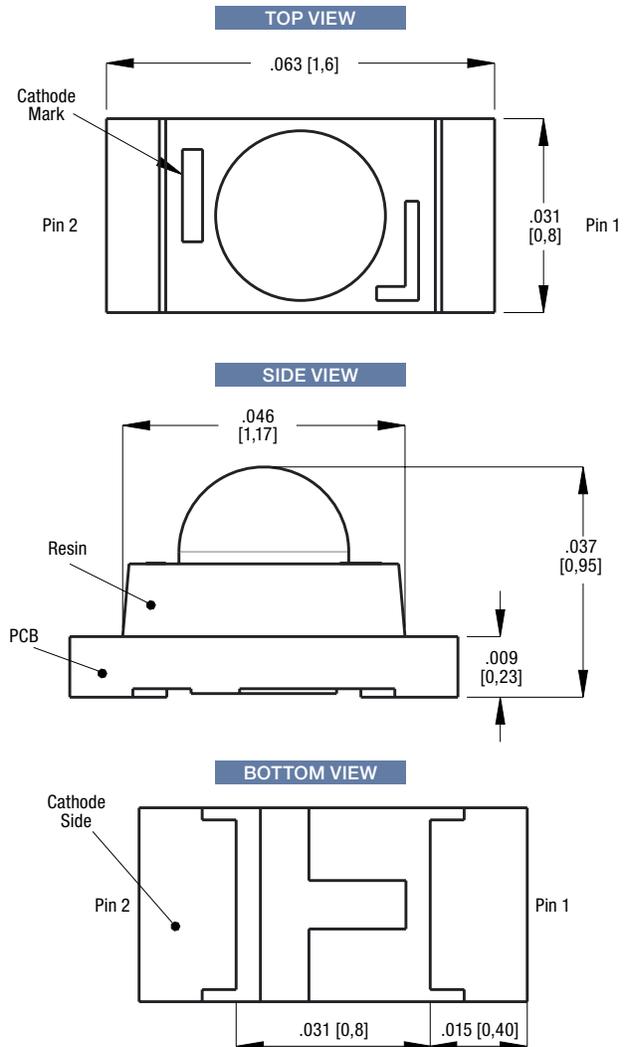
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2
$P_d$	Total Power Dissipation	130	mW	

Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

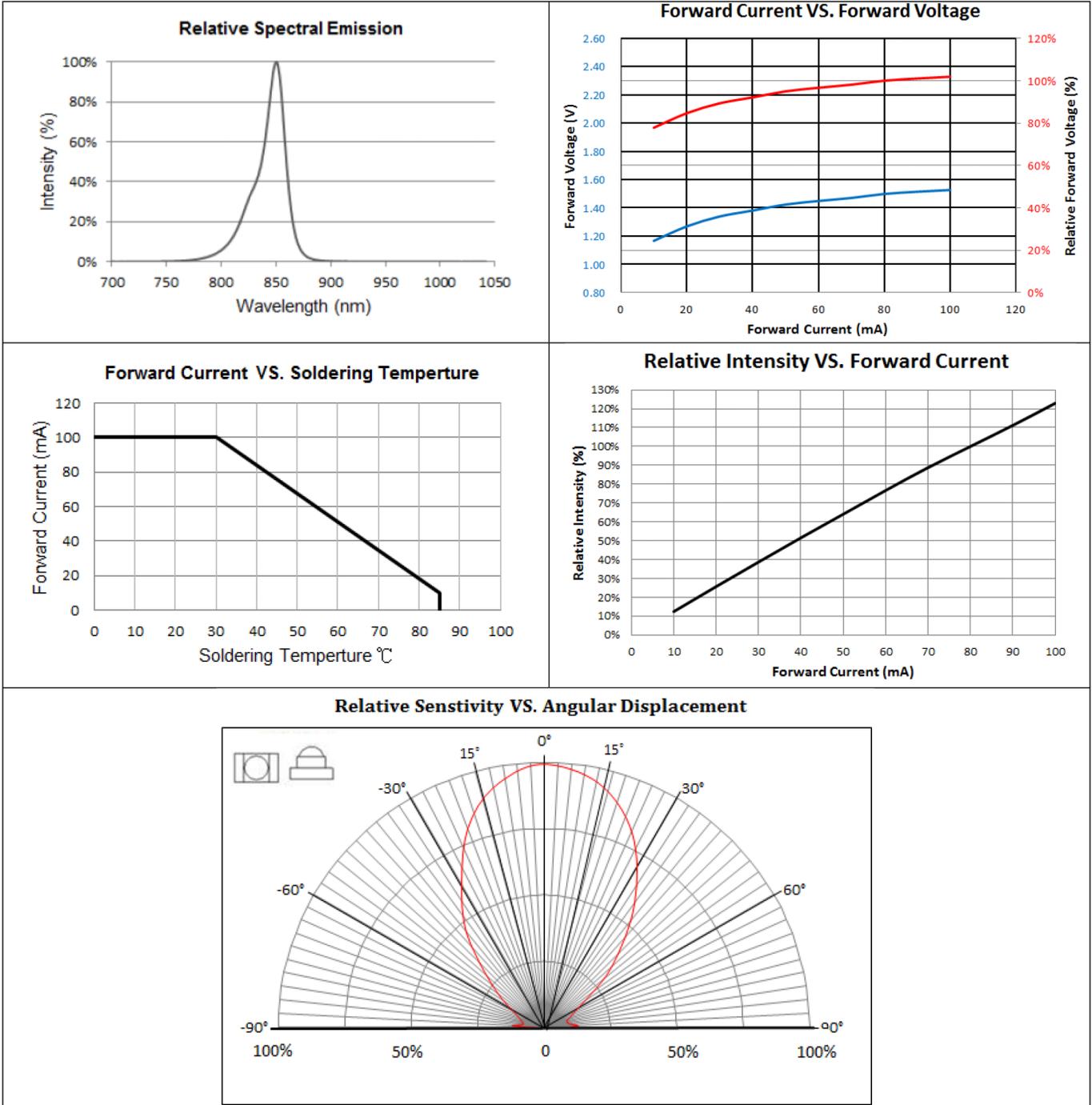
ELECTRICAL - OPTICAL CHARACTERISTICS AT 25°C

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=80mA^*$	22	25	30	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=80mA^*$	842	850	858	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=80mA^*$	30	35	40	nm
$V_F$	Forward Voltage	$I_F=80mA^*$	1.2	-	2.0	V
$I_R$	Reverse Current	$V_R=5V^{**}$	-	-	10	$\mu A$
$TC_I$	Temperature Coefficient of $\lambda_p$	$I_F=80mA^{**}$	-	0.33	-	nm/K
$TC_V$	Temperature Coefficient of Radiant Power	$I_F=80mA^{**}$	-	-0.34	-	%/K
$TC_A$	Temperature Coefficient of Voltage	$I_F=80mA^{**}$	-	-2.3	-	mV/K
Rth	Thermal Resistance	$I_F=80mA^{**}$		178		K/W
$2\theta_{1/2}$	View Angle	$I_F=80mA^*$	-	80	-	deg

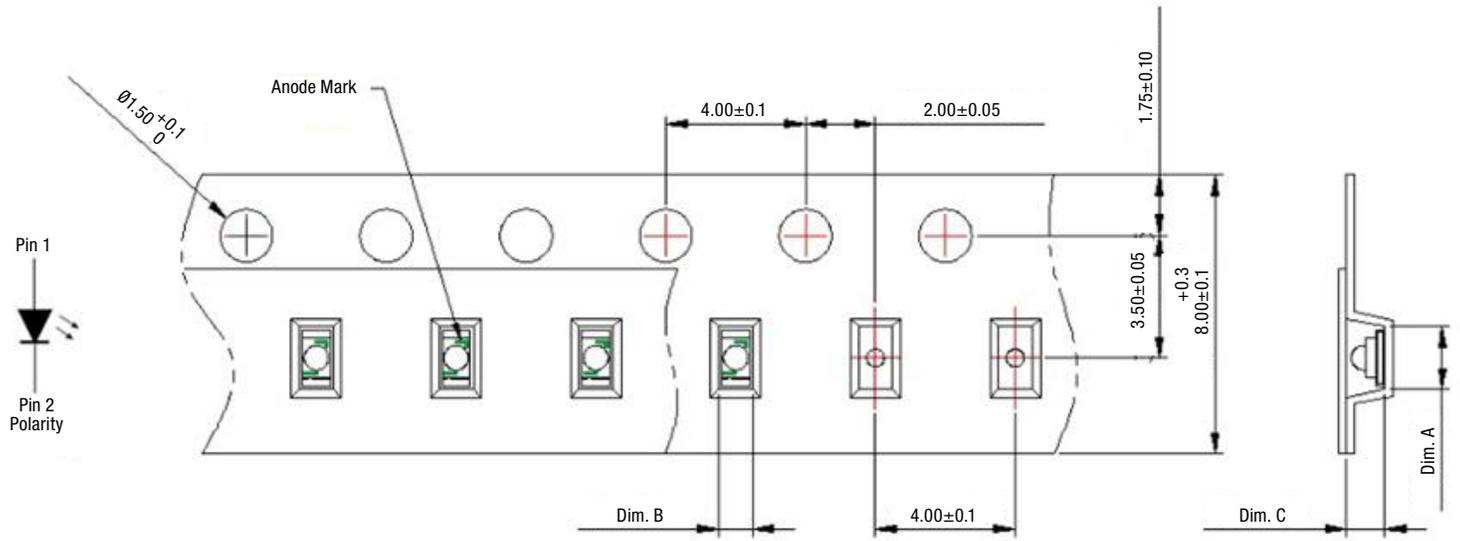
\* $I_F=80$  mA, pulse width,  $t_p=2$  ms. Frequency at 90 Hz. Ambient temp  $T_{Amb}=25^\circ C$ .

\*\*Test Conditions.

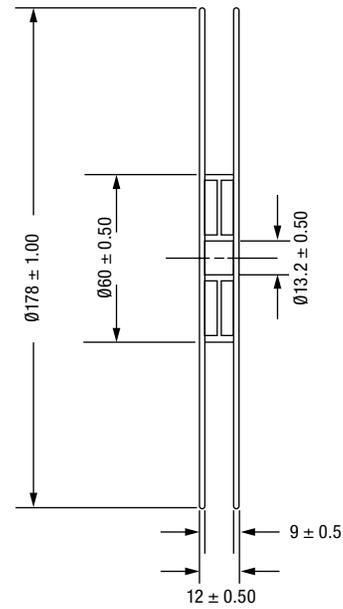
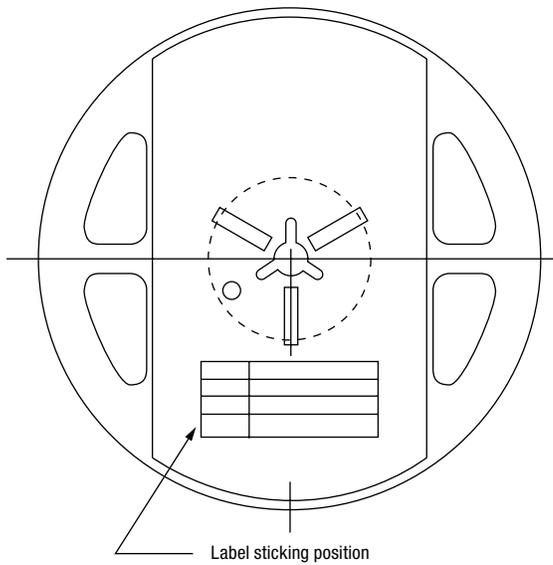
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.85±0.05	0.88±0.05	0.95±0.05	4K



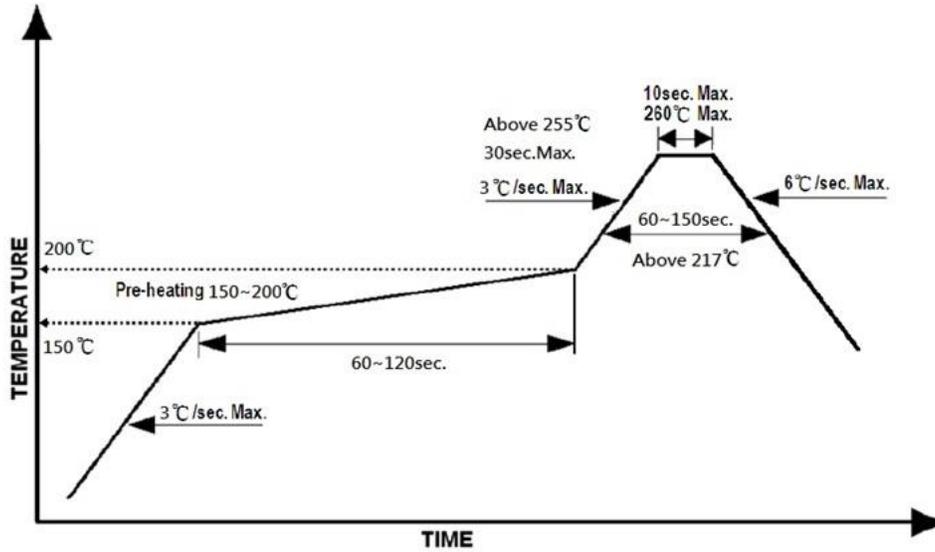
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



## 599 SERIES Infrared SMD LED

0603 Package Top View 940nm  
With Dome Lens

### MECHANICAL / SPECIFICATIONS

PART NUMBER:  
[599-17C0-147IRF](#)

DIMENSIONS:  
1.6 x 0.8 x 0.95mm

LENS COLOR:  
Clear

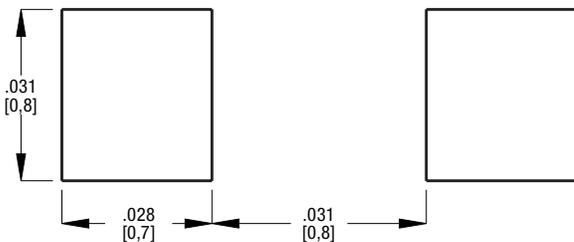
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

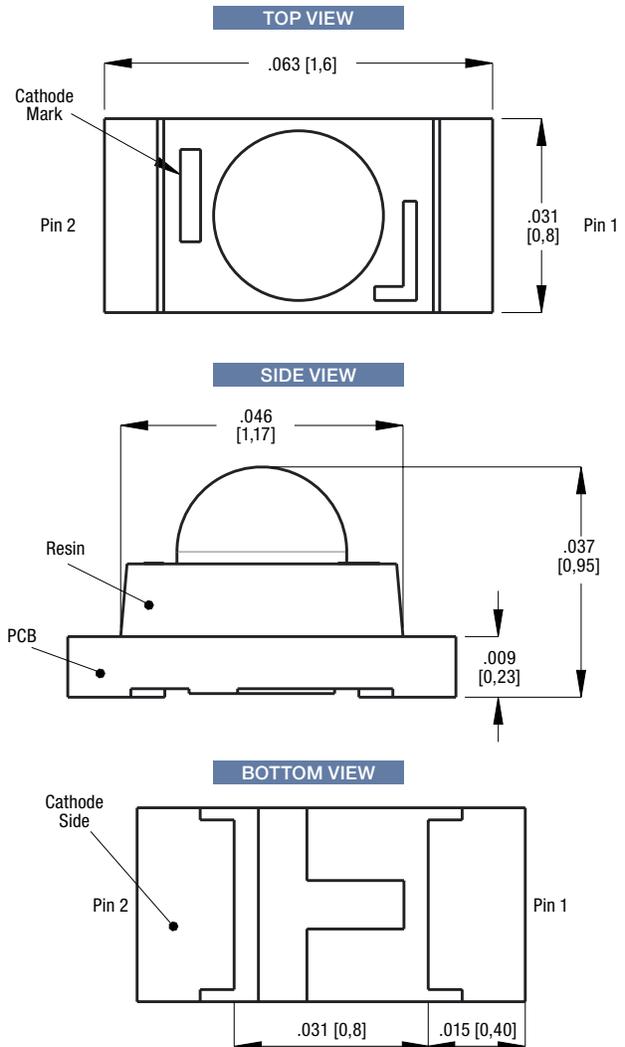
### RECOMMENDED PAD LAYOUT



### LED SCHEMATIC



### DIMENSIONS inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	50	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

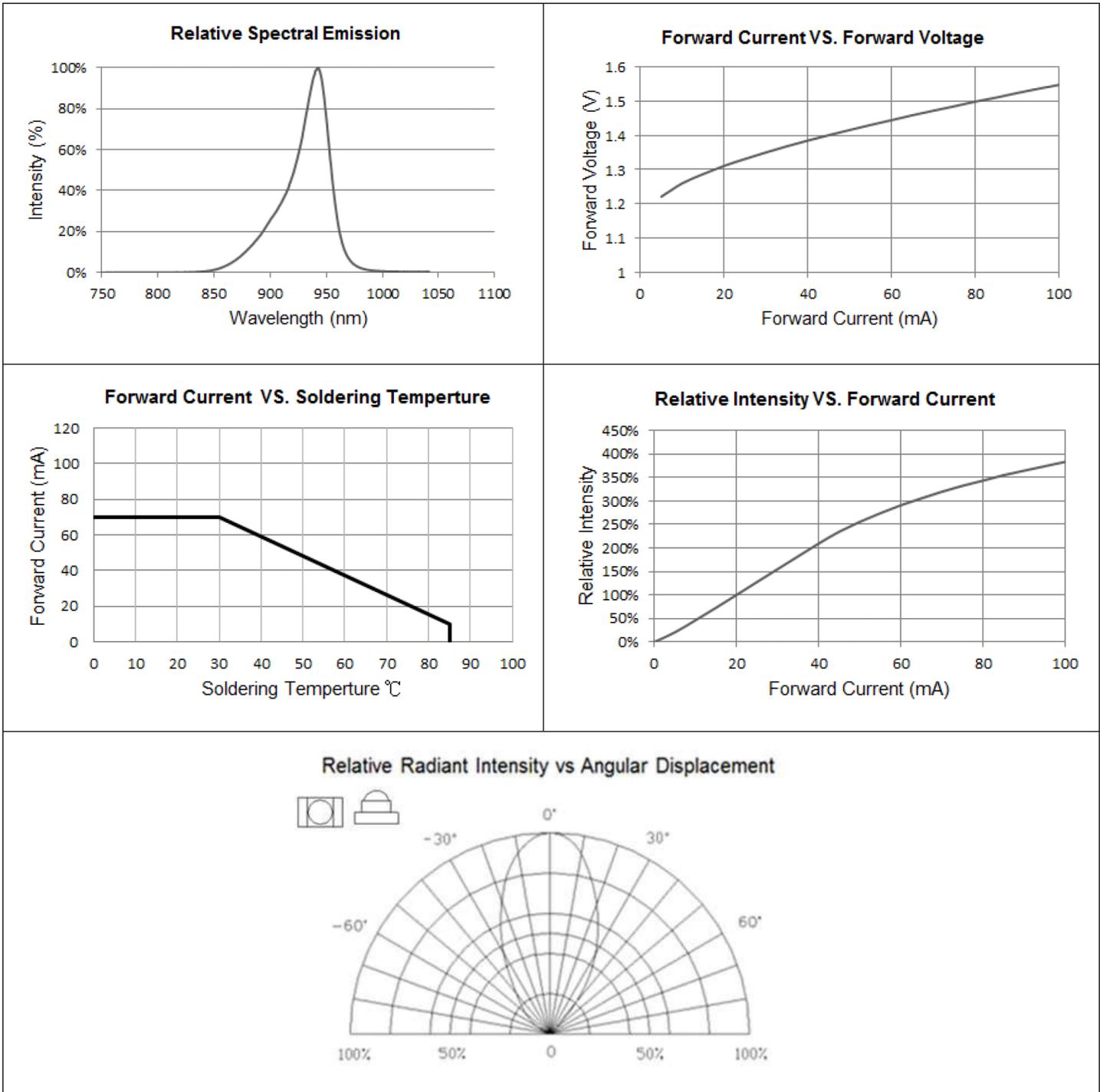
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

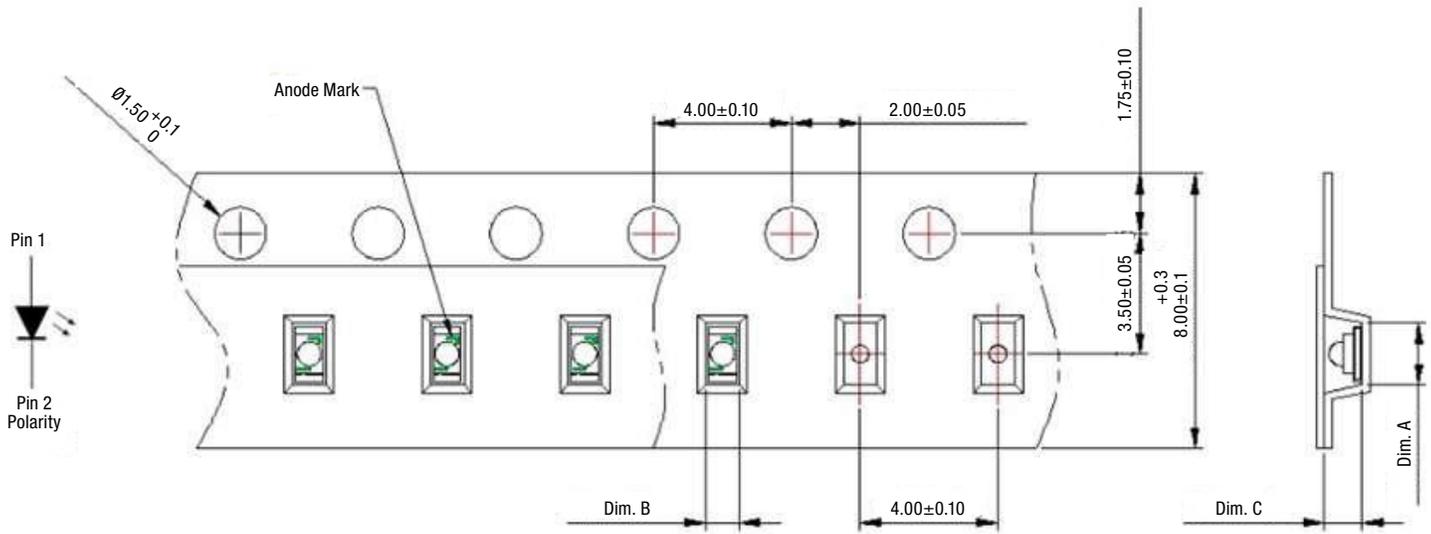
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	4.0	-	11.5	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=20mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=20mA$		33	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity	$I_F=20mA$	-	60	-	deg

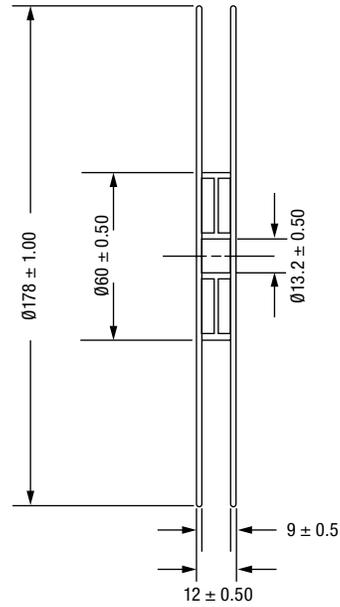
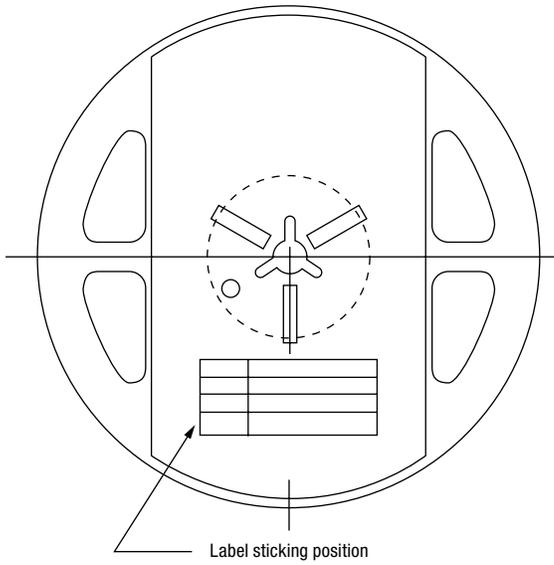
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.85±0.05	0.88±0.05	0.95±0.05	4K



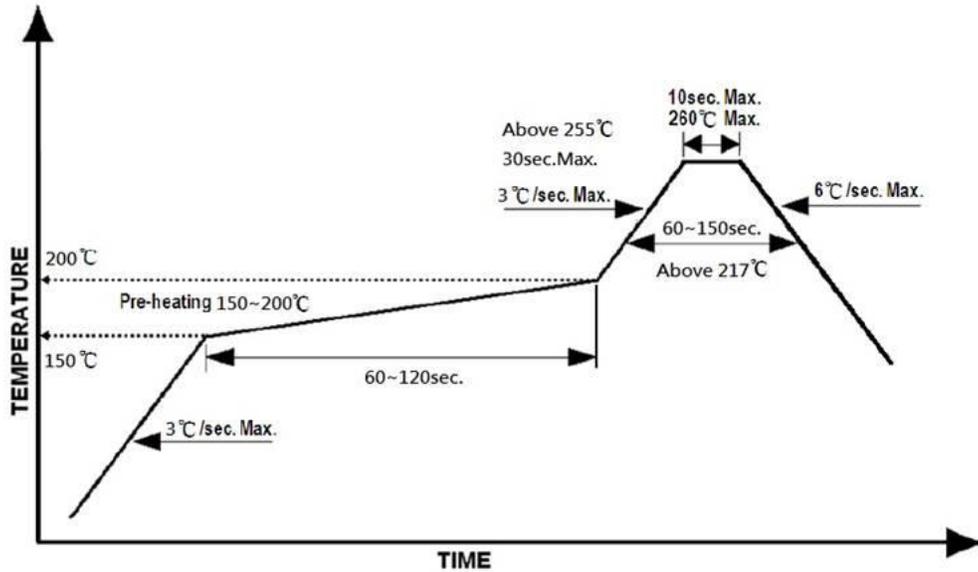
Unit: mm

### REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 217°C, 60~150sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

### LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
0805 Package Top View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-11A0-147IRF](#)

DIMENSIONS:  
2.0 x 1.3 x 0.8mm

LENS COLOR:  
Clear

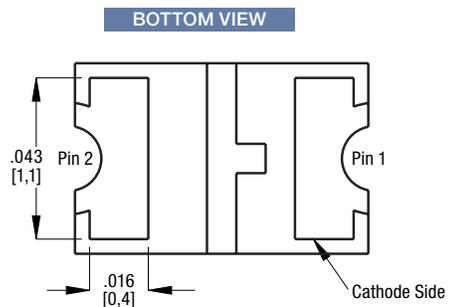
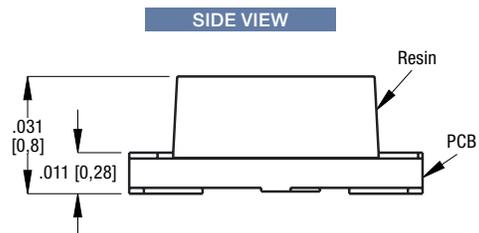
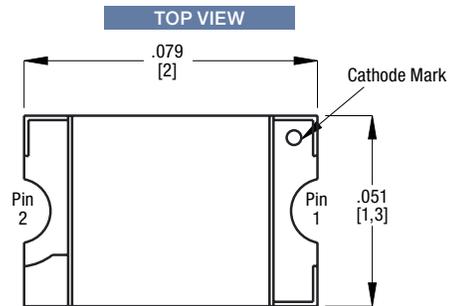
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

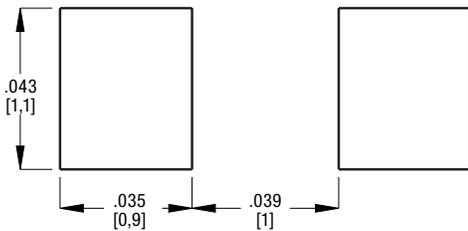
MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

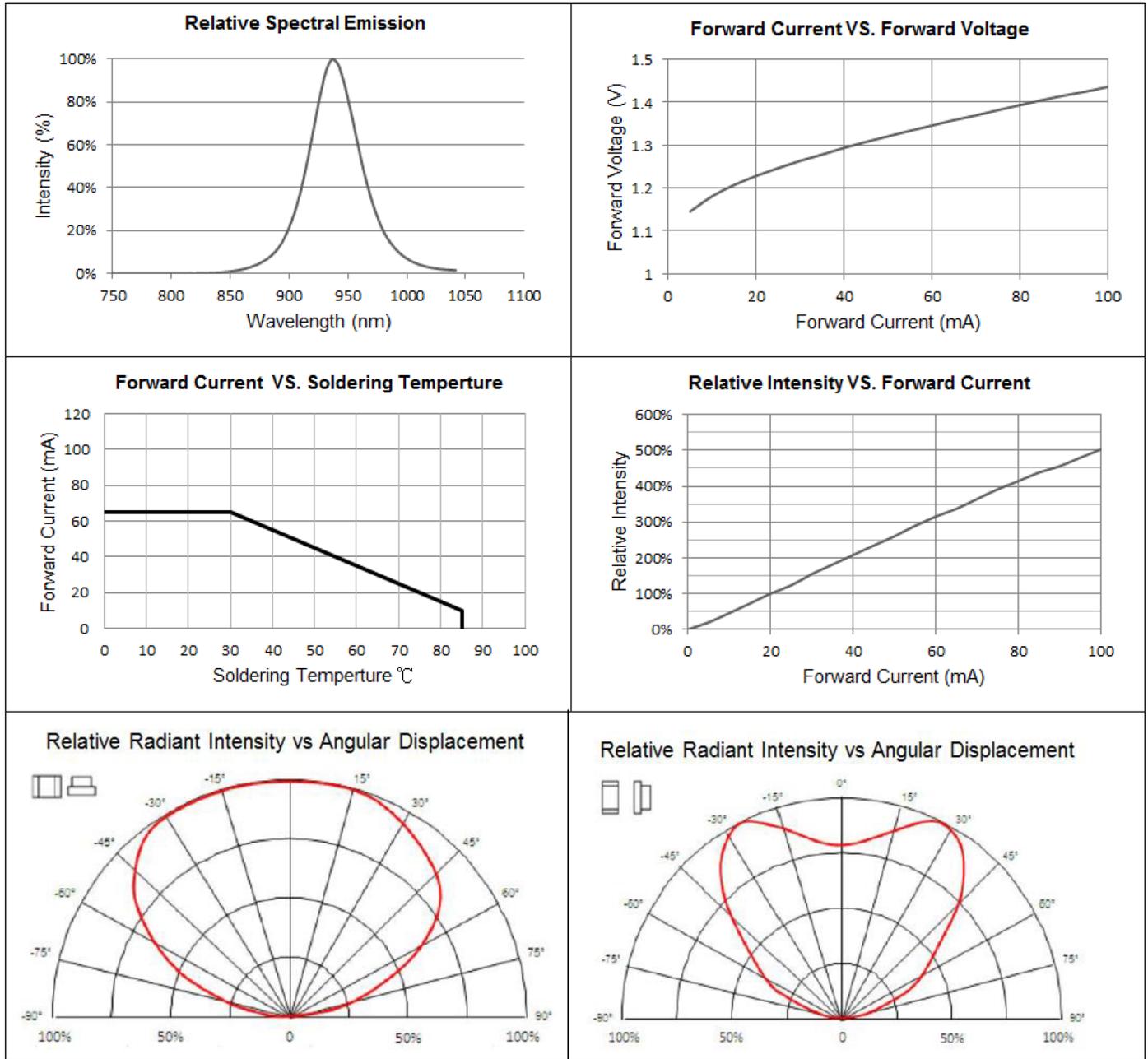
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

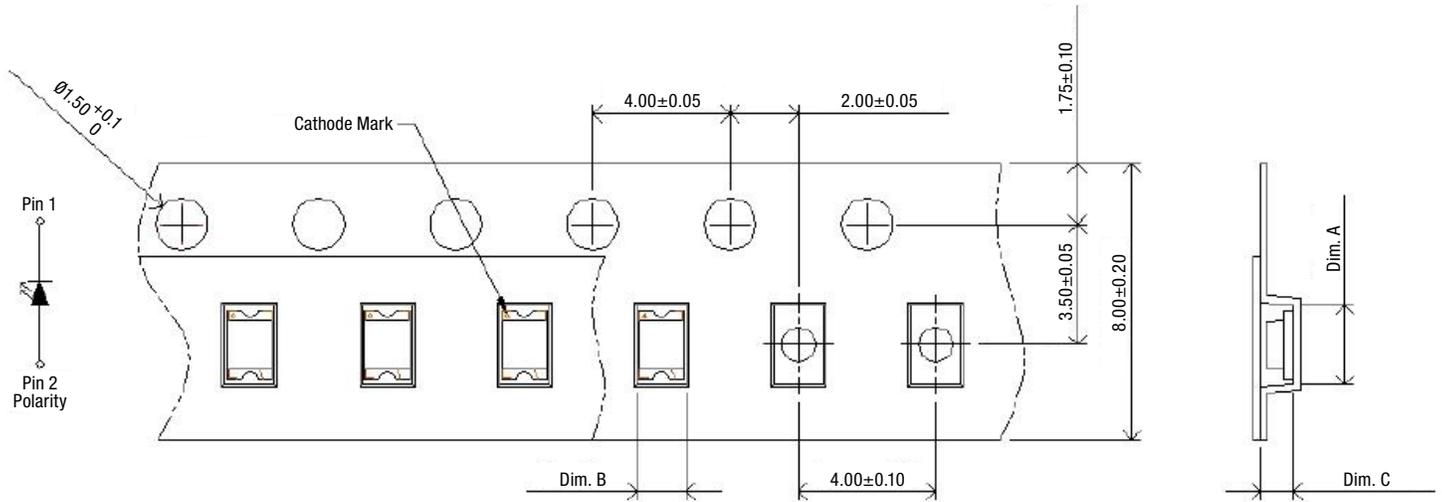
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	0.5	1.3	3	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=20mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=20mA$	-	50	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	Angle of Half Intensity	$I_F=20mA$	-	140	-	deg

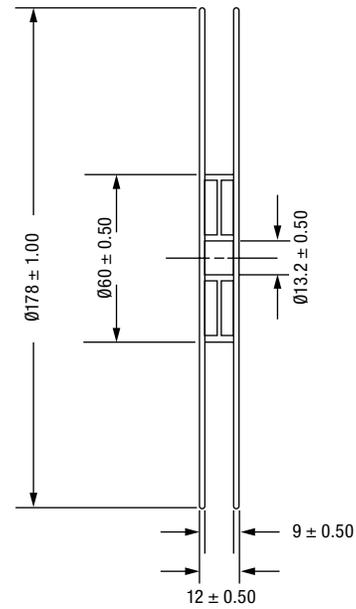
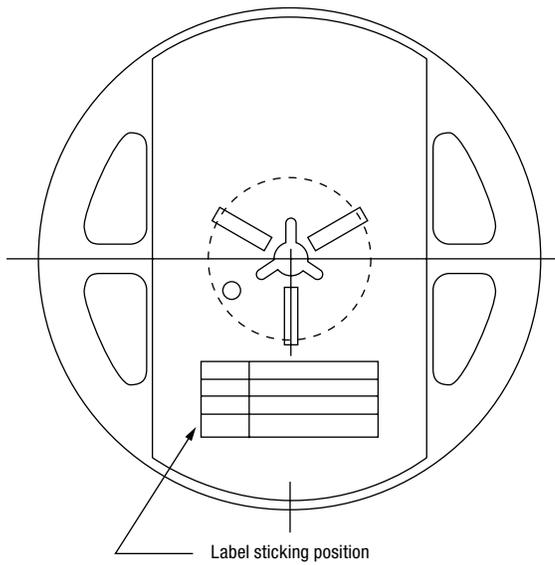
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
$2.30 \pm 0.10$	$1.45 \pm 0.10$	$0.95 \pm 0.10$	4K



Unit: mm

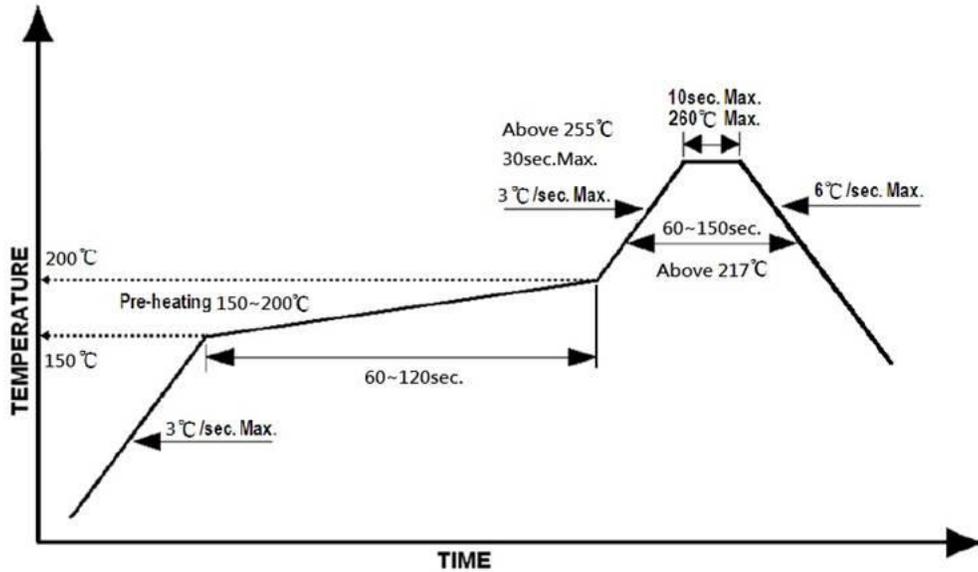
Unit: mm

### REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 217°C, 60~150sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

### LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
0805 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-11C0-147IRF](#)

DIMENSIONS:  
2.0 x 1.3 x 0.8mm

LENS COLOR:  
Clear

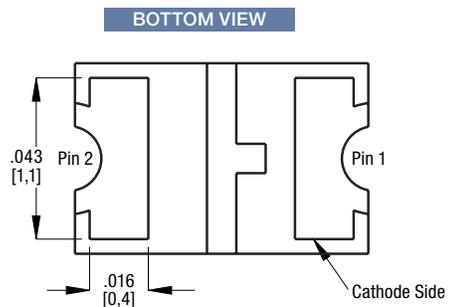
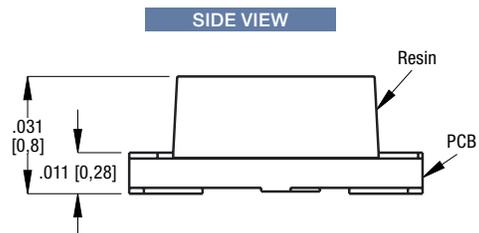
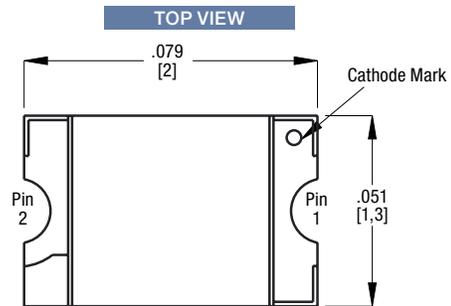
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

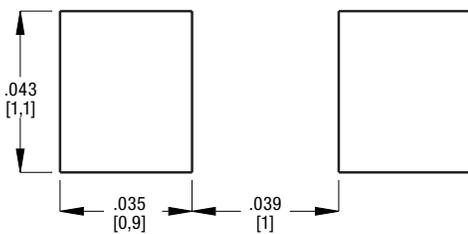
MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	65	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2
$P_d$	Total Power Dissipation	130	mW	

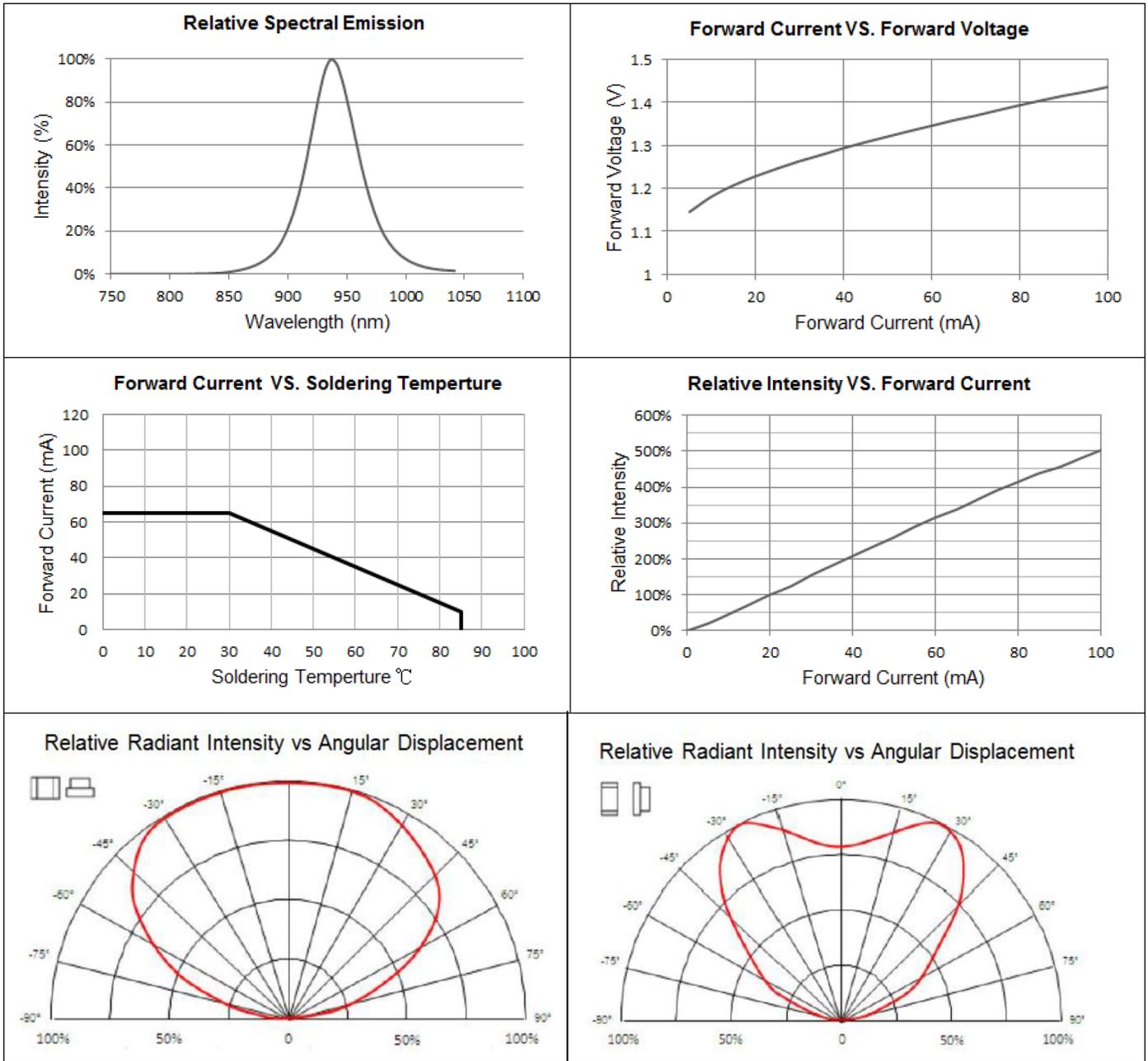
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

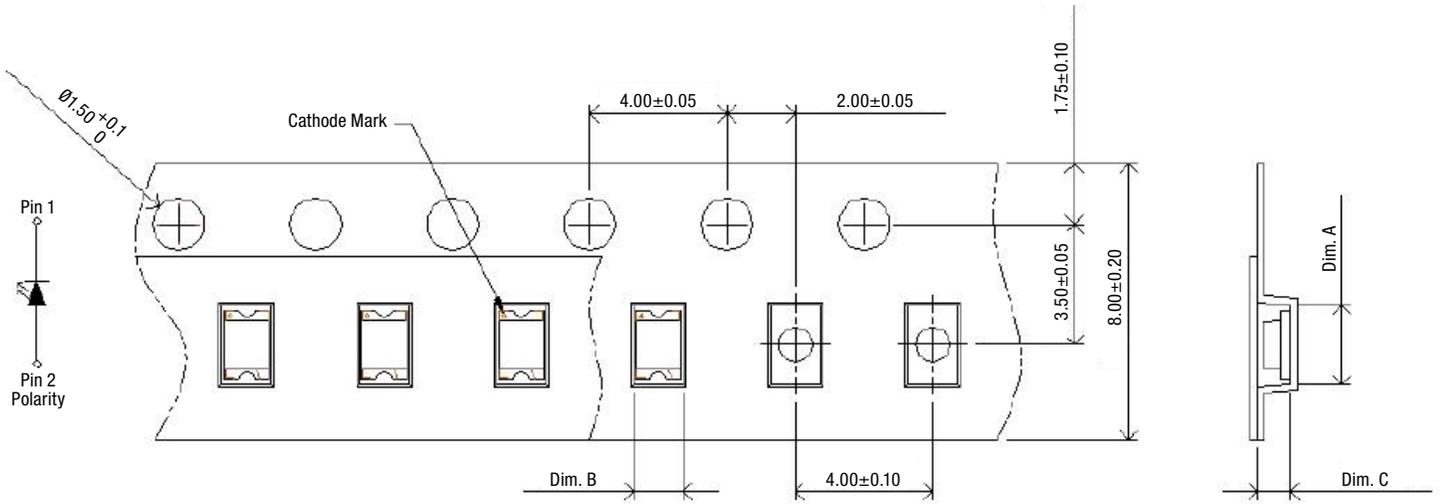
ELECTRICAL - OPTICAL CHARACTERISTICS AT 25°C

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	0.1	0.85	2.0	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=20mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=20mA$	-	50	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	View Angle	$I_F=20mA$	-	140	-	deg

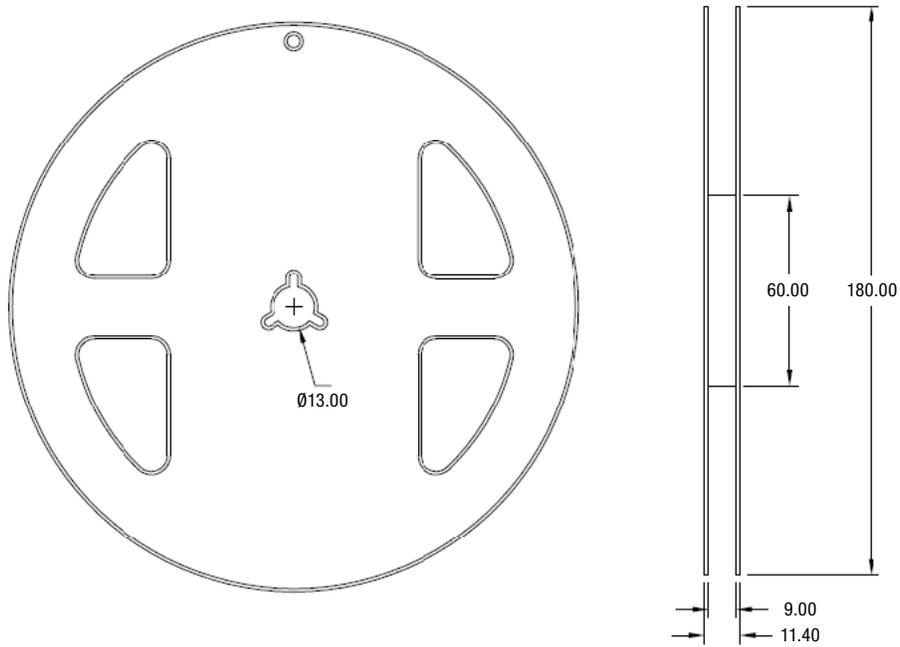
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
2.30±0.10	1.45±0.10	0.95±0.10	4K



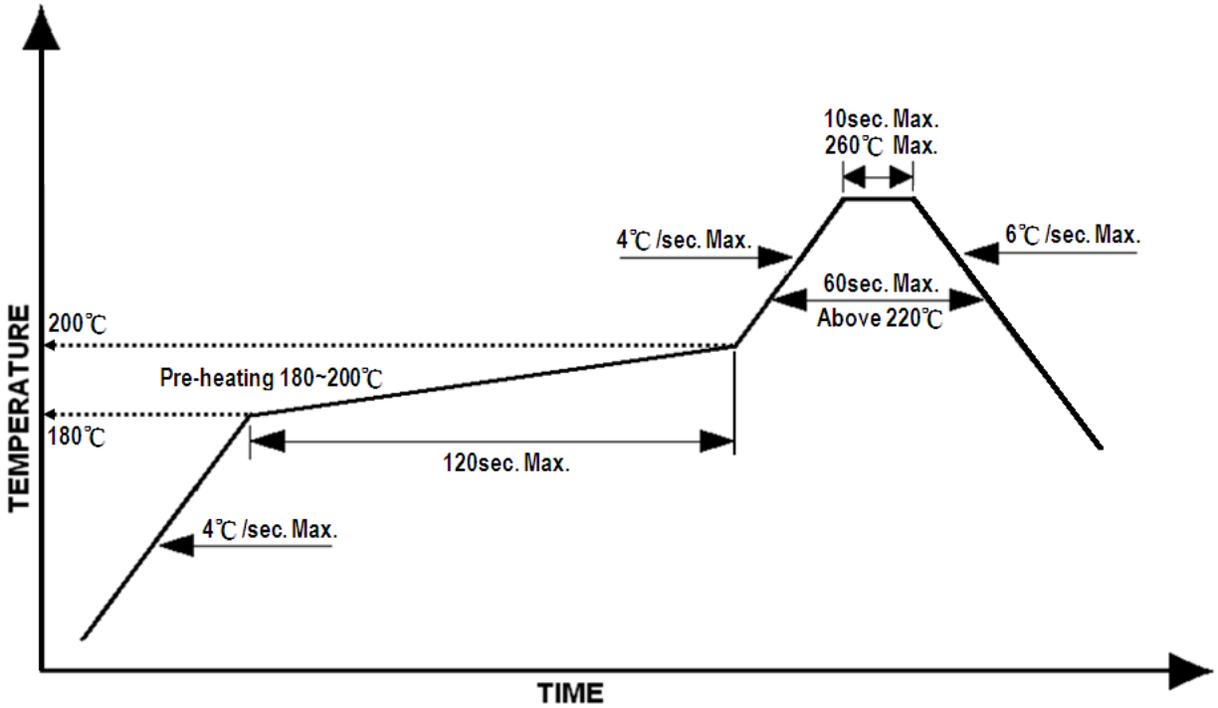
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

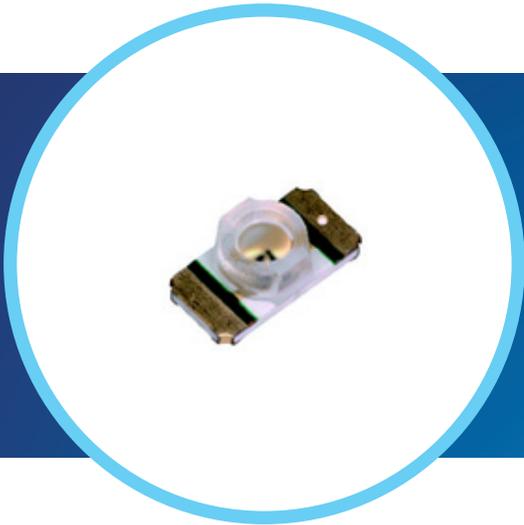
- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
1206 Package Reverse Mount 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-1KA0-147IRF](#)

DIMENSIONS:  
3.2 x 1.6 x 1.1mm w/inner lens

LENS COLOR:  
Clear

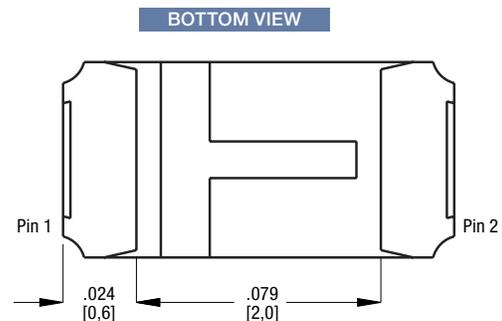
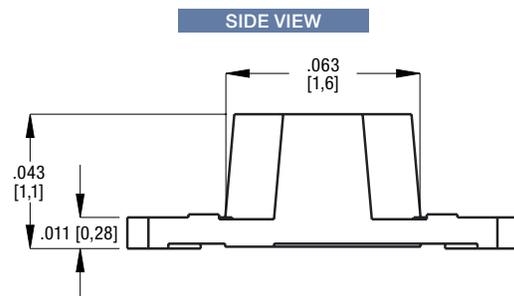
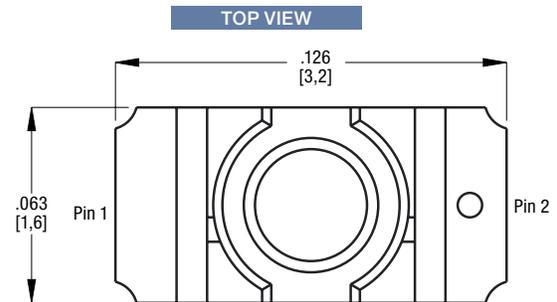
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
3000/reel

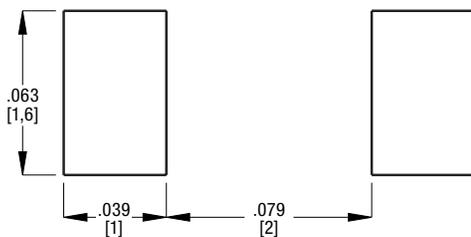
MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	$\leq 100$	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	$\leq 10$	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

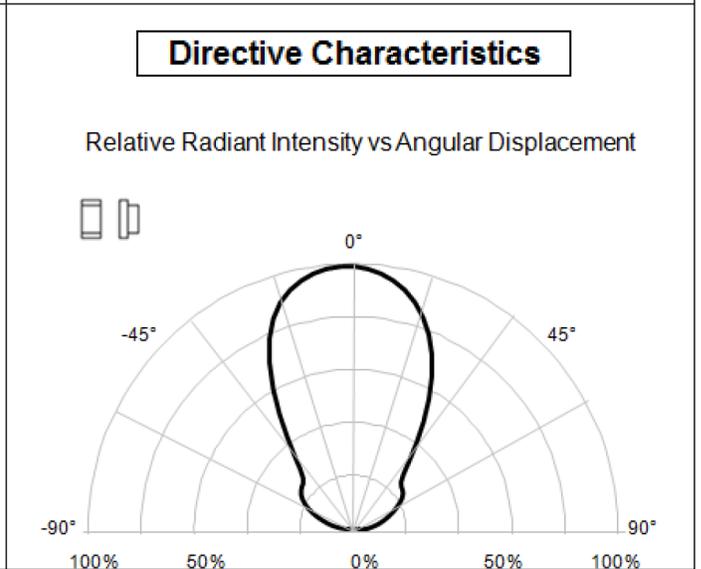
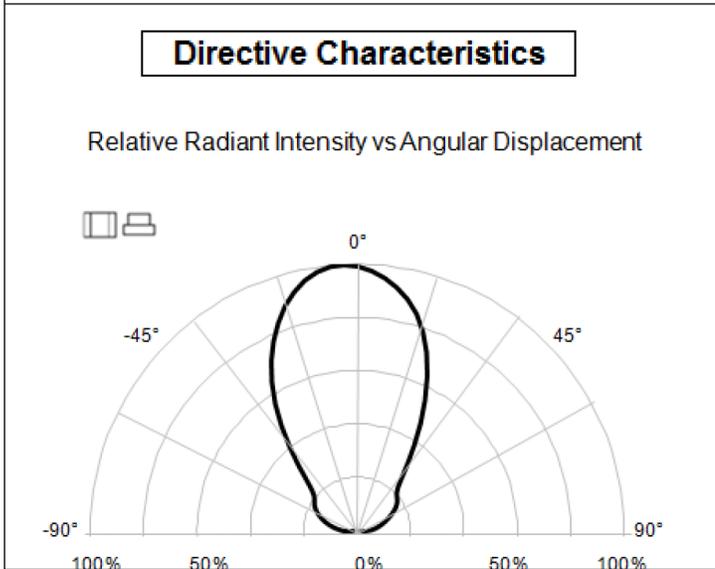
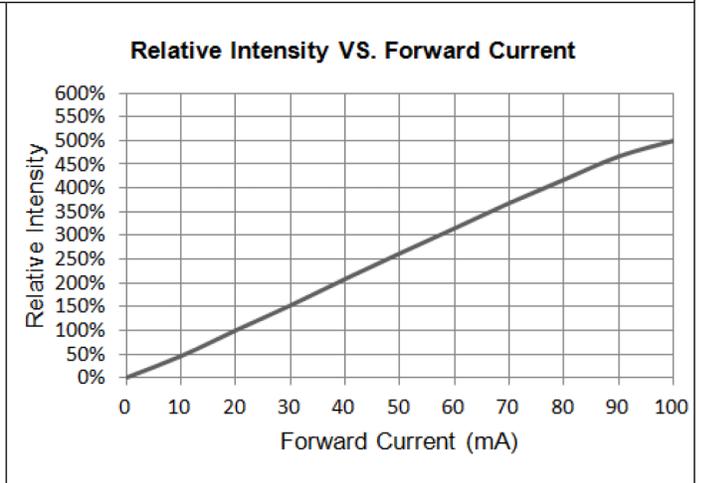
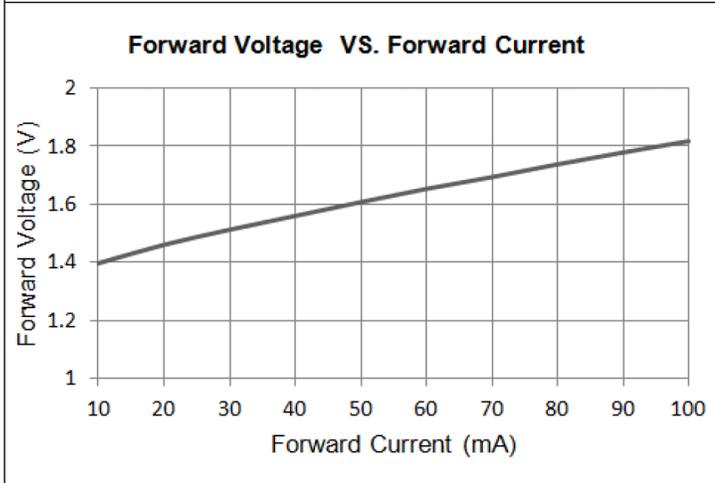
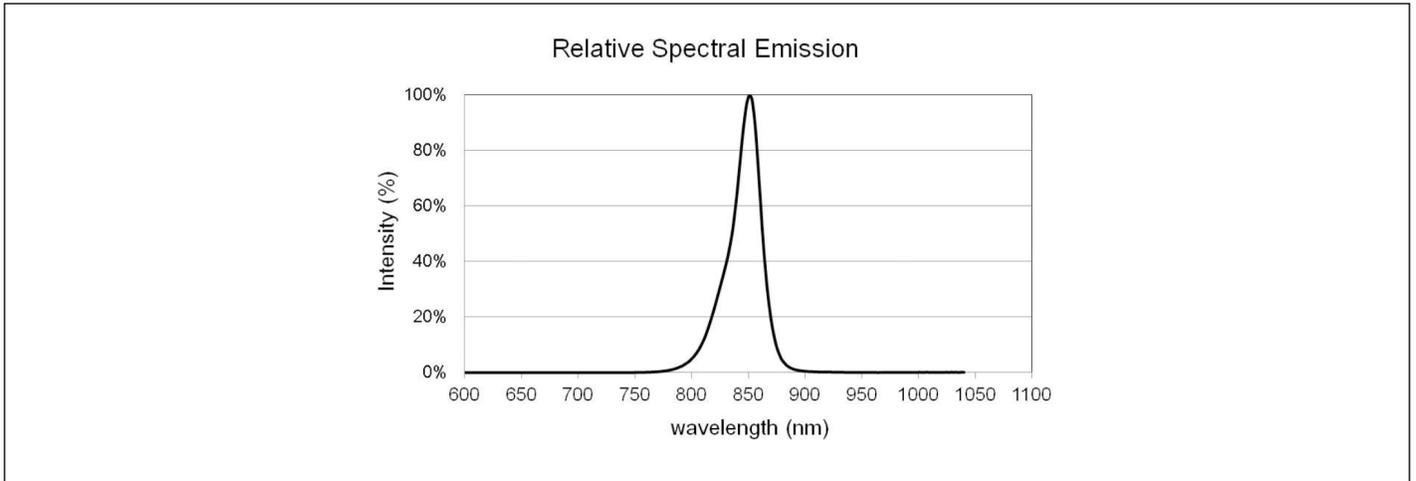
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

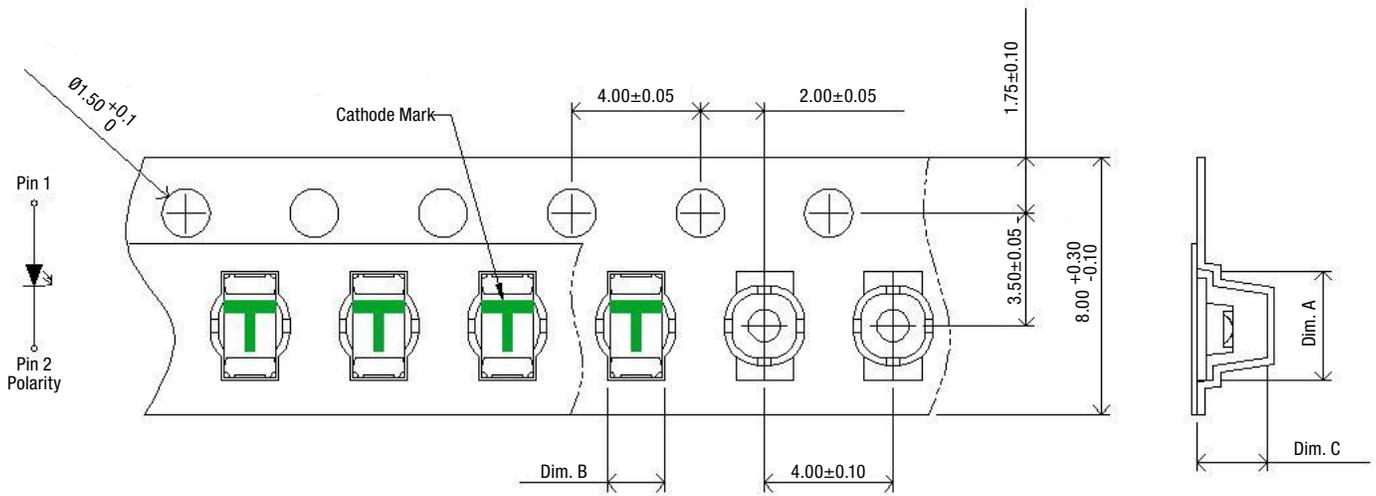
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	3.5	5.4	7.0	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=50mA$	830	854	870	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=50mA$		50	-	nm
$V_F$	Forward Voltage	$I_F=50mA$	1.4	-	1.6	V
$I_R$	Reverse Current	$V_R=5V$	-	-	1	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	70	-	deg
	Angle of Half Intensity (Y)		-	70	-	

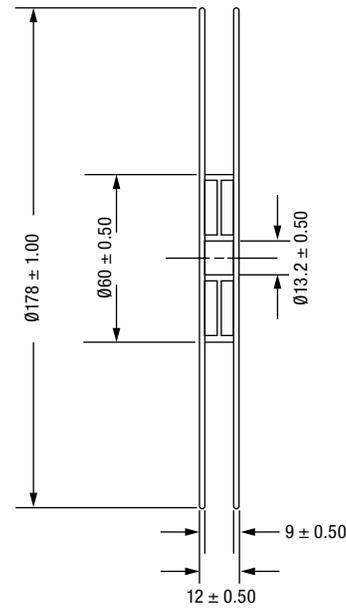
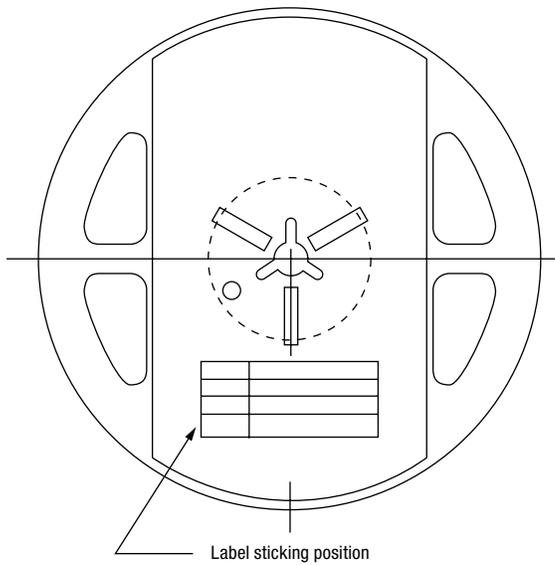
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.5±0.1	1.88±0.1	1.27±0.1	3K



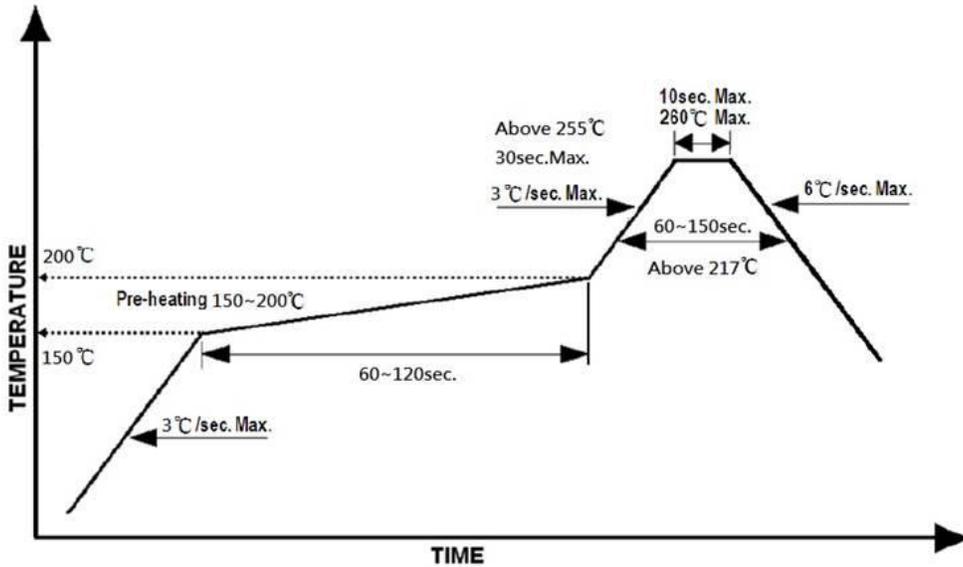
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

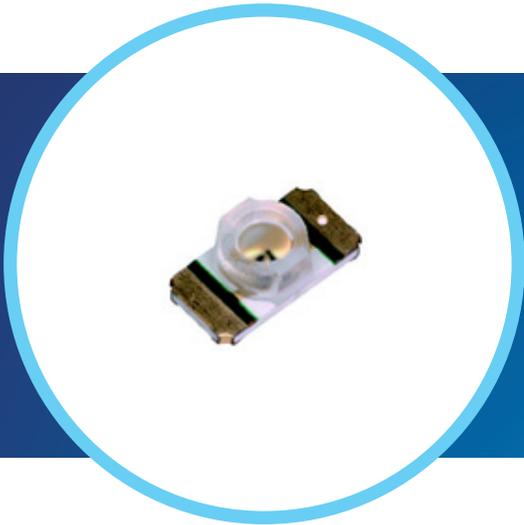
- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
1206 Package Reverse Mount 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-1KC0-147IRF](#)

DIMENSIONS:  
3.2 x 1.6 x 1.1mm w/inner lens

LENS COLOR:  
Clear

LENS MATERIAL:  
Epoxy

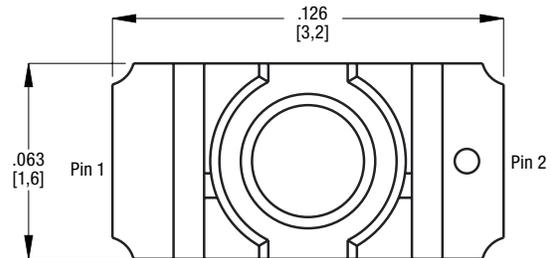
STANDARD PACKAGING:  
3000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

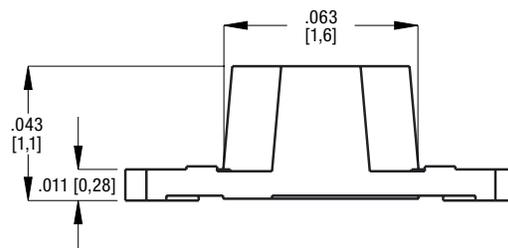
**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]

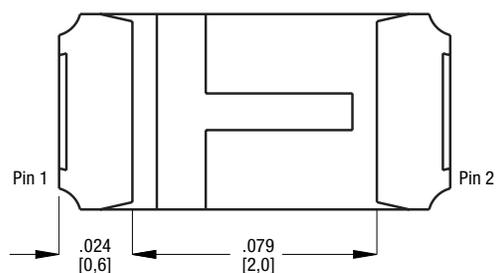
TOP VIEW



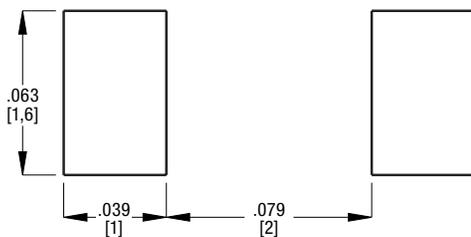
SIDE VIEW



BOTTOM VIEW



RECOMMENDED PAD LAYOUT



LED SCHEMATIC



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	$\leq 100$	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	$\leq 10$	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

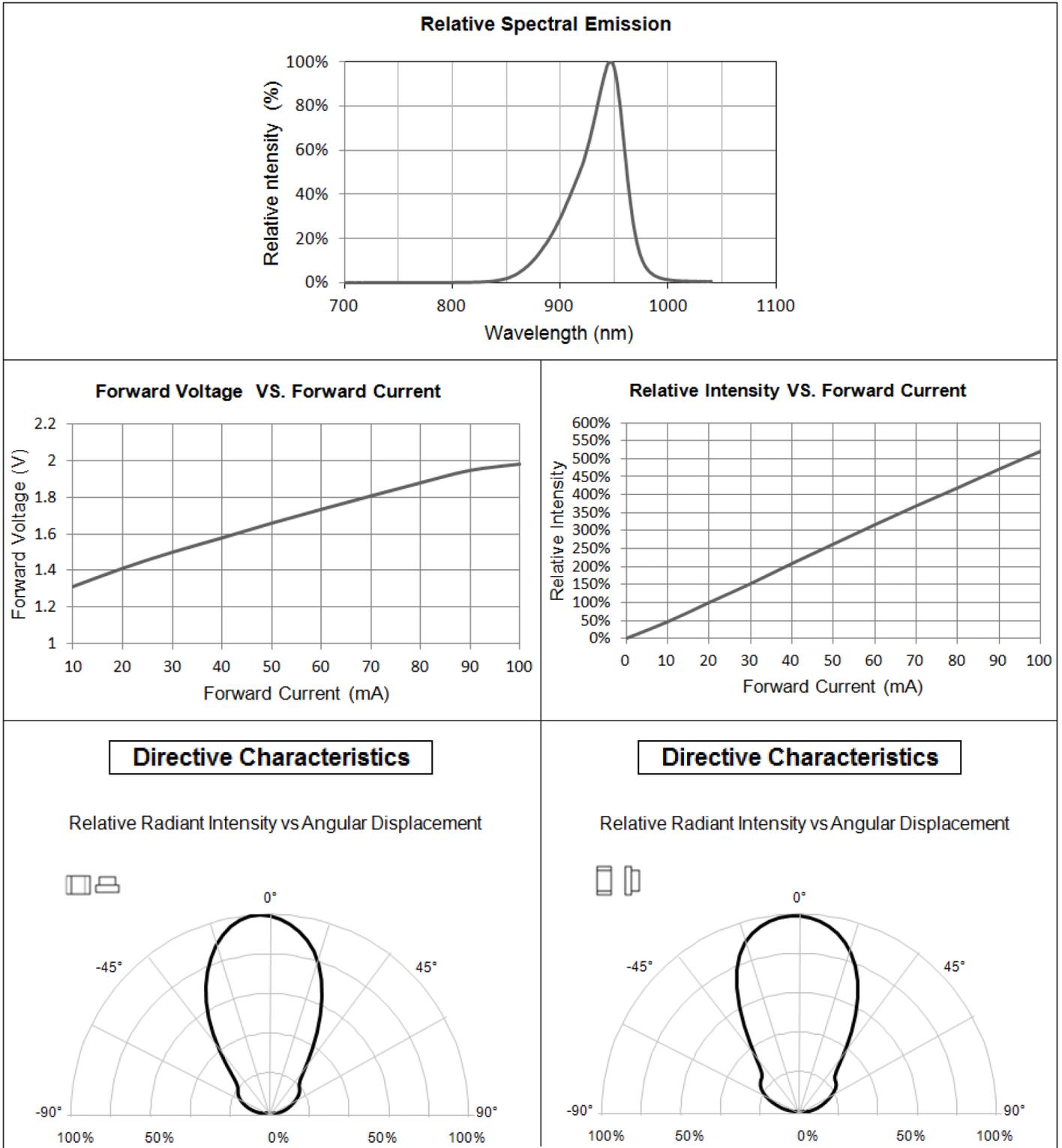
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

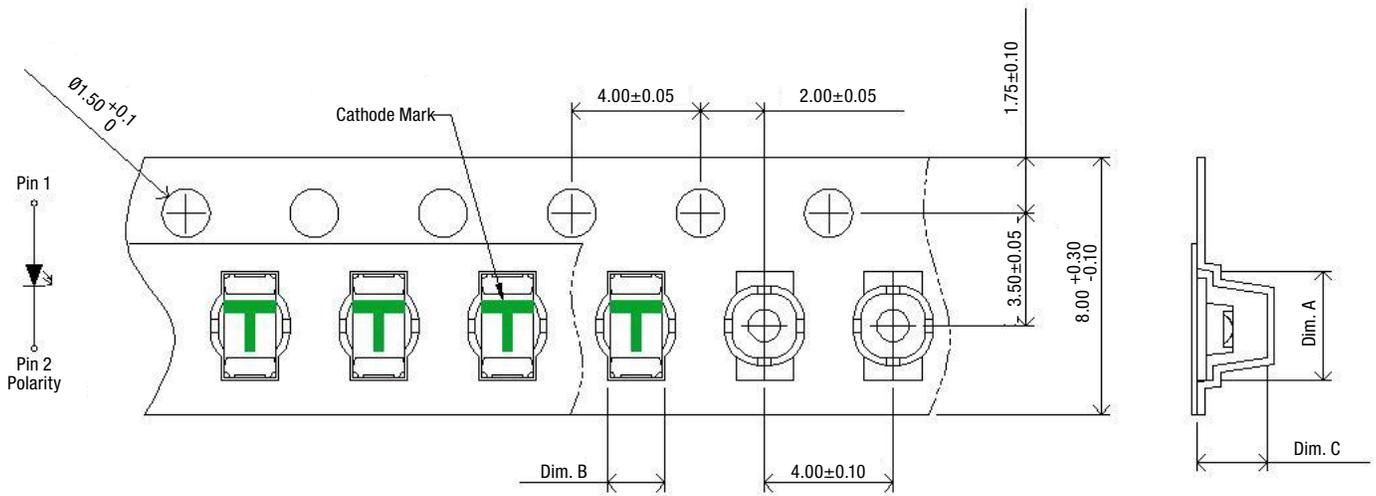
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	3.0	4.2	6.0	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	920	943	960	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		50	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.25	-	1.55	V
$I_R$	Reverse Current	$V_R=5V$	-	-	1	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	70	-	deg
	Angle of Half Intensity (Y)		-	70	-	

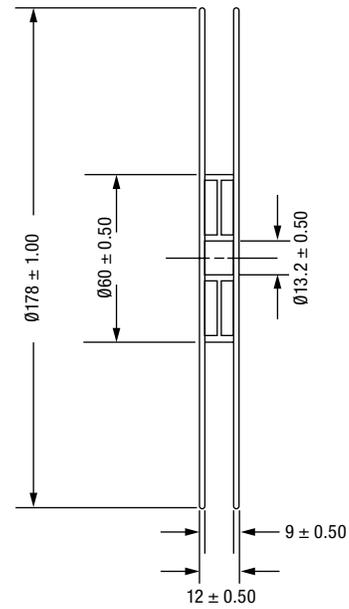
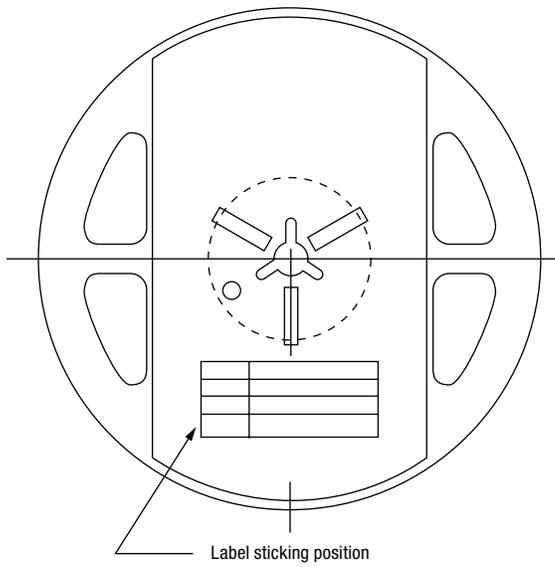
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.5±0.1	1.88±0.1	1.27±0.1	3K



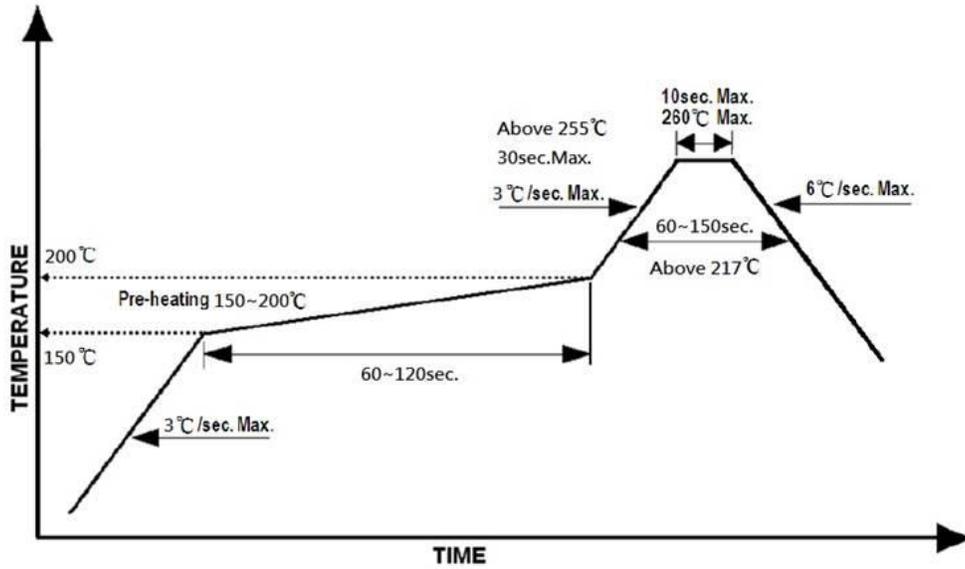
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
1206 Package Top View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-12A0-147IRF](#)

DIMENSIONS:  
3.2 x 1.6 x 1.1mm

LENS COLOR:  
Clear

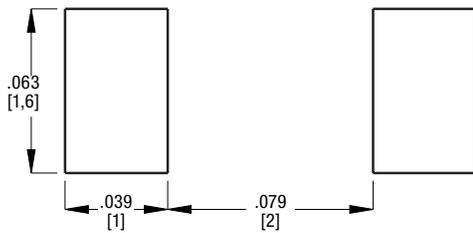
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
3000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

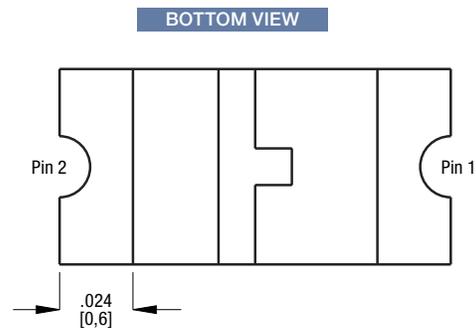
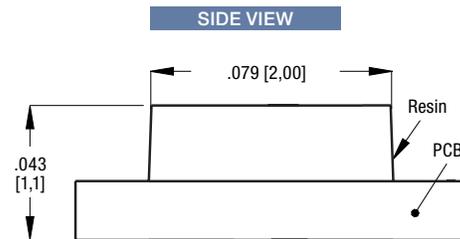
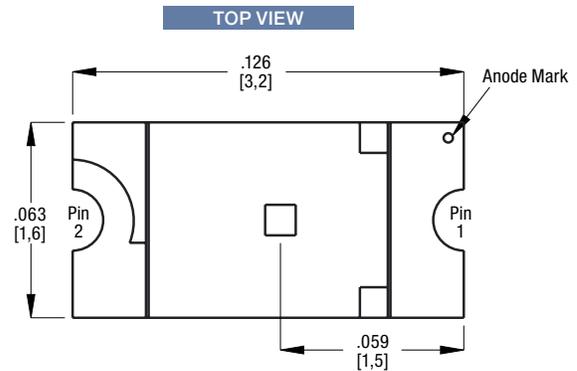
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS** inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

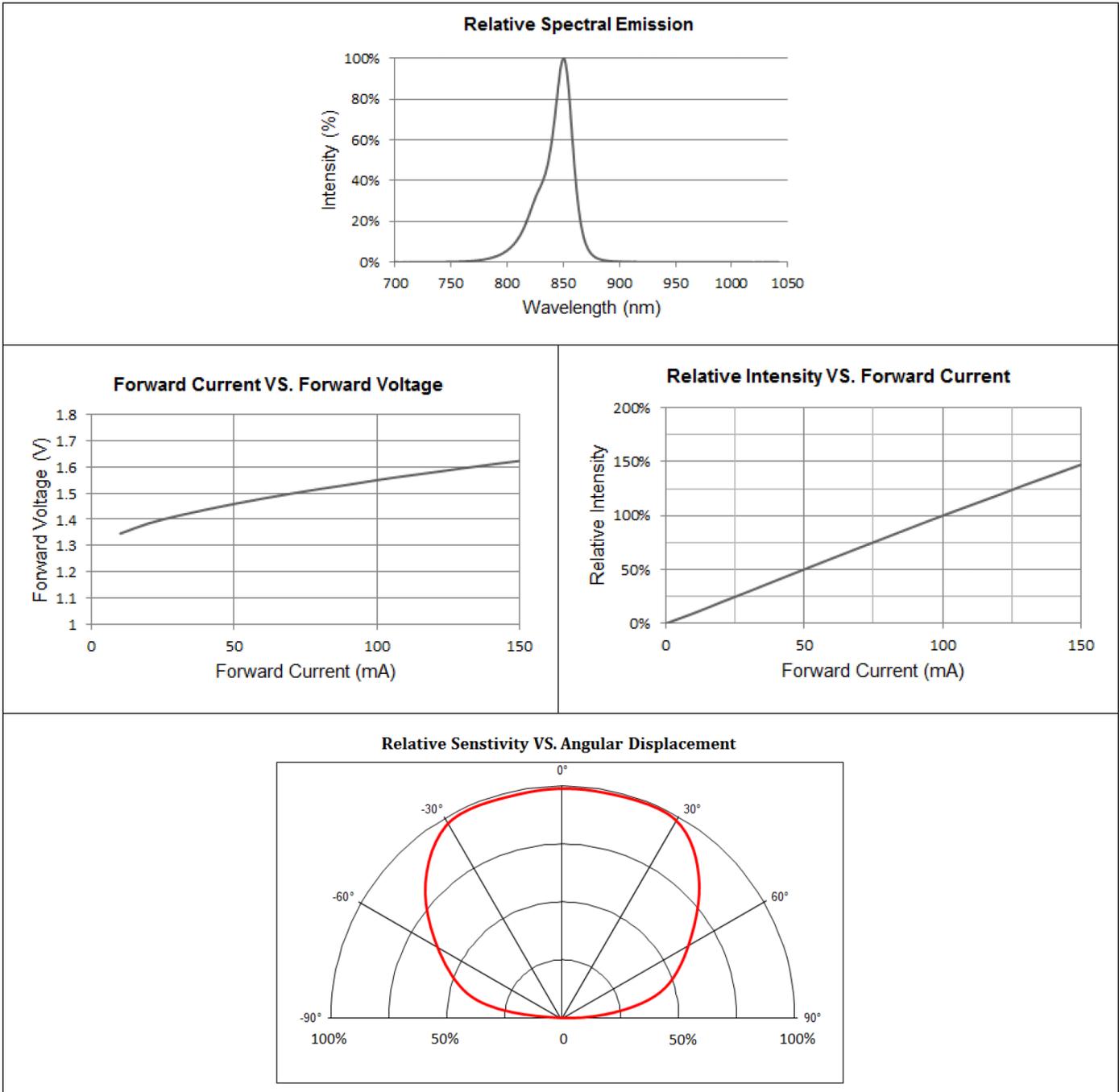
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

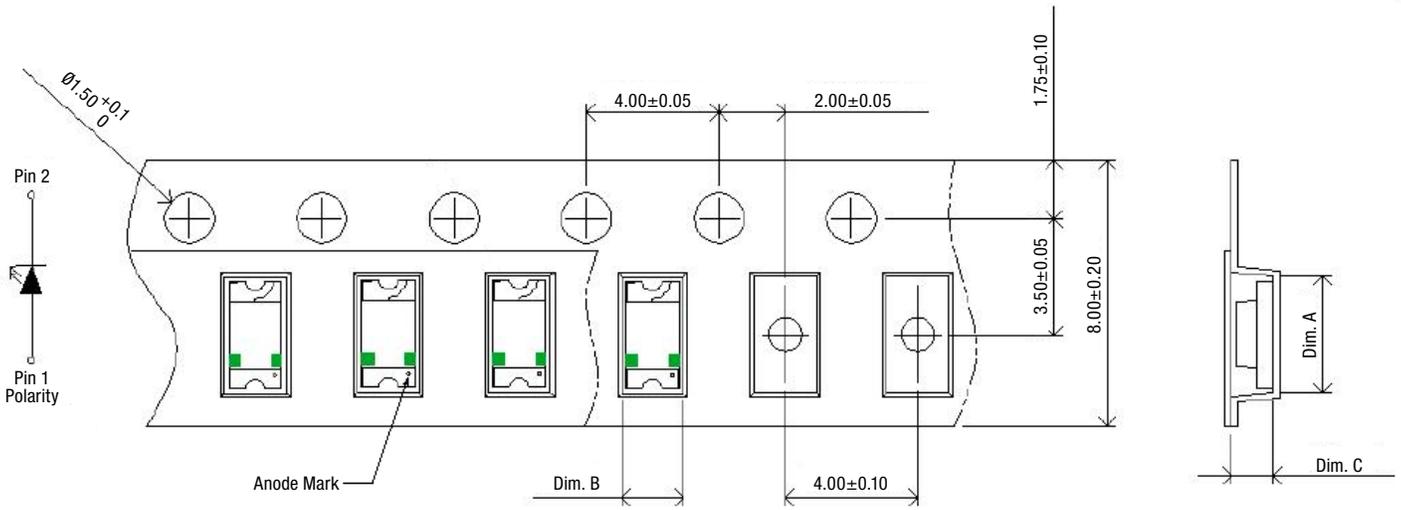
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	1	2	4	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=20mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=20mA$	-	30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.36	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	Angle of Half Intensity	$I_F=20mA$	-	140	-	deg

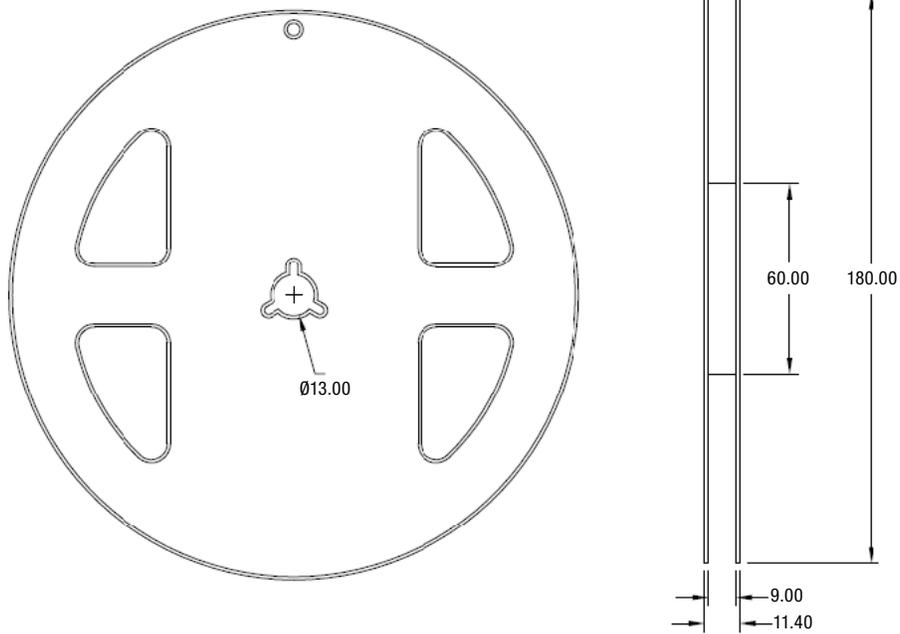
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.50±0.10	1.88±0.10	1.27±0.10	3K



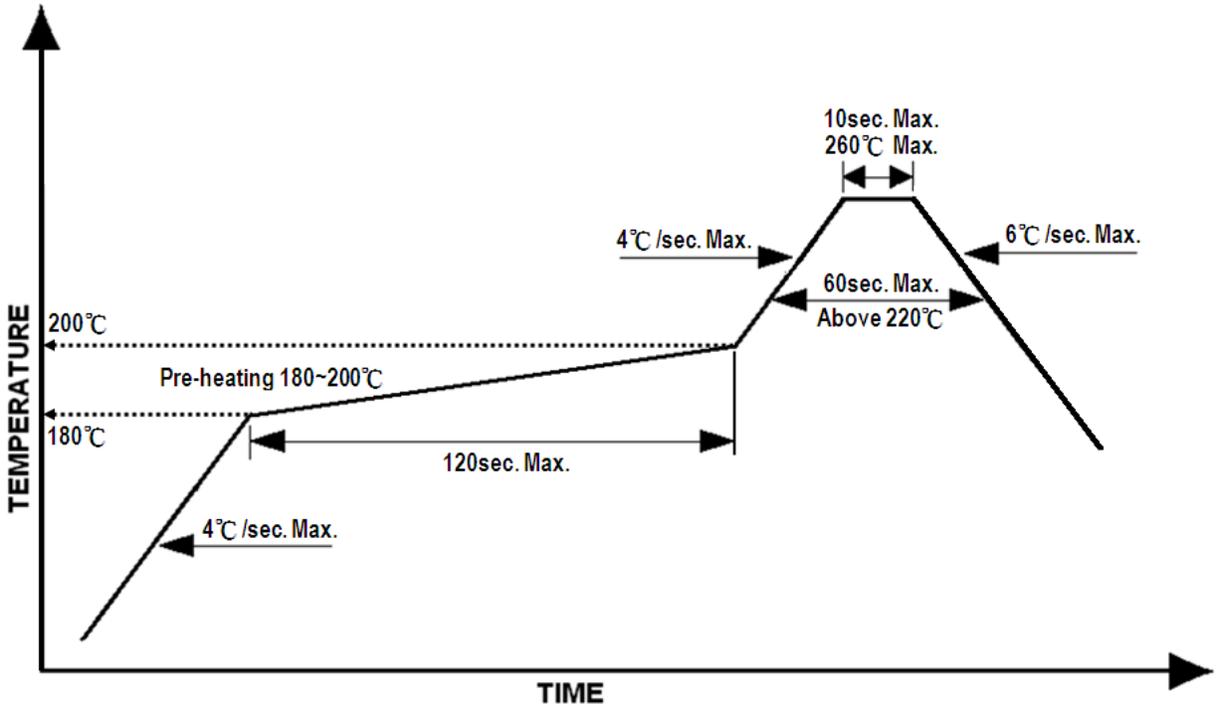
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 220°C, 60sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



## 599 SERIES Infrared SMD LED

1206 Package Top View 940nm

### MECHANICAL / SPECIFICATIONS

PART NUMBER:  
[599-12C0-147IRF](#)

DIMENSIONS:  
3.2 x 1.6 x 1.1mm

LENS COLOR:  
Clear

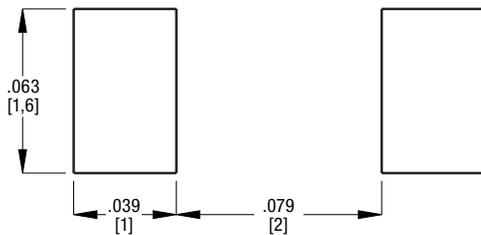
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
3000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

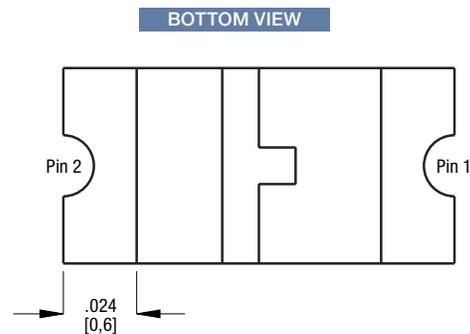
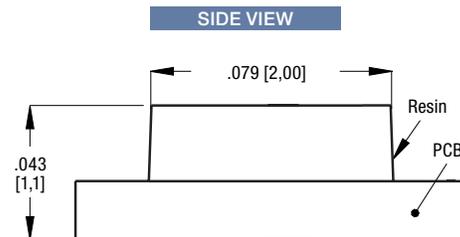
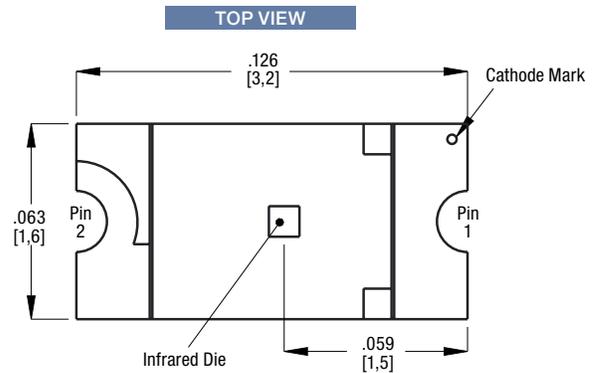
### RECOMMENDED PAD LAYOUT



### LED SCHEMATIC



### DIMENSIONS inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	65	mA	
$I_{FP}$	Peak Current	250	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2
$P_d$	Total Power Dissipation	110	mW	

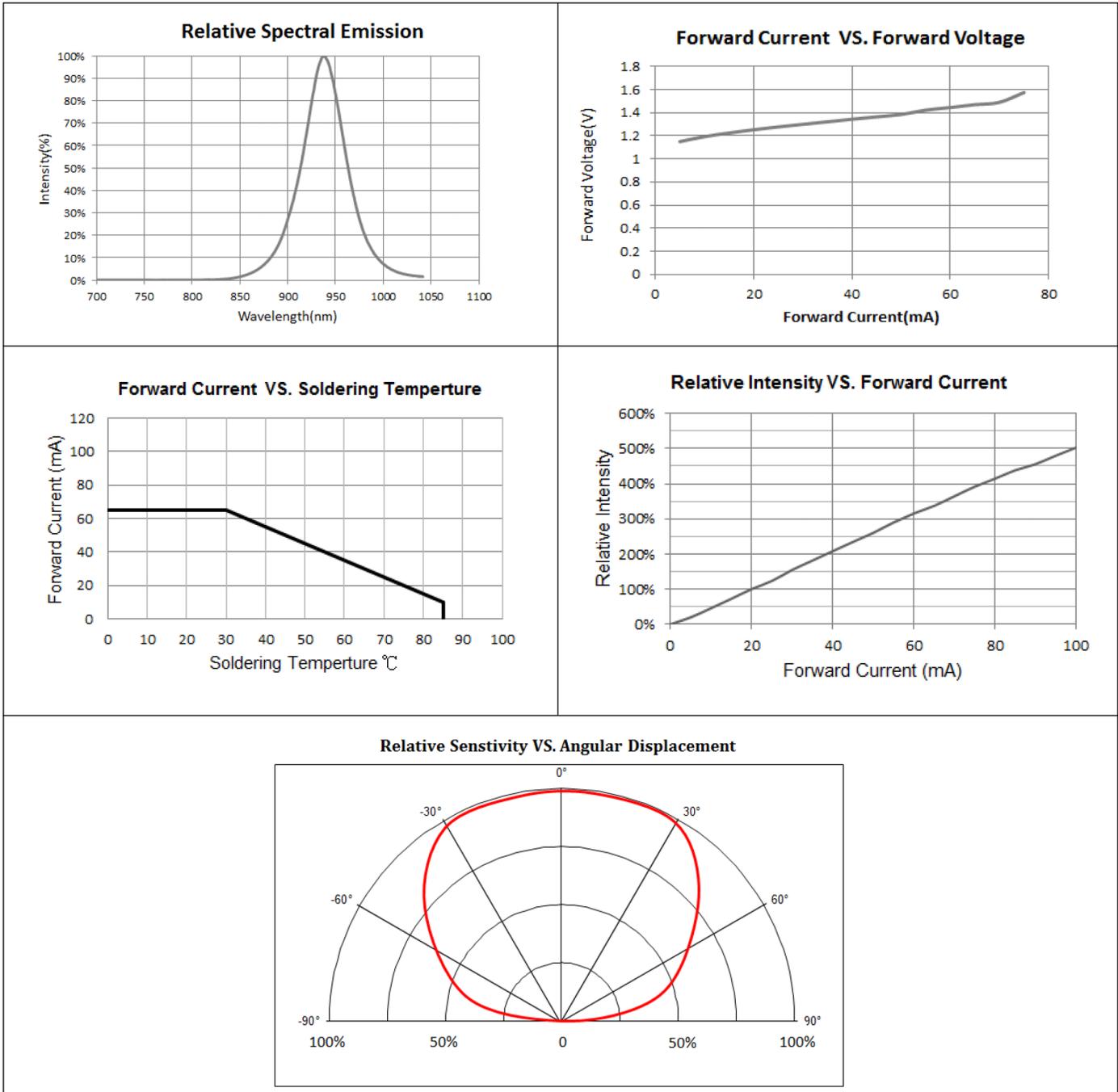
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

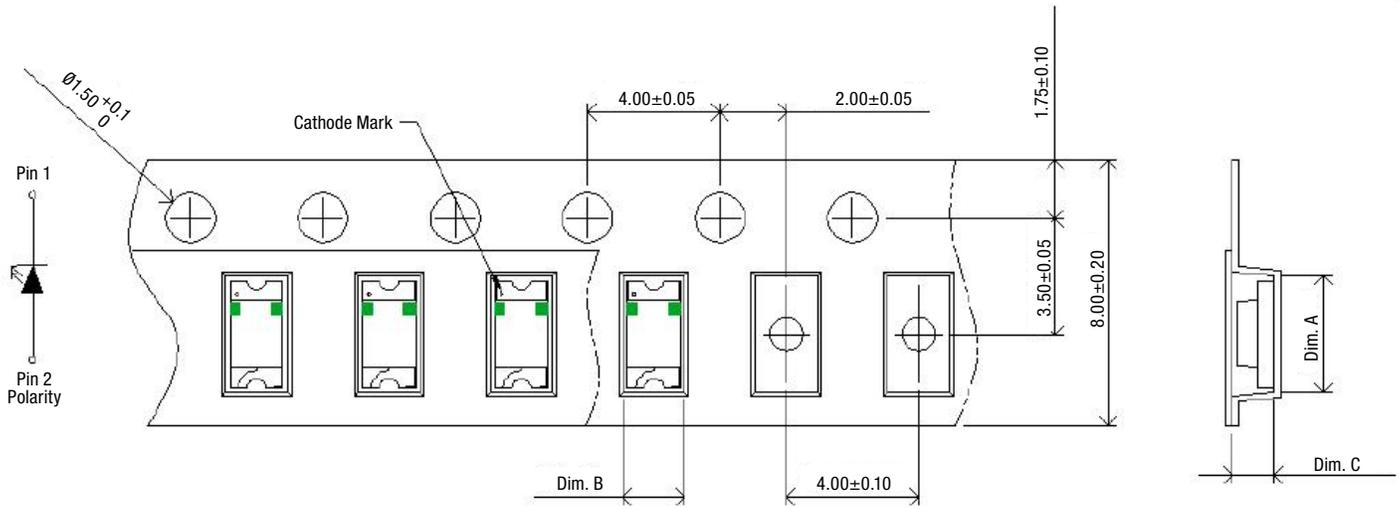
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	0.5	0.85	2.0	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=20mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth	$I_F=20mA$	-	50	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	-	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	Angle of Half Intensity	$I_F=20mA$	-	140	-	deg

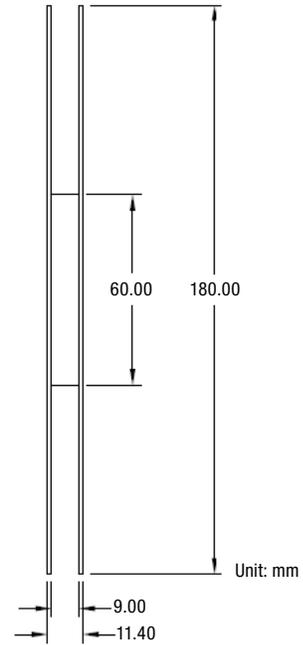
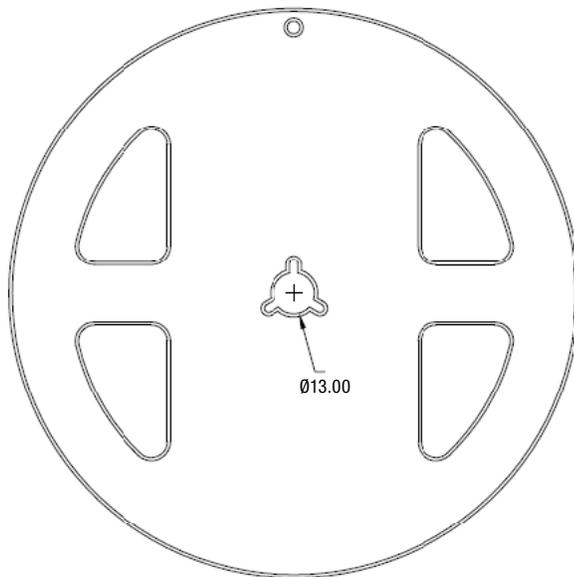
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.50±0.10	1.88±0.10	1.27±0.10	3K



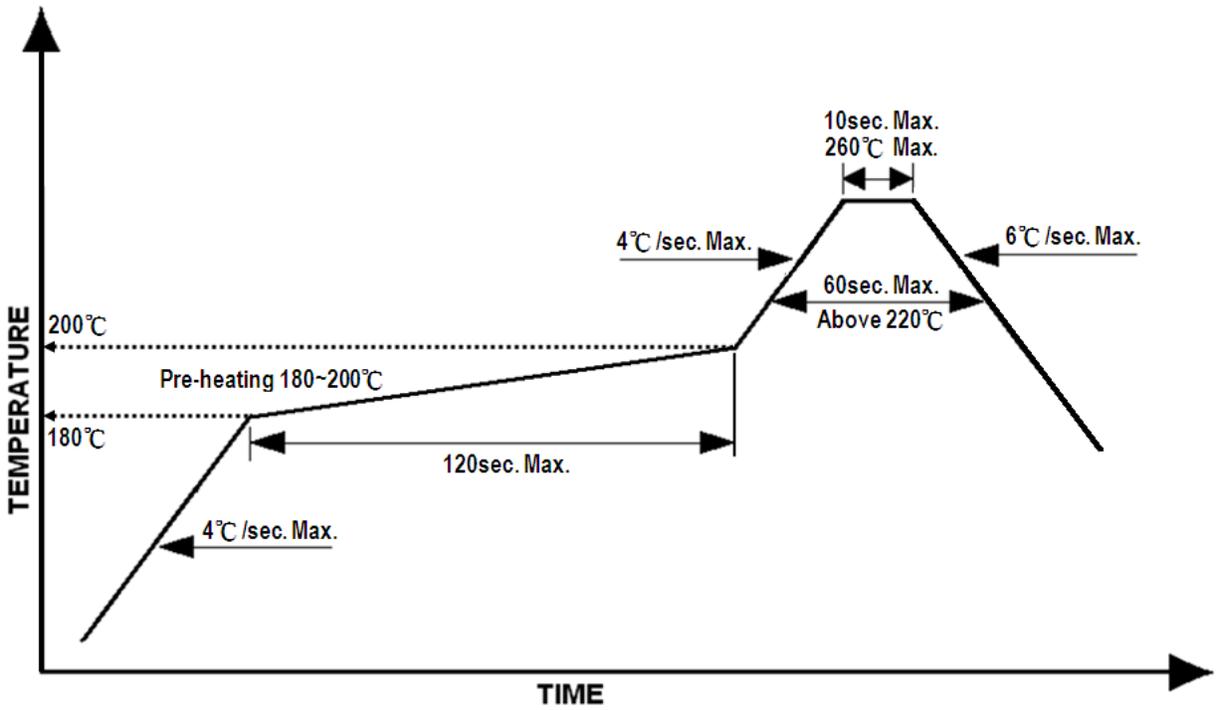
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

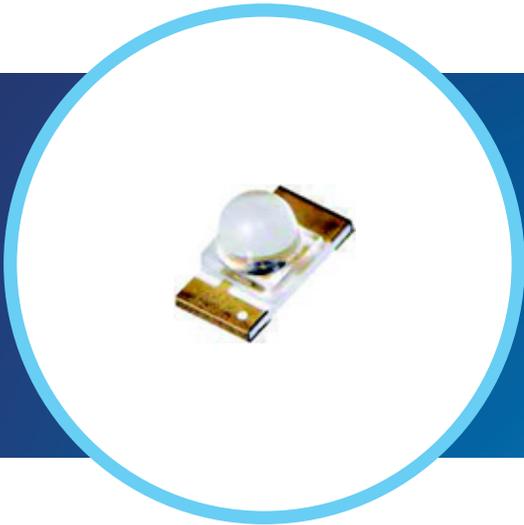
- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



## 599 SERIES Infrared SMD LED

1206 Package Top View 940nm  
With Dome Lens

### MECHANICAL / SPECIFICATIONS

PART NUMBER:  
[599-15C0-147IRF](#)

DIMENSIONS:  
3.2 x 1.6 x 1.85mm

LENS COLOR:  
Clear

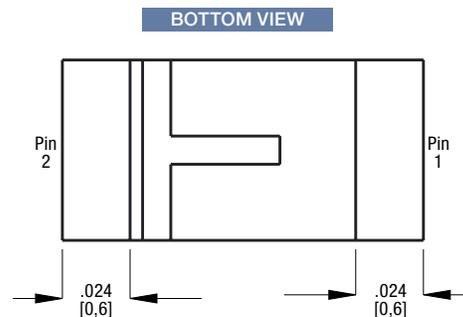
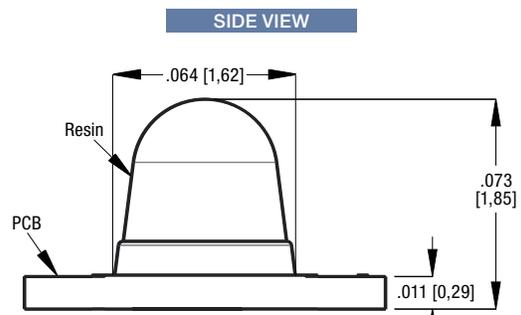
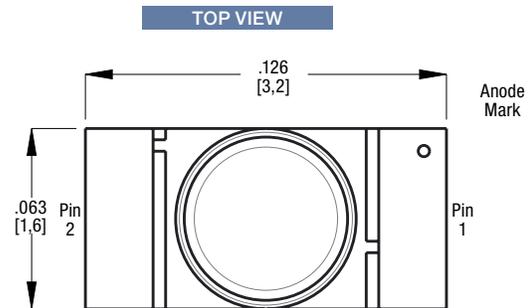
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
2000/reel

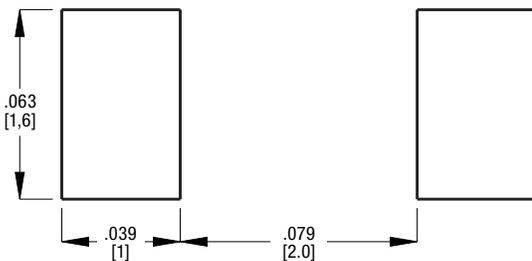
MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

### DIMENSIONS inches [mm]



### RECOMMENDED PAD LAYOUT



### LED SCHEMATIC



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

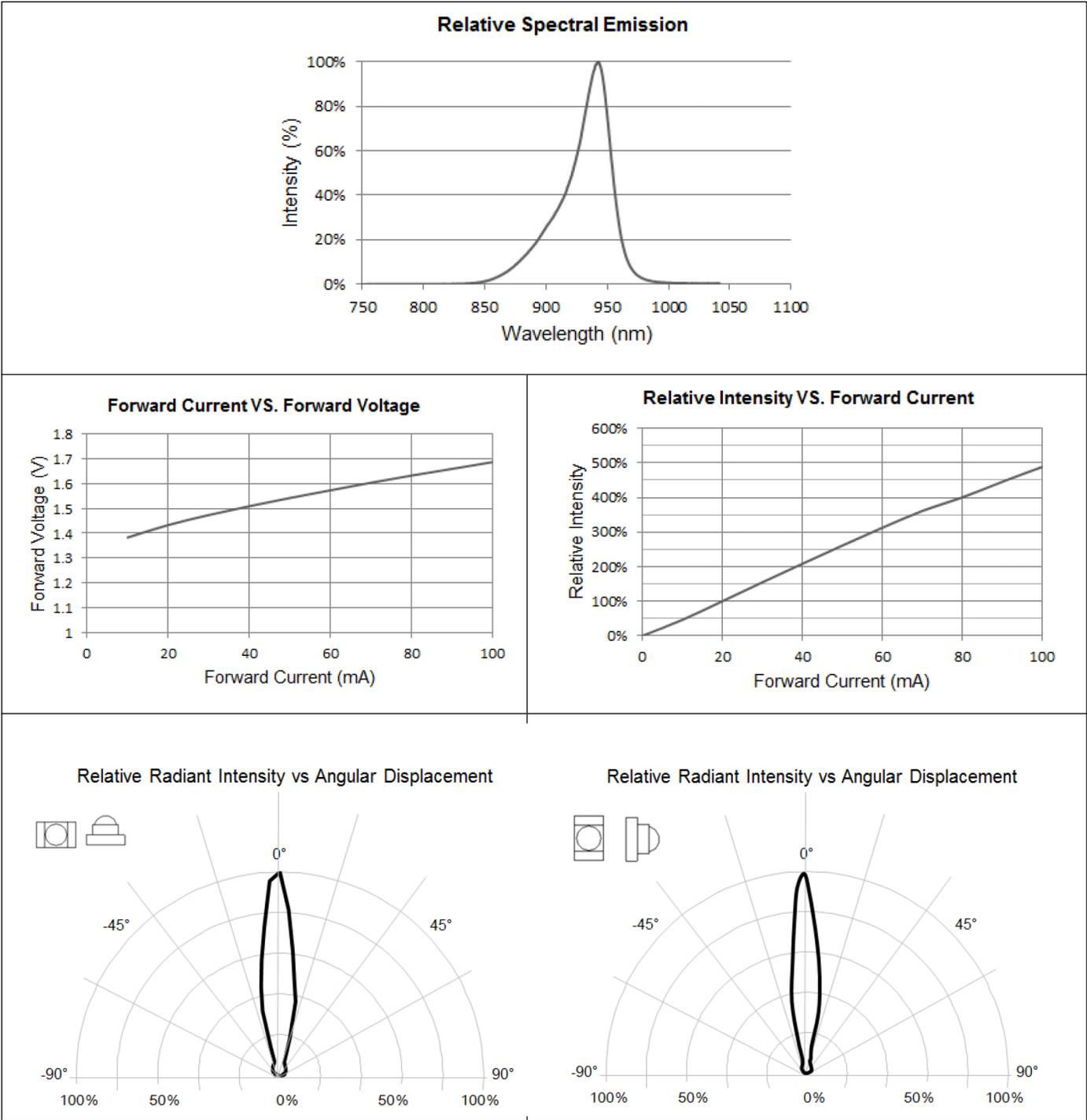
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

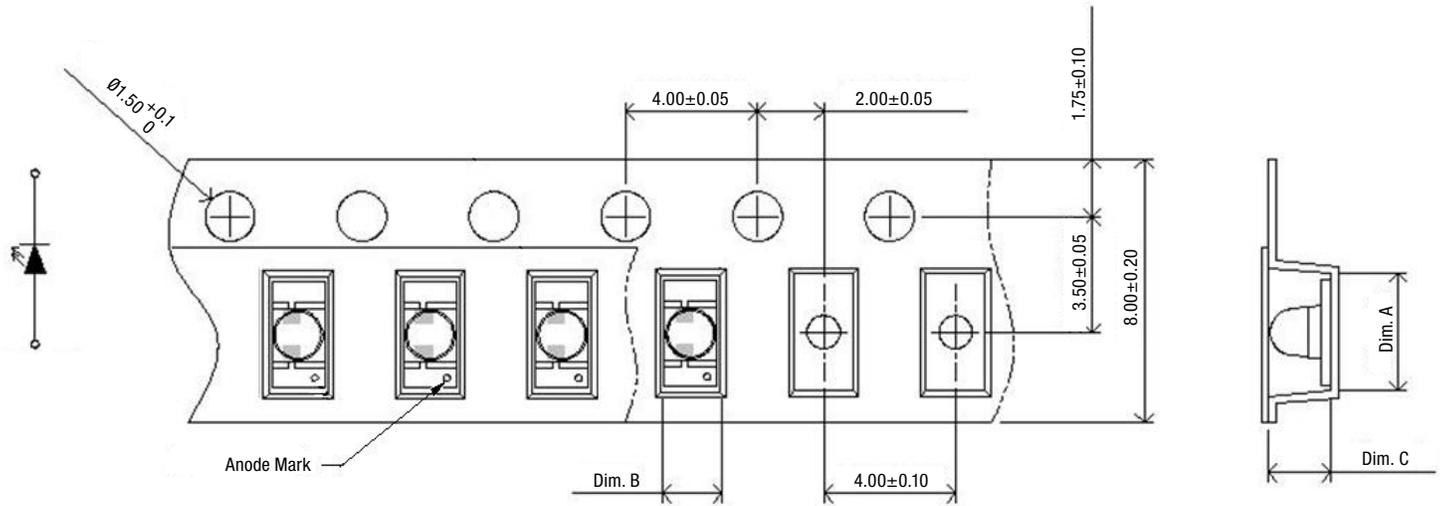
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	20	26	33	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	920	940	960	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.4	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	20	-	deg
	Angle of Half Intensity (Y)		-	20	-	

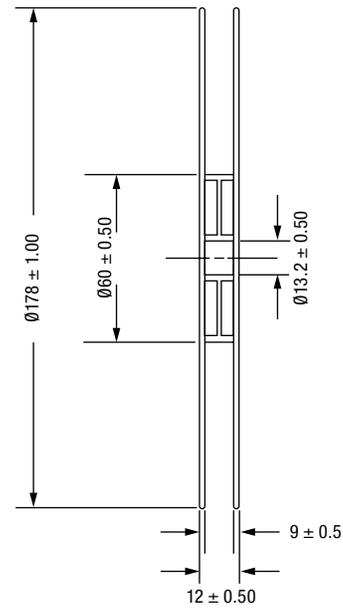
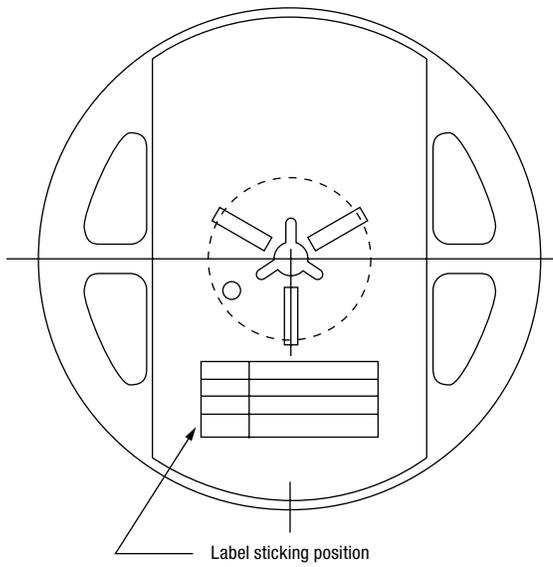
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
$3.55 \pm 0.1$	$1.8 \pm 0.1$	$1.9 \pm 0.1$	2K



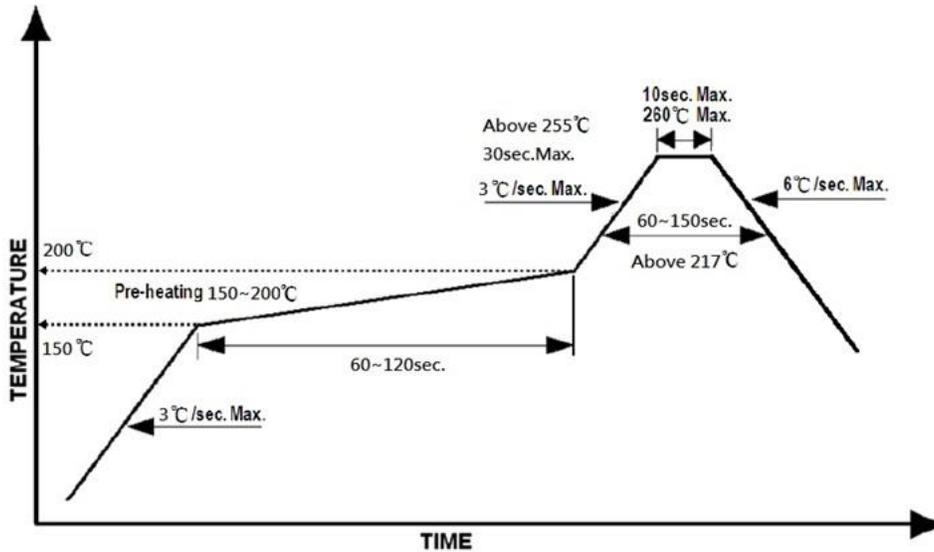
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

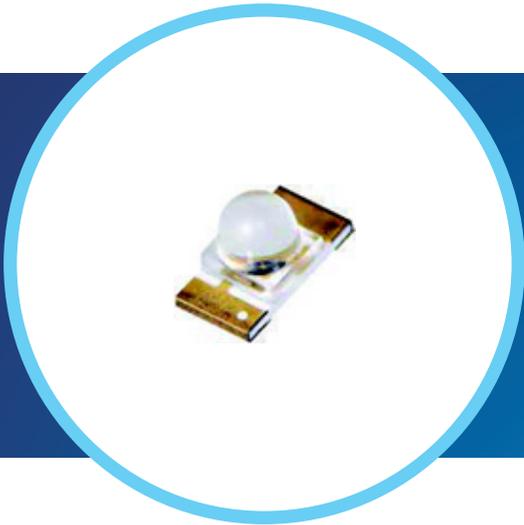
- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



## 599 SERIES Infrared SMD LED

1206 Package Top View 850nm  
With Dome Lens

### MECHANICAL / SPECIFICATIONS

PART NUMBER:  
[599-35A0-147IRF](#)

DIMENSIONS:  
3.2 x 1.6 x 1.85mm

LENS COLOR:  
Black

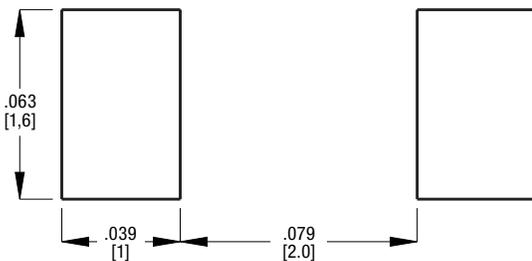
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

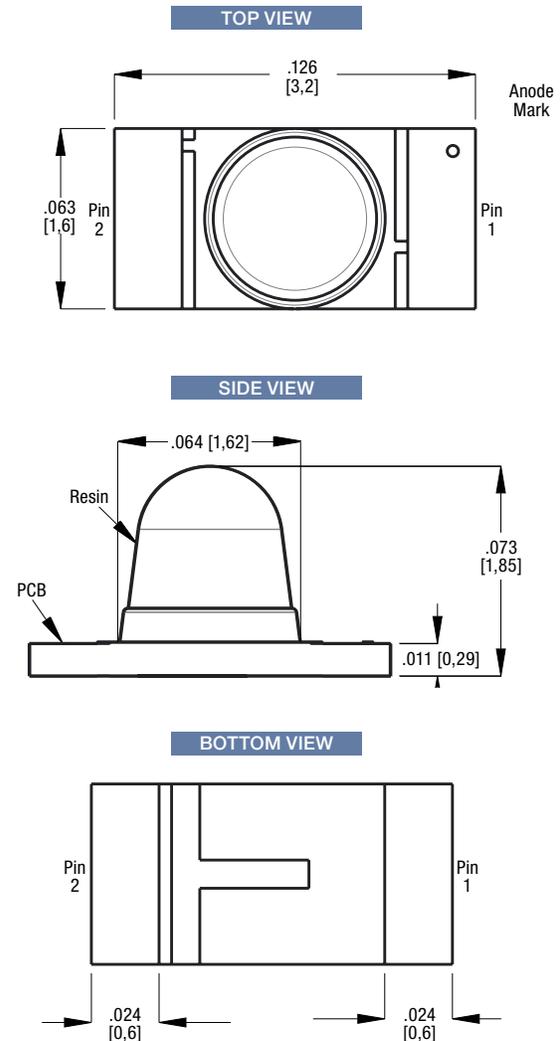
### RECOMMENDED PAD LAYOUT



### LED SCHEMATIC



### DIMENSIONS inches [mm]



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

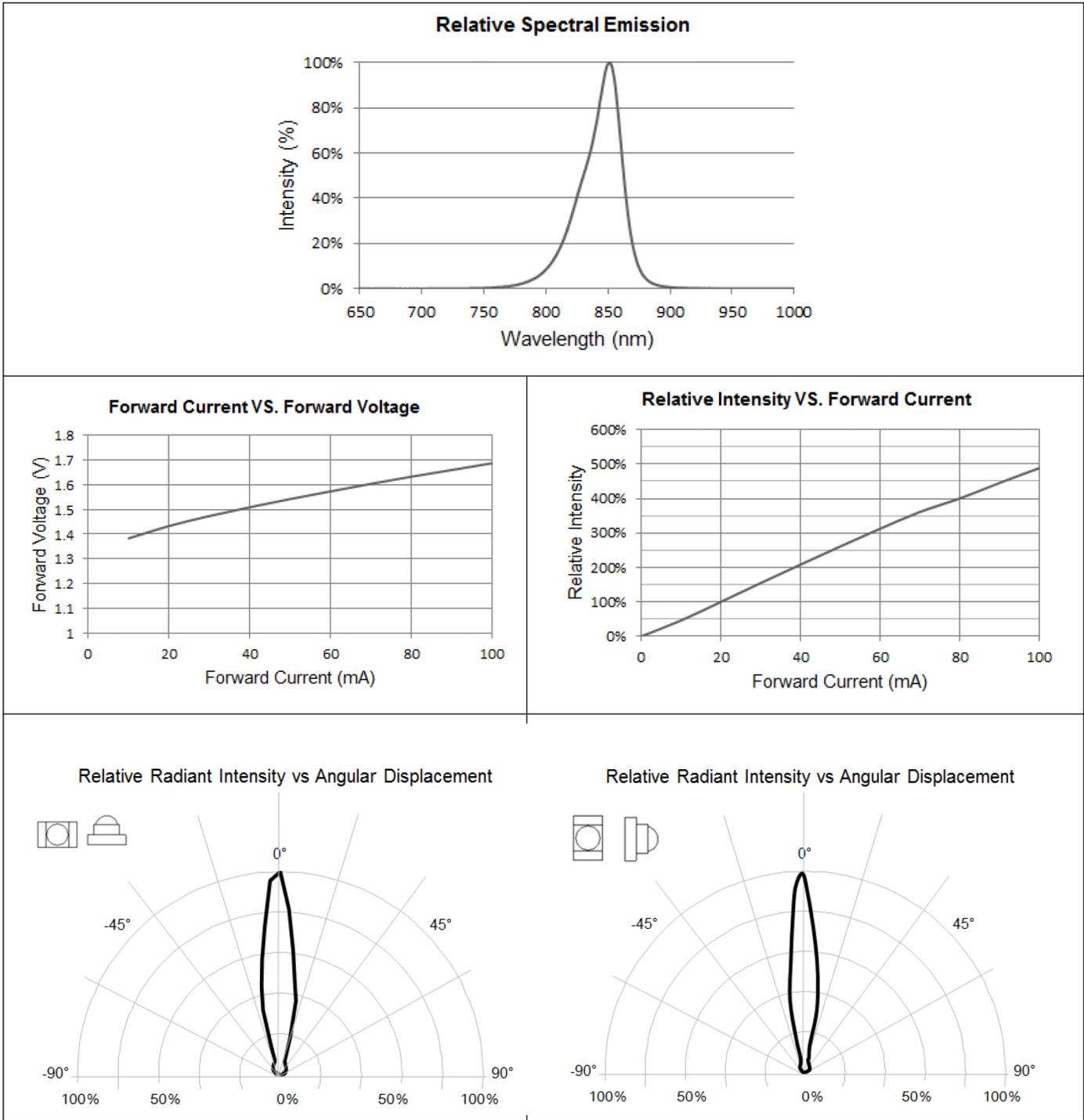
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

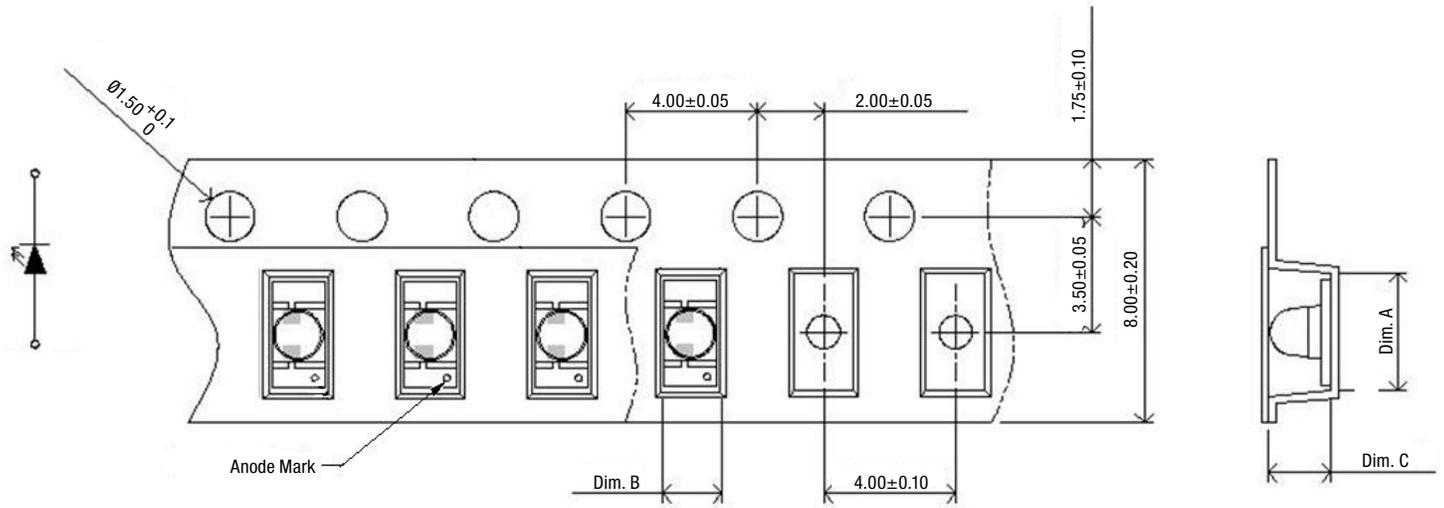
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	17.5	-	32.5	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.4	1.8	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	20	-	deg
	Angle of Half Intensity (Y)		-	20	-	

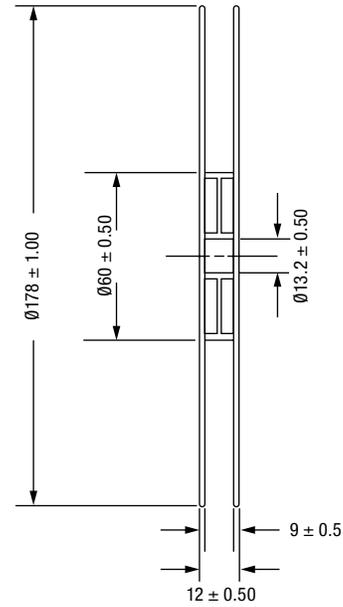
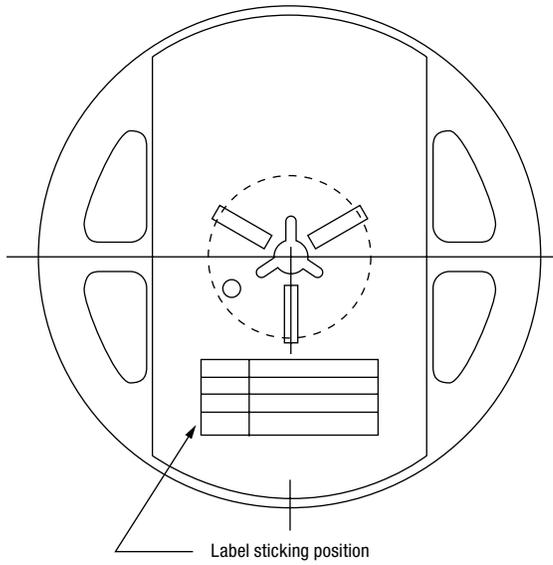
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.37±0.1	1.78±0.1	2.17±0.1	2K



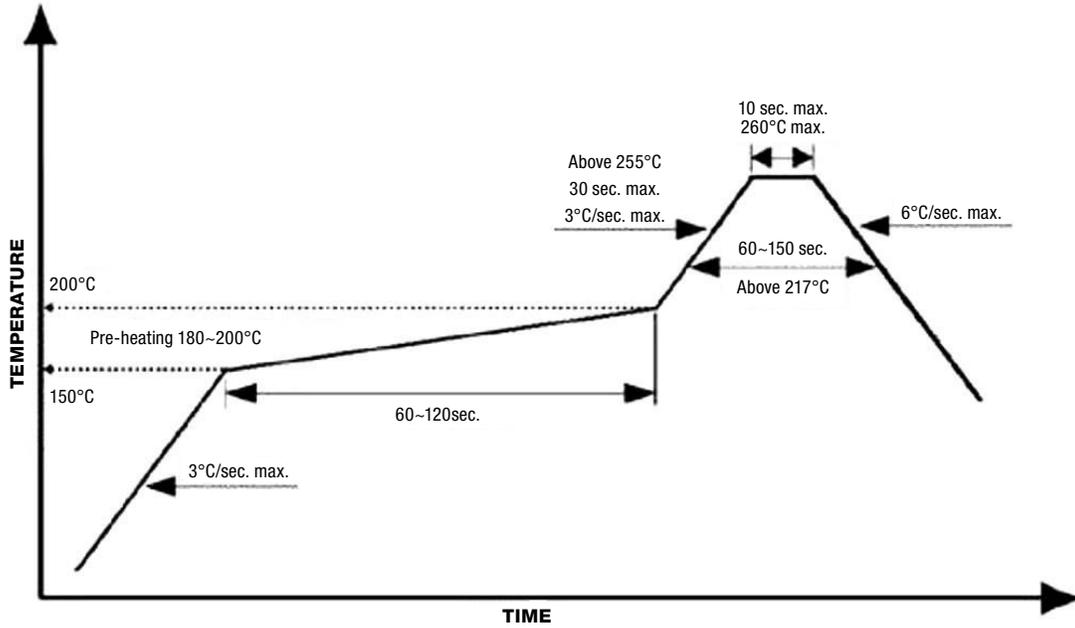
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60-150 sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
1208 Package Side View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-1QC0-147IRF](#)

DIMENSIONS:  
3.0 x 2.0 x 1.0mm

LENS COLOR:  
Clear

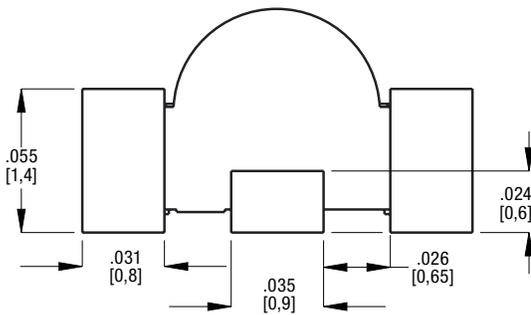
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
3000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

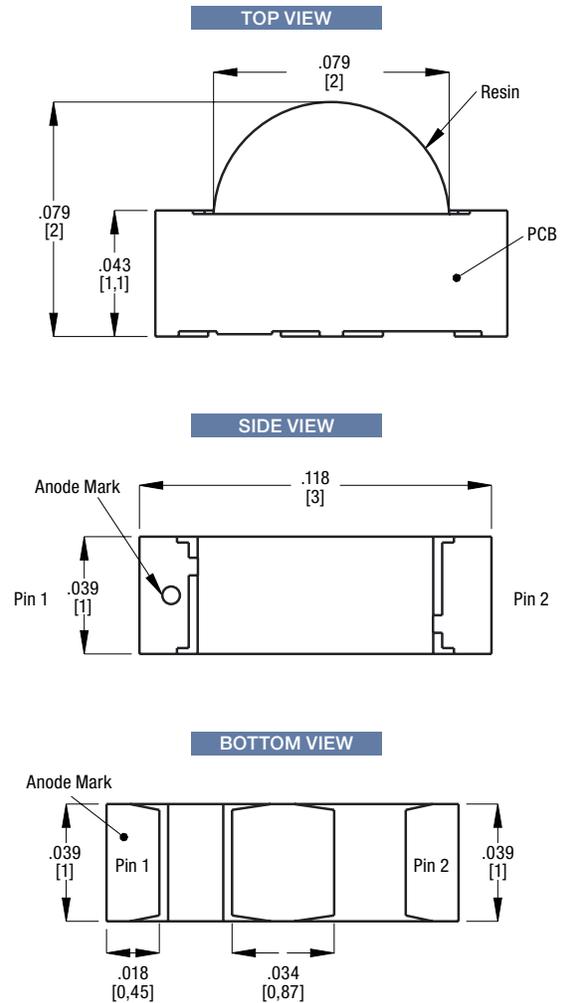
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	150	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

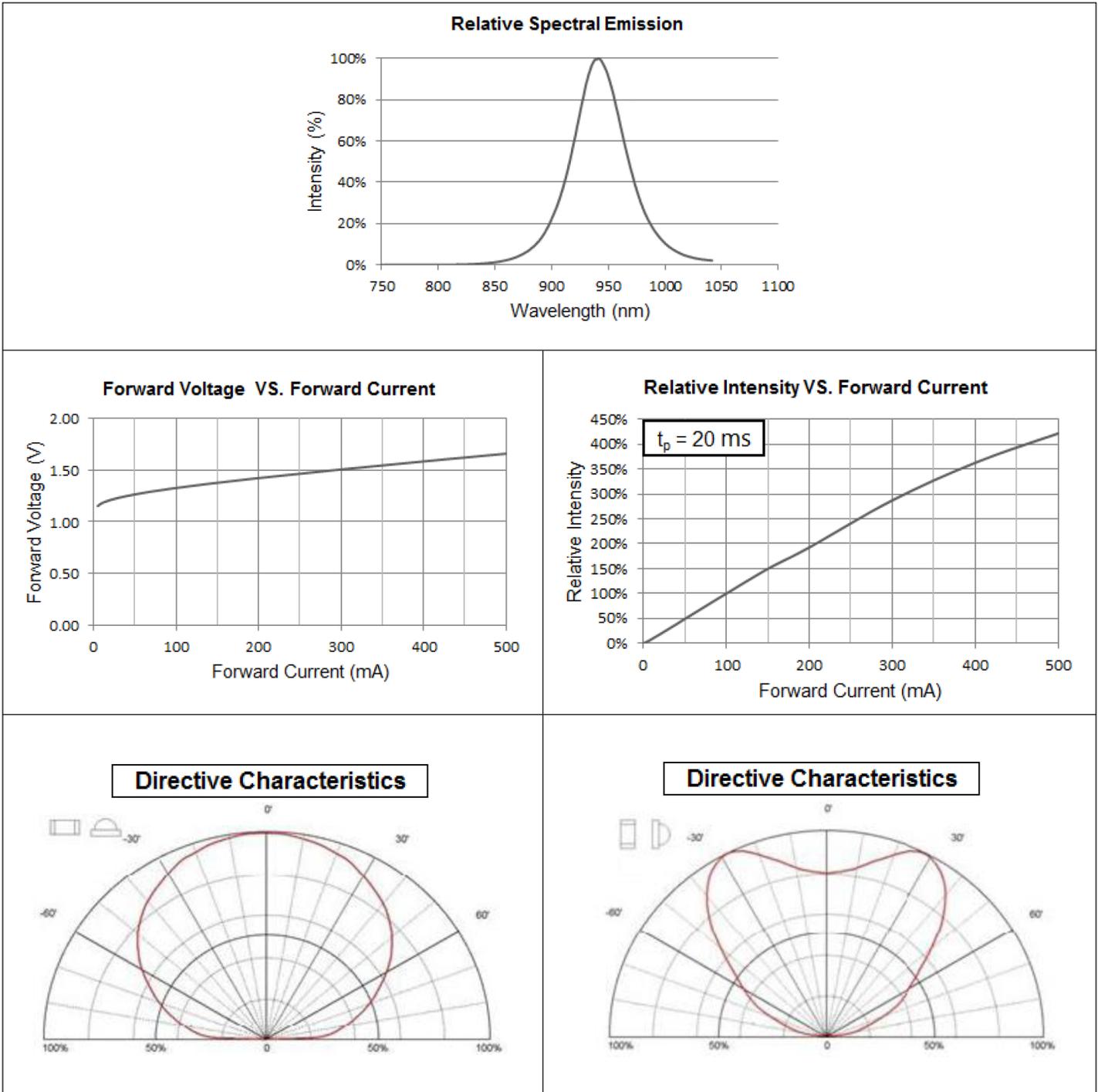
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

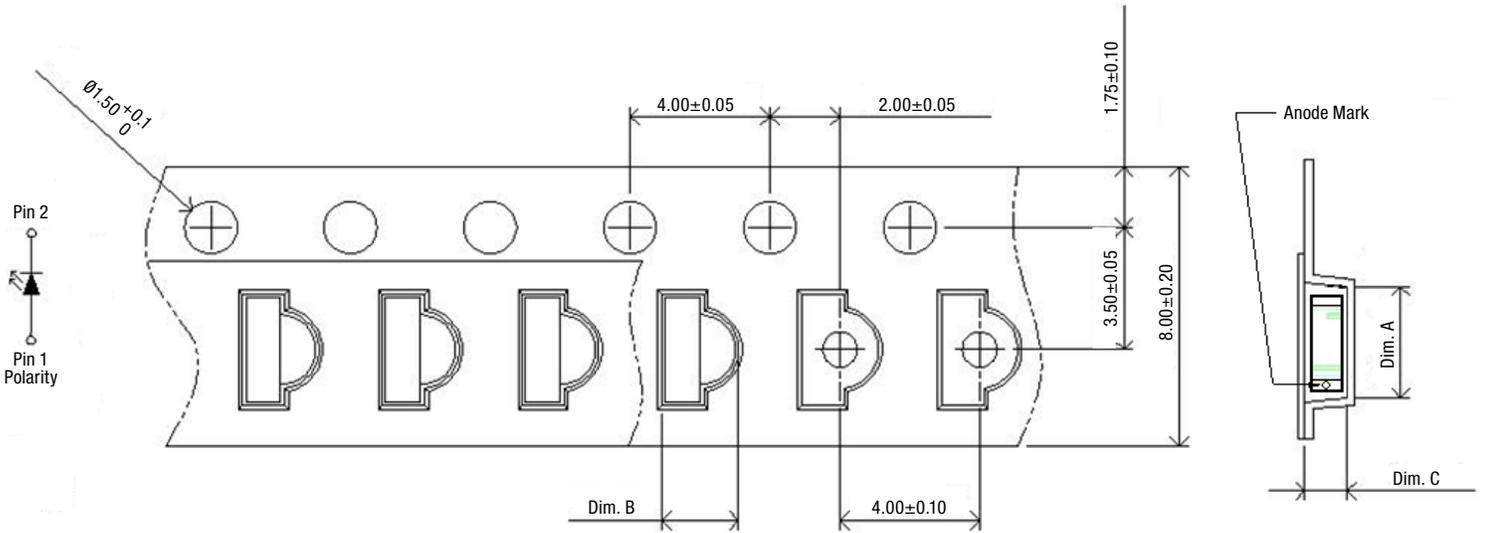
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=100mA$	30	43	60	mW/sr
$\lambda_p$	Peak Wavelength	$I_F=100mA$	-	940	950	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=100mA$		50	-	nm
$V_F$	Forward Voltage	$I_F=100mA$	1.2	1.4	1.6	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{\frac{1}{2}}$	Angle of Half Intensity (X)	$I_F=100mA$	-	140	-	deg
	Angle of Half Intensity (Y)		-	120	-	

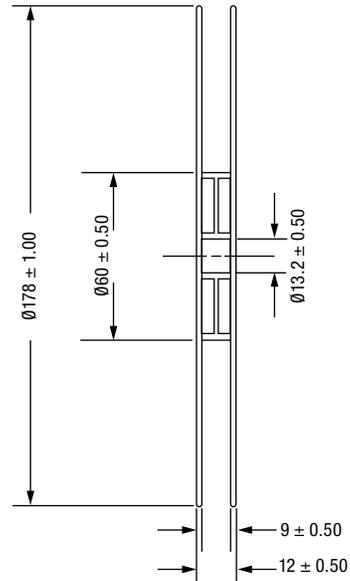
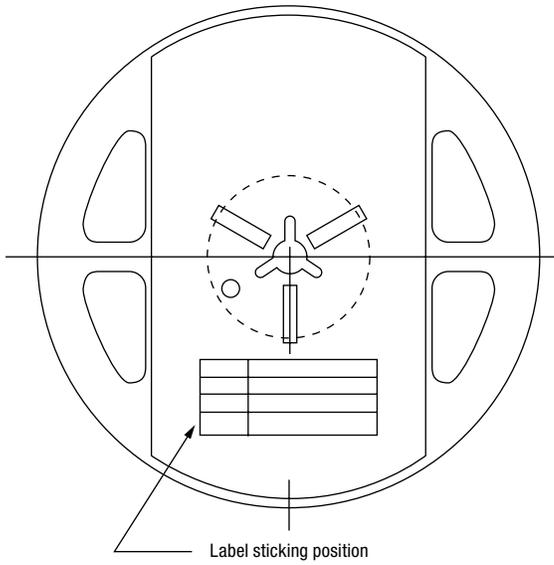
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.2±0.10	2.20±0.10	1.20±0.10	3K



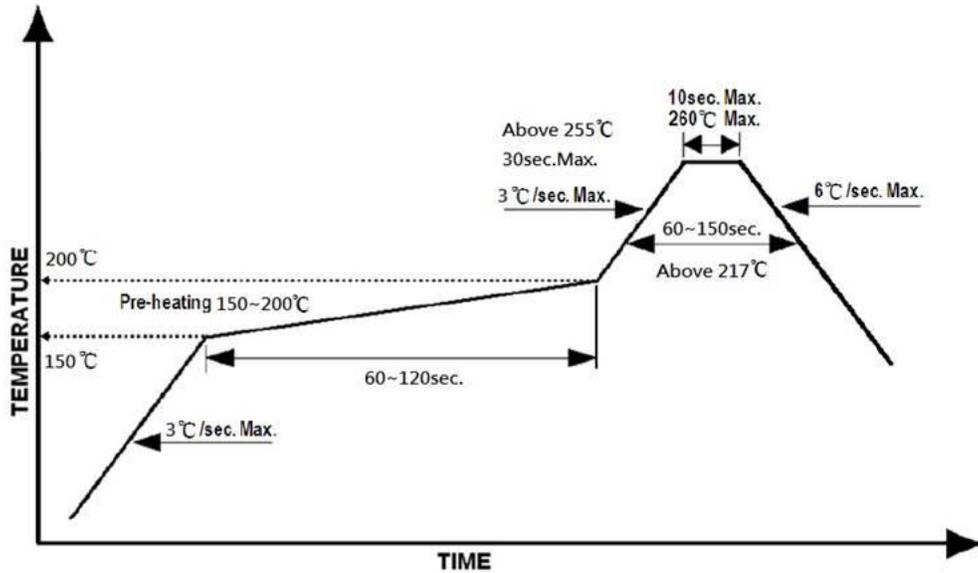
Unit: mm

### REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 217°C, 60~150 sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

### LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
1209 Package Side View 850nm  
With Dome Lens

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-2ECO-147IRF](#)

DIMENSIONS:  
3.2 x 2.55 x 1.6mm

LENS COLOR:  
Clear

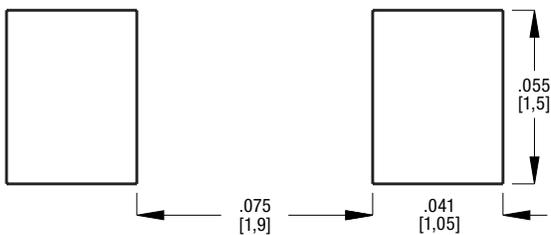
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

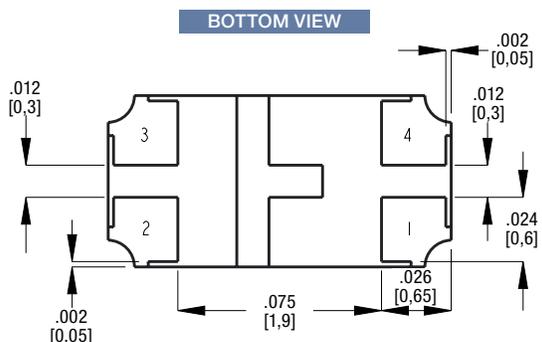
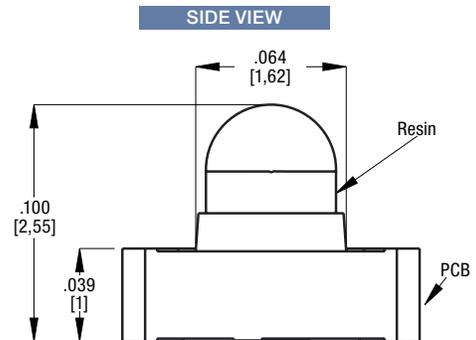
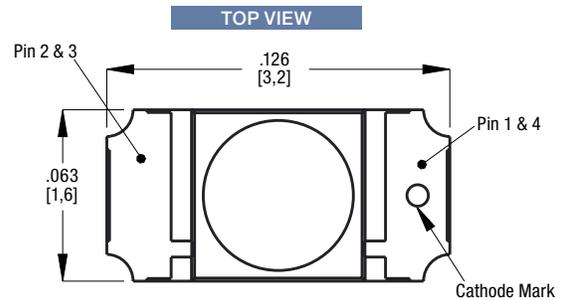
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	50	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

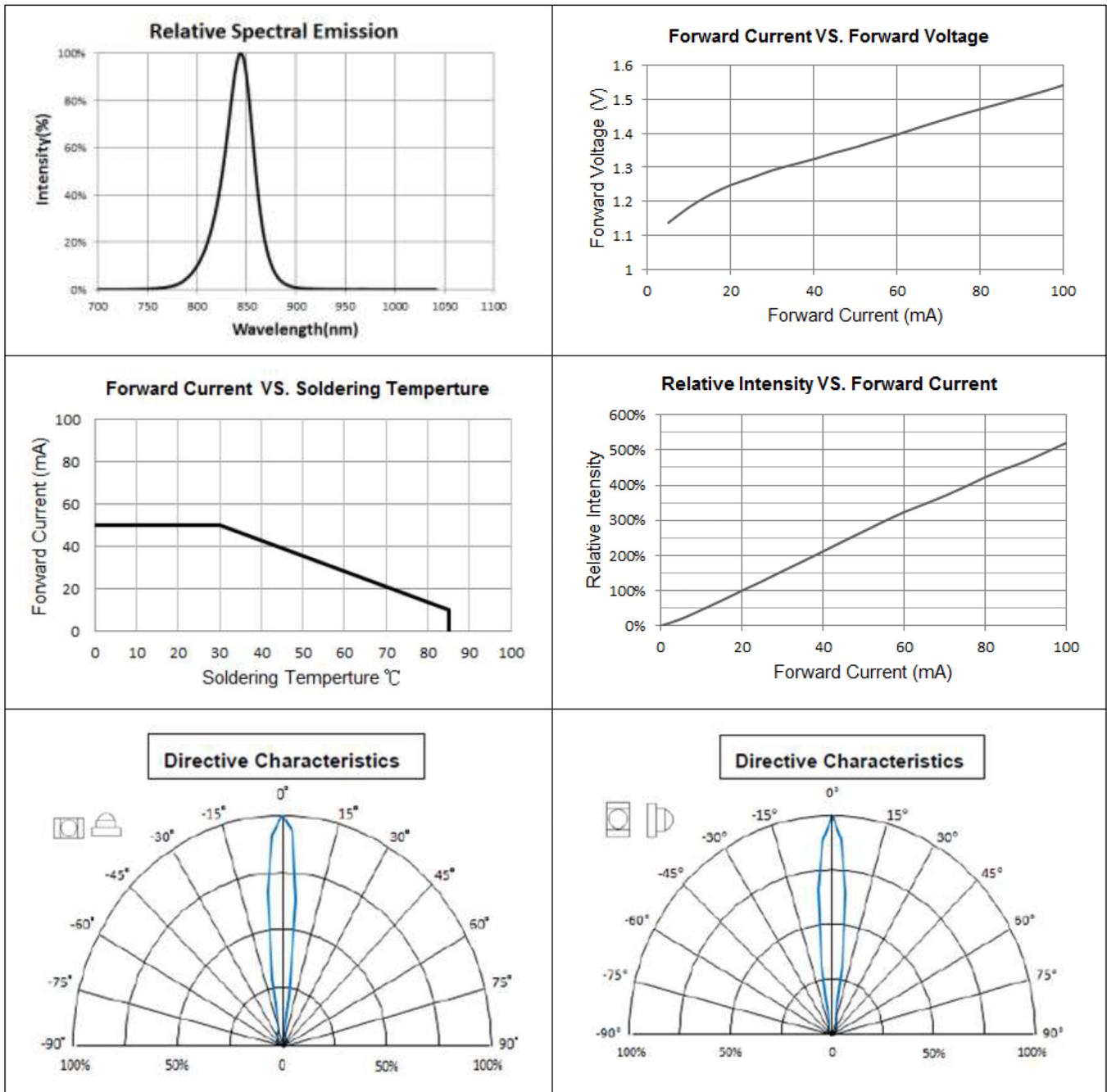
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

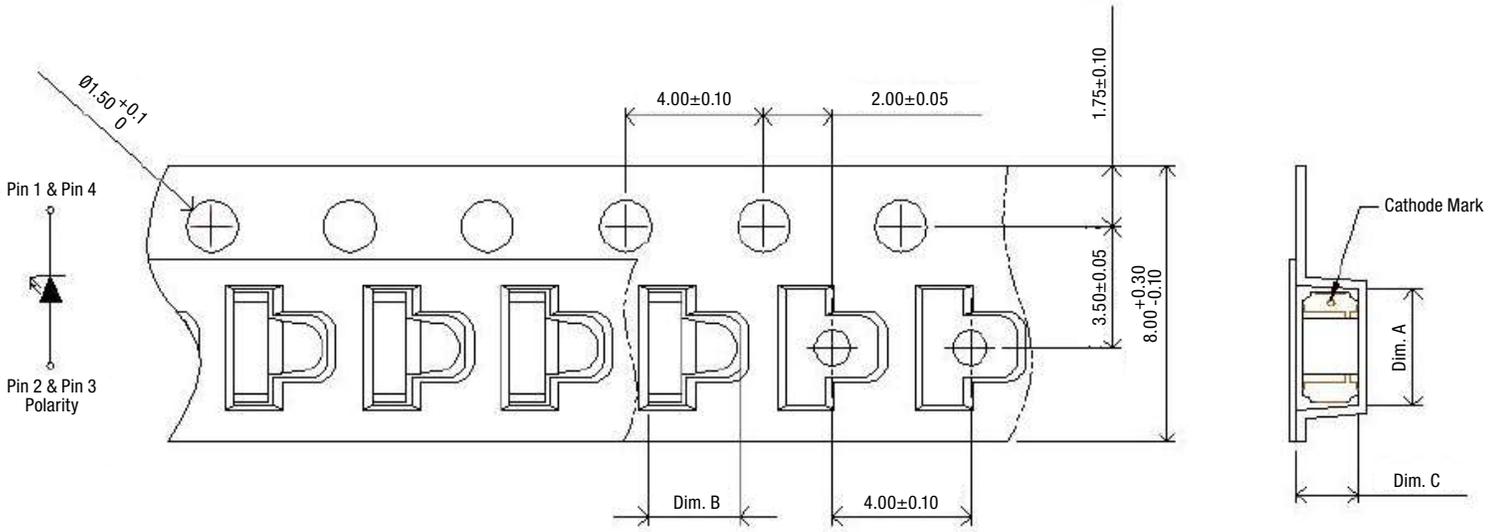
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	7.5	11	15	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.45	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	20	-	deg
	Angle of Half Intensity (Y)		-	20	-	

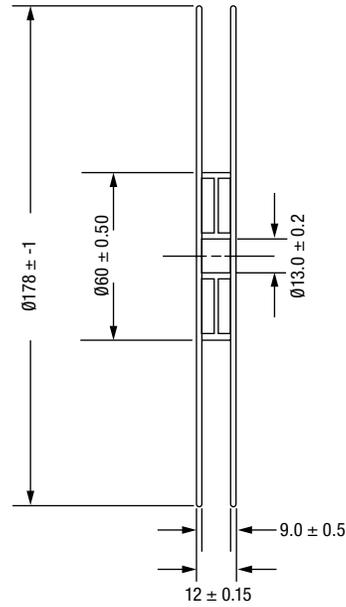
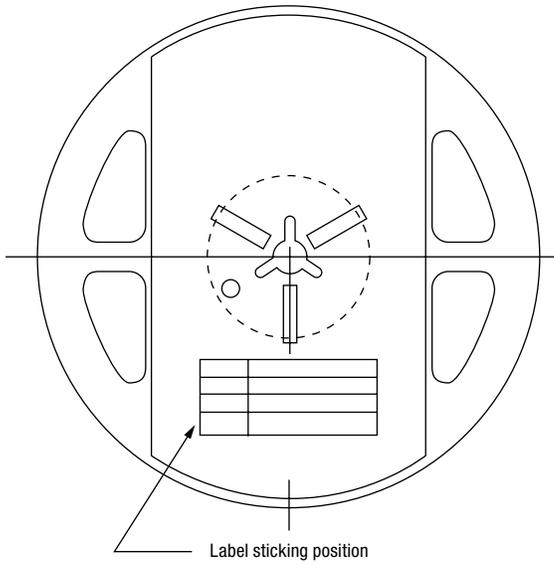
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.30±0.10	1.70±0.10	2.2±0.10	2K



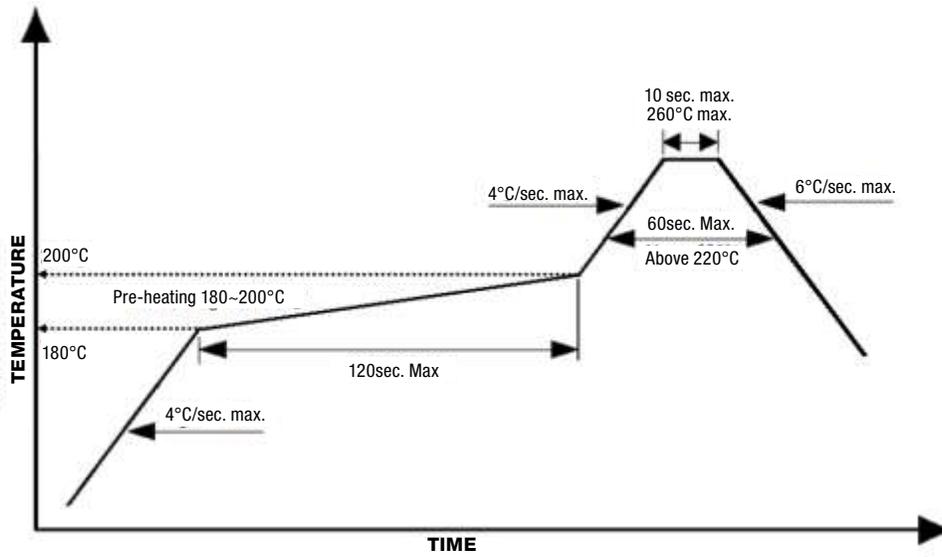
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
1209 Package Side View 940nm  
With Dome Lens

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-2ECO-147IRF](#)

DIMENSIONS:  
3.2 x 2.55 x 1.6mm

LENS COLOR:  
Diffused

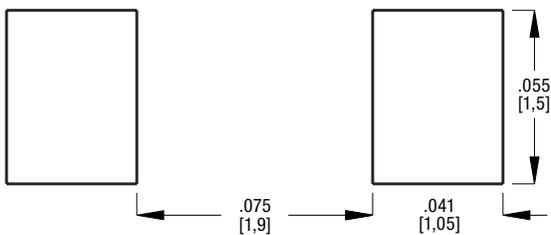
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

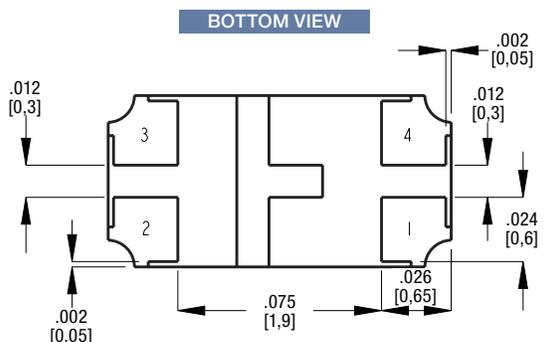
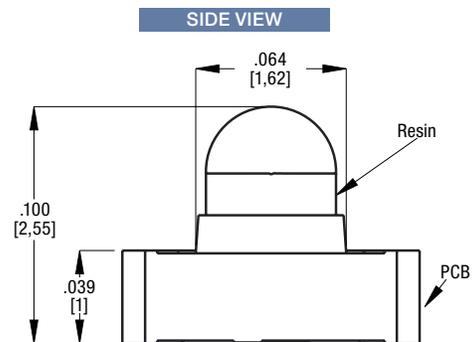
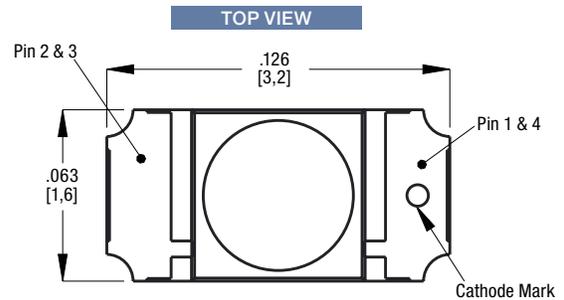
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{st}$	Storage Temperature	-40~+100	°C	
$T_s$	Soldering Temperature	260	°C	2

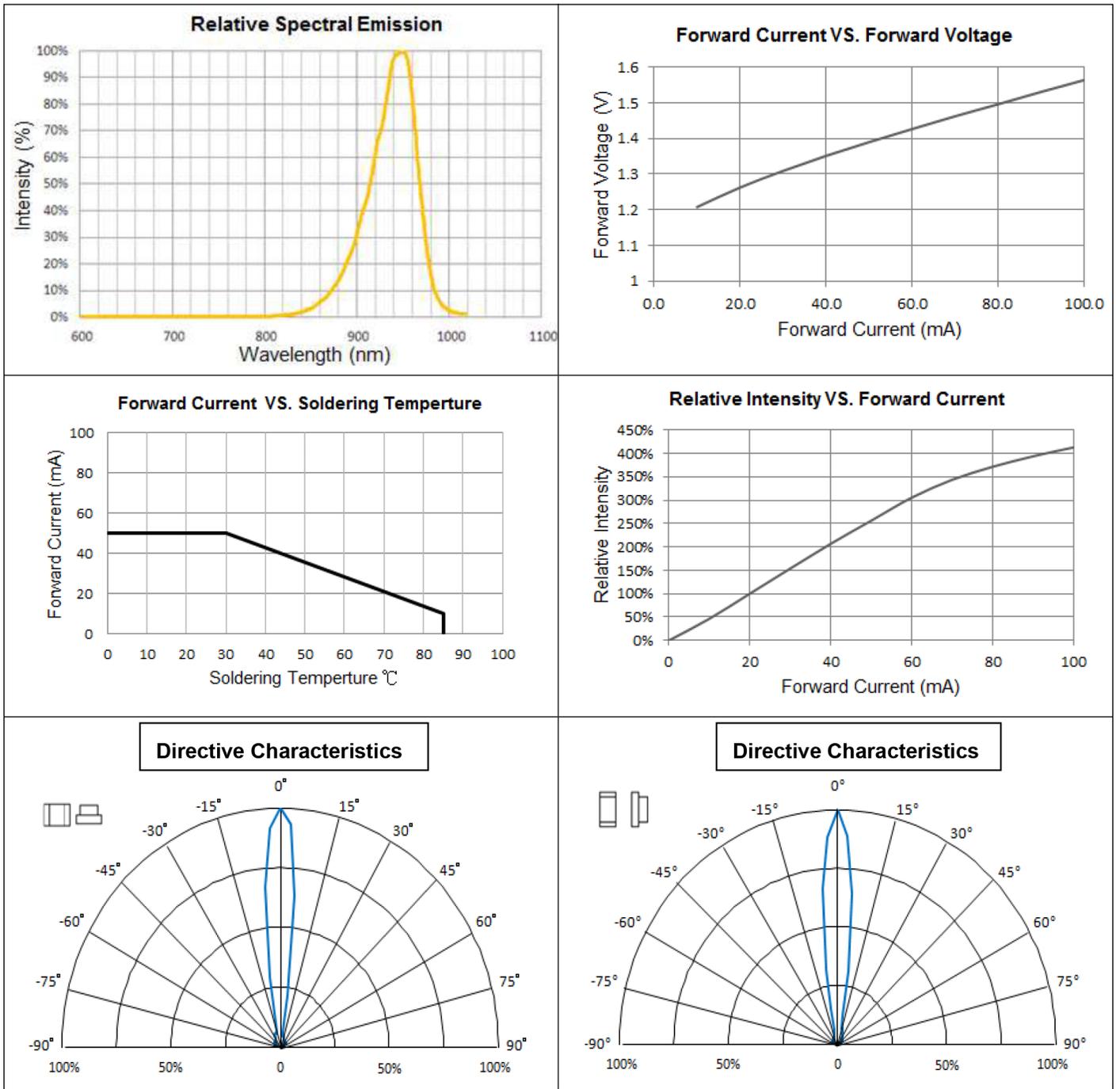
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

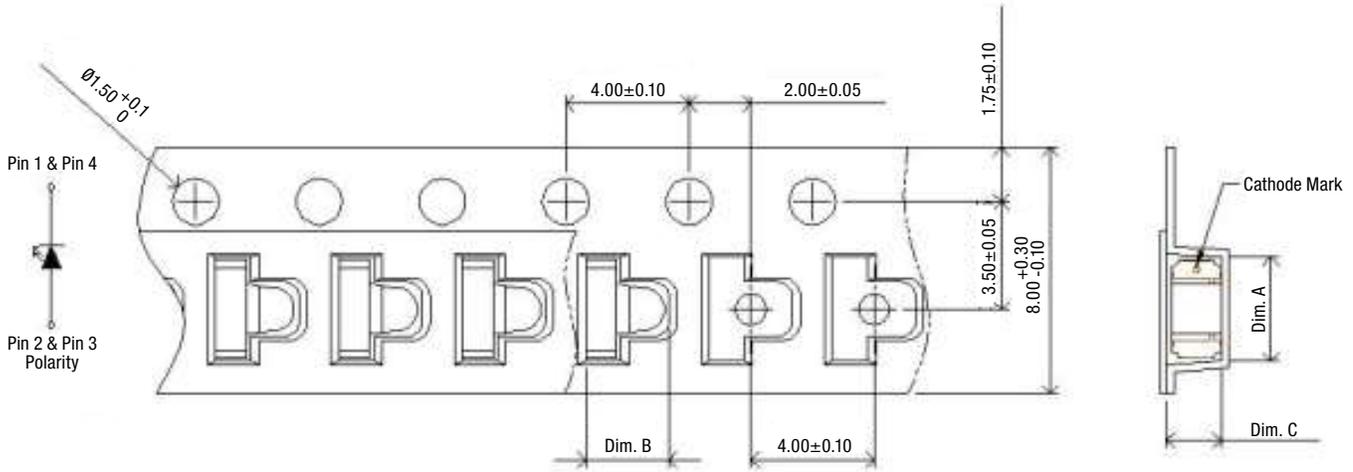
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	3.0	4.8	7.5	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.4	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	10	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	20	-	deg
	Angle of Half Intensity (Y)		-	20	-	

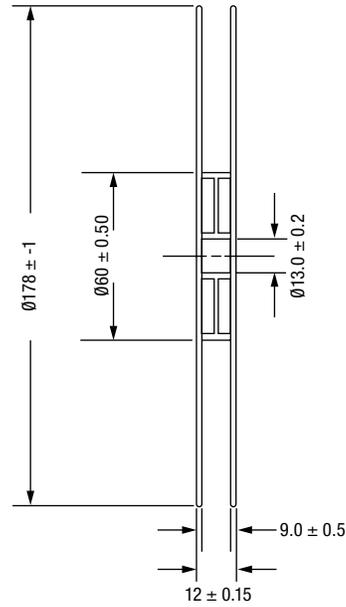
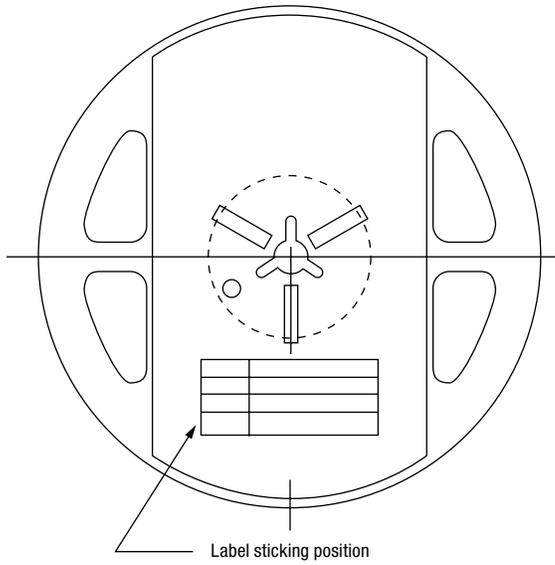
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.30±0.10	1.70±0.10	2.2±0.10	2K



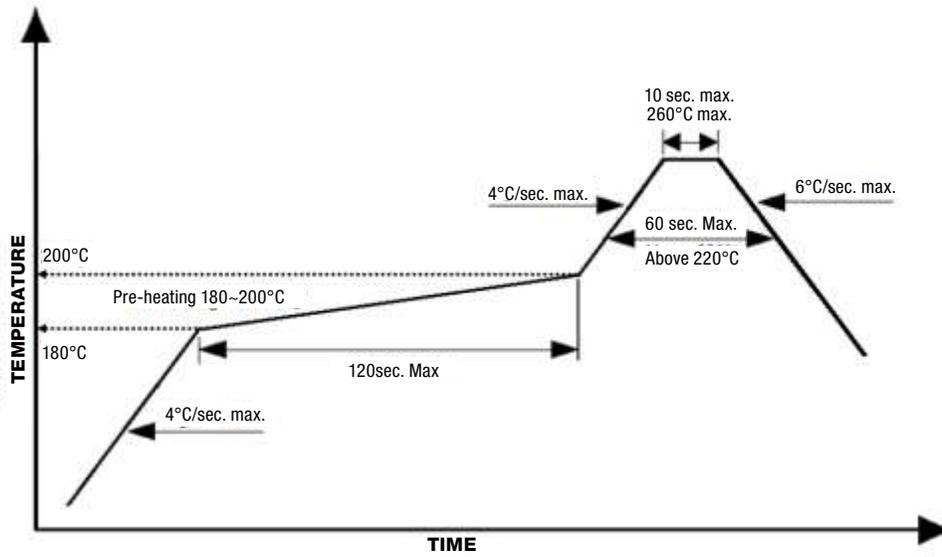
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
2812 PLCC-2 Package Side View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-4HA0-147IRF](#)

DIMENSIONS:  
2.8 x 1.2 x 0.8mm

LENS COLOR:  
Clear

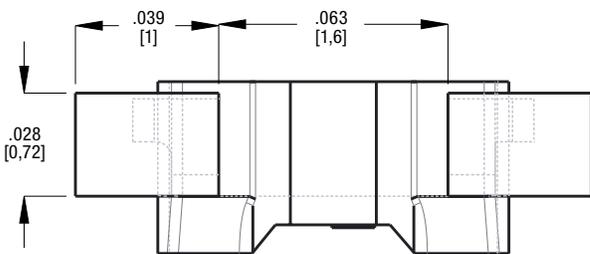
LENS MATERIAL:  
Silicon

STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**RECOMMENDED PAD LAYOUT**

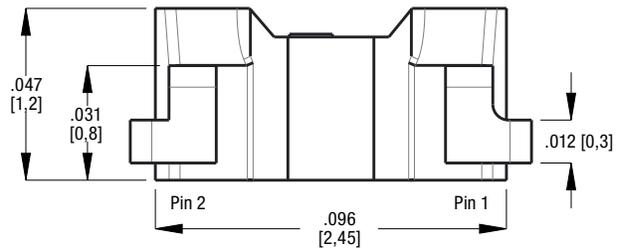


**LED SCHEMATIC**

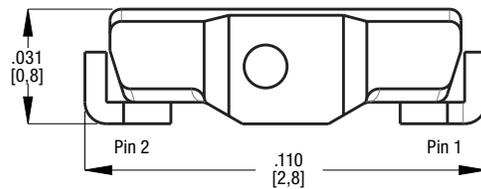


**DIMENSIONS inches [mm]**

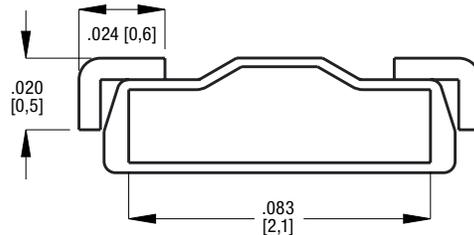
**TOP VIEW**



**SIDE VIEW**



**BOTTOM VIEW**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

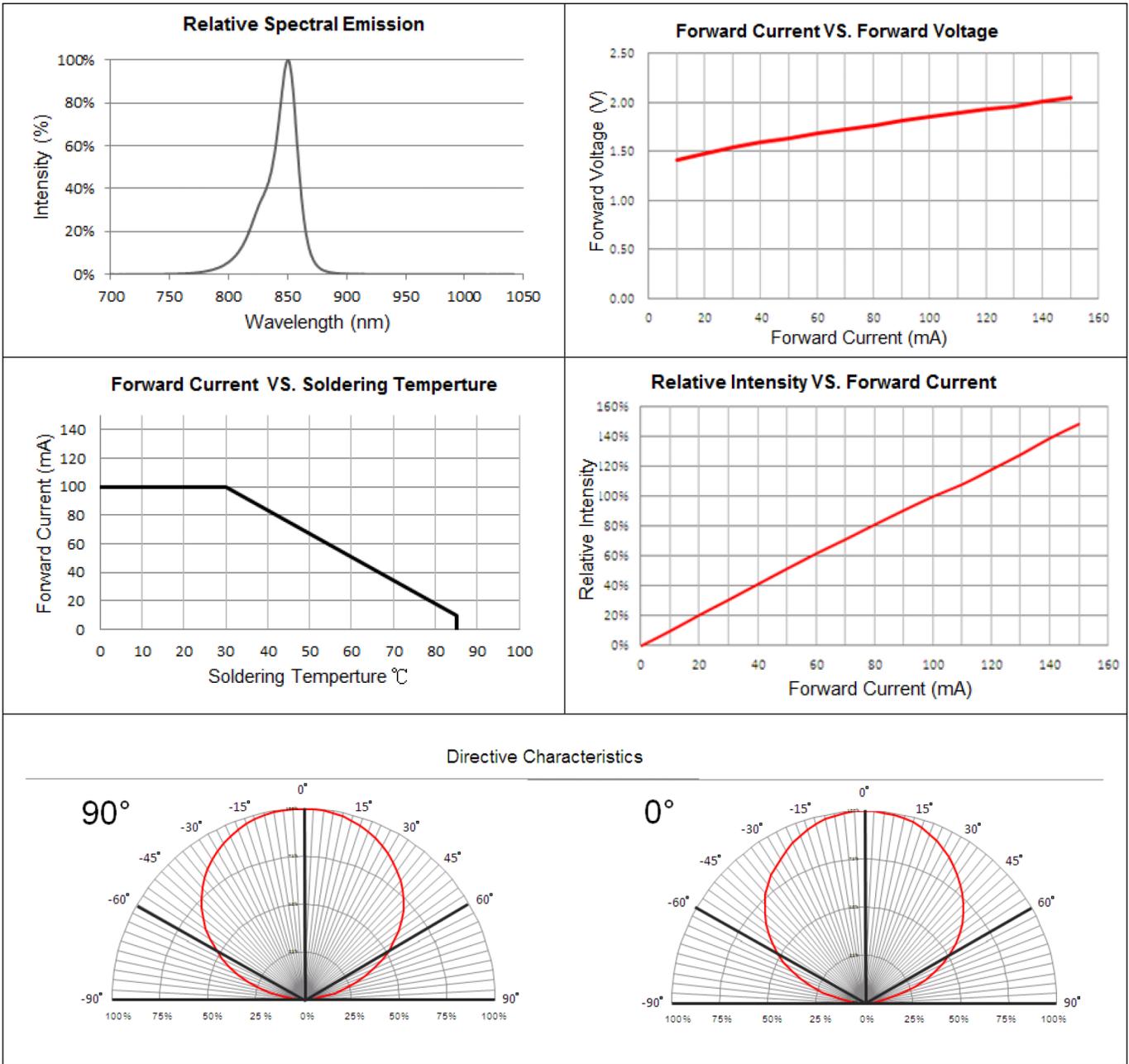
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

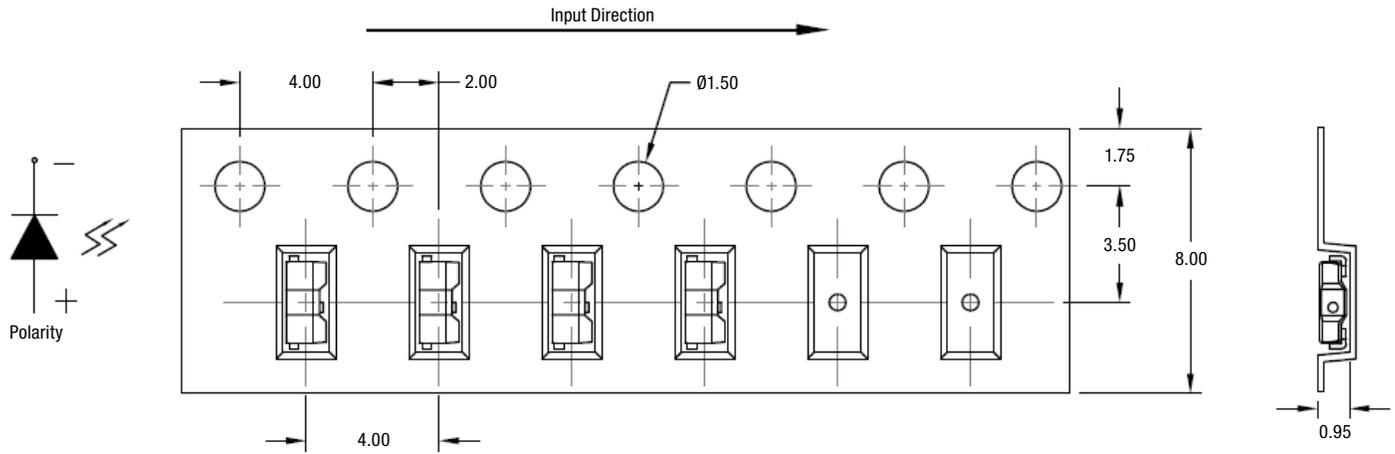
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=100mA$	10	13	17.5	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=100mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=100mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=100mA$	1.3	1.9	2.1	V
$I_R$	Reverse Current	$V_R=5V$	-	-	100	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=100mA$	-	120	-	deg
	Angle of Half Intensity (Y)		-	120	-	

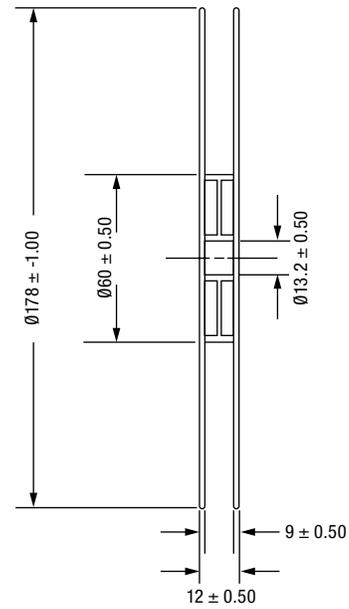
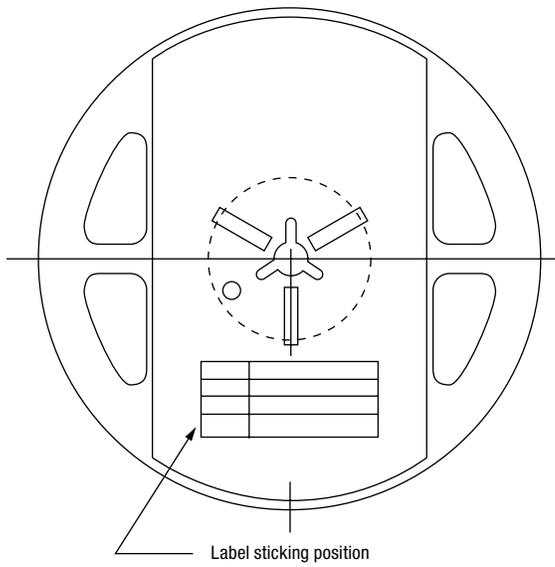
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.05±0.10	1.35±0.10	0.95±0.10	2K



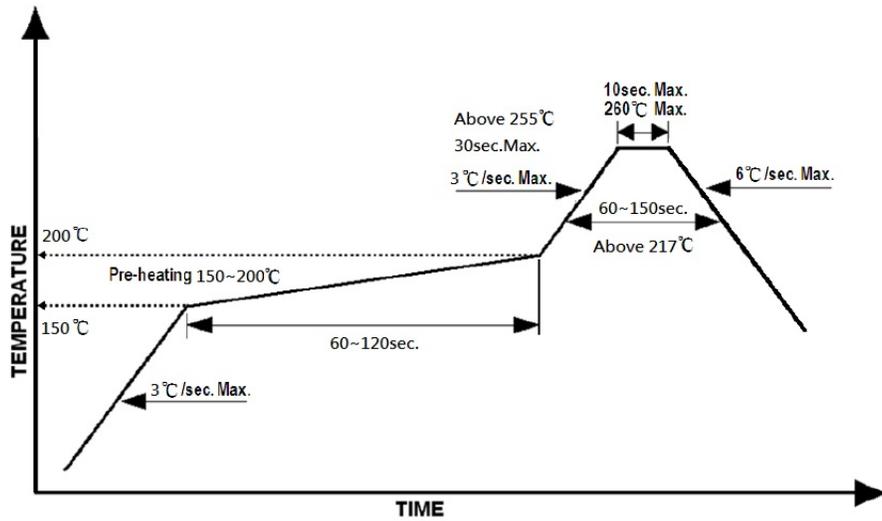
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
2812 PLCC-2 Package Side View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-4HC0-147IRF](#)

DIMENSIONS:  
2.8 x 1.2 x 0.8mm

LENS COLOR:  
Clear

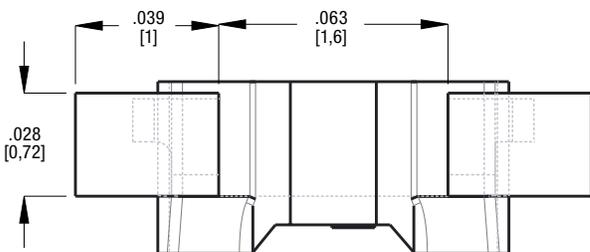
LENS MATERIAL:  
Silicon

STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**RECOMMENDED PAD LAYOUT**

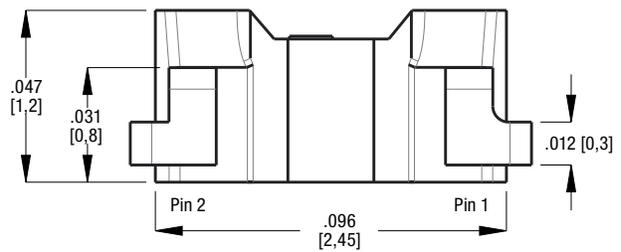


**LED SCHEMATIC**

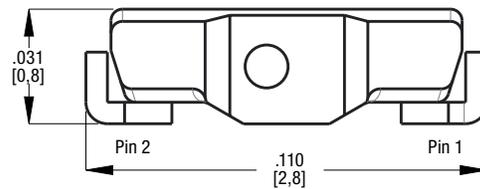


**DIMENSIONS inches [mm]**

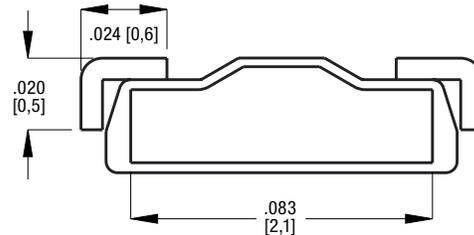
**TOP VIEW**



**SIDE VIEW**



**BOTTOM VIEW**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

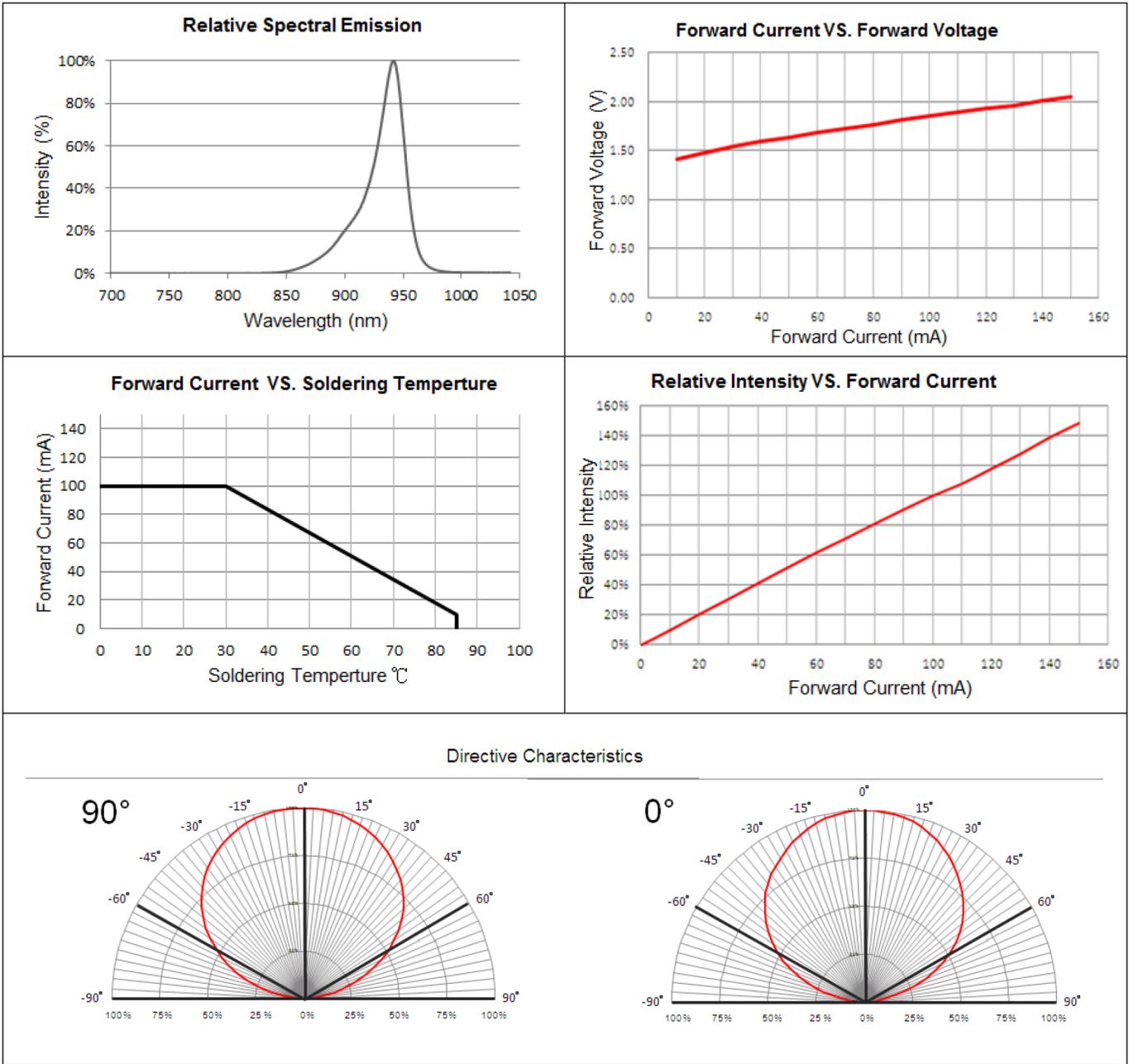
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

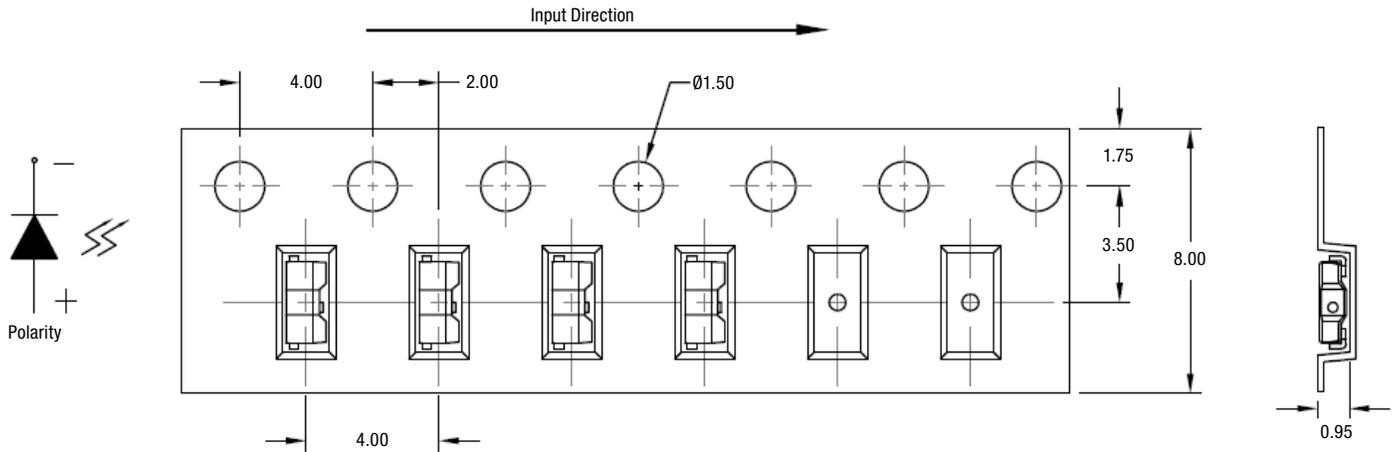
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=100mA$	10	13	17.5	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=100mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=100mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=100mA$	1.3	1.5	2.1	V
$I_R$	Reverse Current	$V_R=5V$	-	-	100	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=100mA$	-	120	-	deg
	Angle of Half Intensity (Y)		-	120	-	

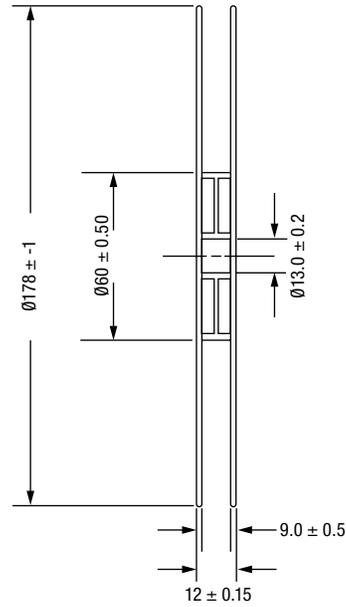
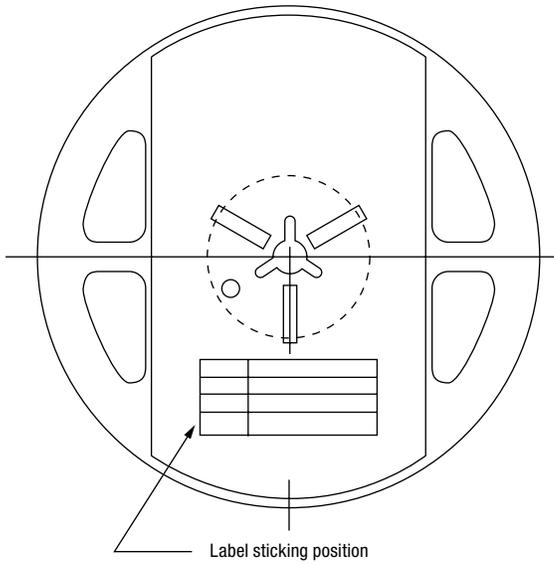
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.05±0.10	1.35±0.10	0.95±0.10	2K



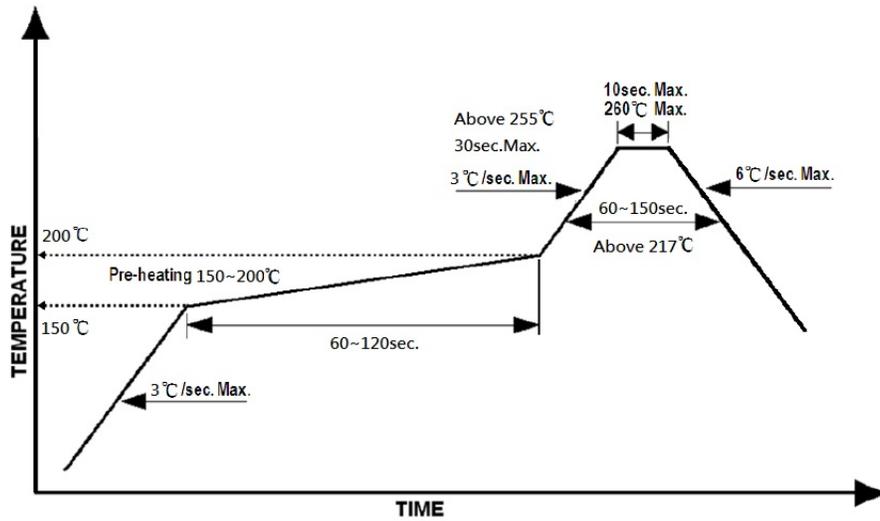
Unit: mm

### REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 217°C, 60~150sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

### LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**598 SERIES**  
**Infrared SMD LED**  
3528 PLCC-4 Package Top View 850nm  
With Dome Lens

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[598-2JA0-103IRF](#)

DIMENSIONS:  
3.5 x 2.8 x 3.5mm

LENS COLOR:  
Diffused

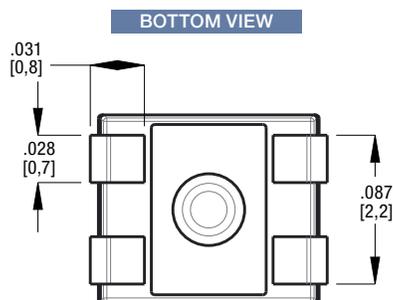
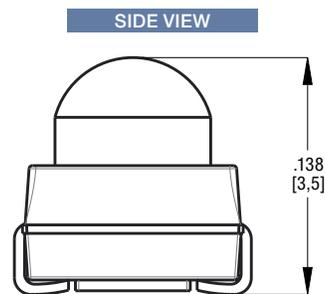
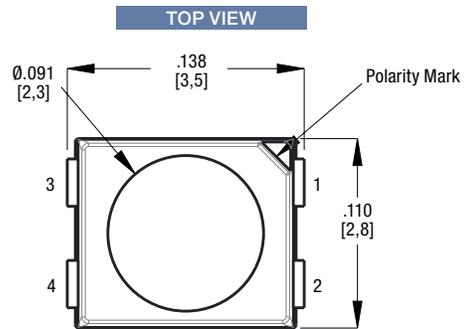
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
2000/reel

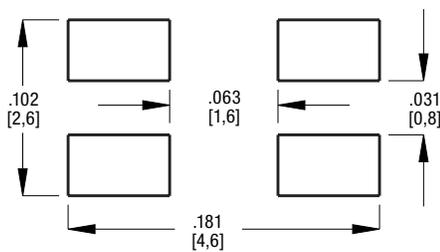
MOISTURE SENSITIVITY LEVEL:  
3

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

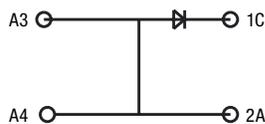
**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



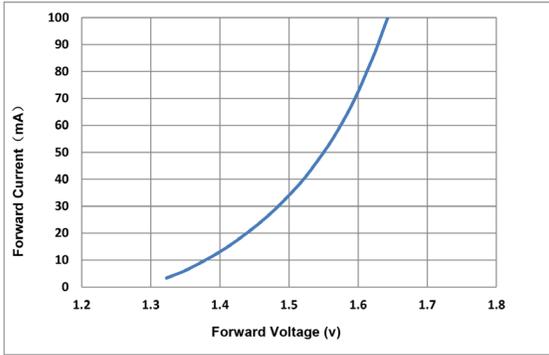
ABSOLUTE MAXIMUM RATINGS AT  $T_s=25^{\circ}\text{C}$

Symbol	Parameter	Ratings	Units
$P_D$	Power Dissipation	190	mW
$I_F$	Forward Current	100	mA
$I_{FP}$	Peak Forward Current	700	mA
$V_R$	Reverse Voltage	5	V
$E_{SD}$	Electrostatic Discharge	2000	V
$T_{OPR}$	Operating Temperature	-40~+100	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-40~+100	$^{\circ}\text{C}$
$T_J$	Junction Temperature	120	$^{\circ}\text{C}$

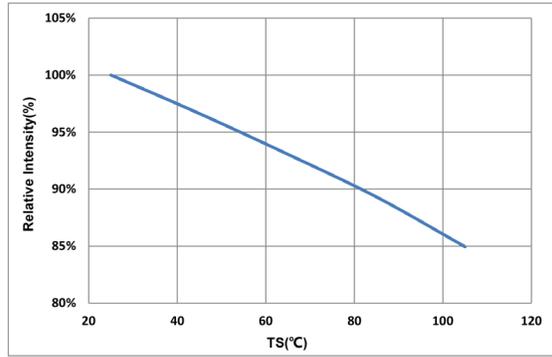
ELECTRICAL - OPTICAL CHARACTERISTICS AT  $T_s=25^{\circ}\text{C}$

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$V_F$	Forward Voltage	$I_F=100\text{mA}$	1.2	1.6	1.8	V
$I_R$	Reverse Current	$V_R=5\text{V}$	-	-	10	$\mu\text{A}$
$I_e$	Radiant Intensity	$I_F=100\text{mA}$	71.5	180	285	mW/sr
Wd	Peak Wavelength	$I_F=100\text{mA}$	840	850	860	nm
$2\theta_{1/2}$	Viewing Angle	$I_F=100\text{mA}$	-	30	-	deg
$R_{THJ-S}$	Thermal Resistance	$I_F=100\text{mA}$	-	-	130	K/W

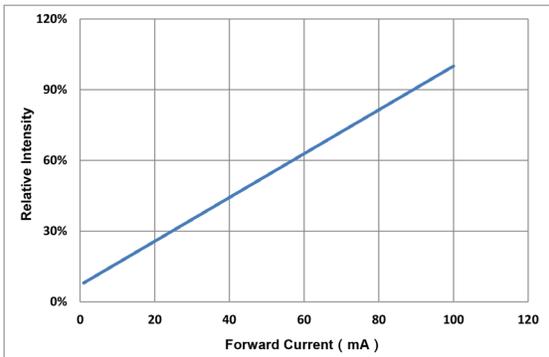
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



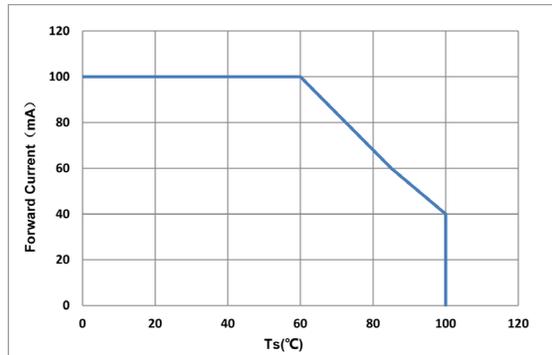
Forward Voltage vs Forward Current



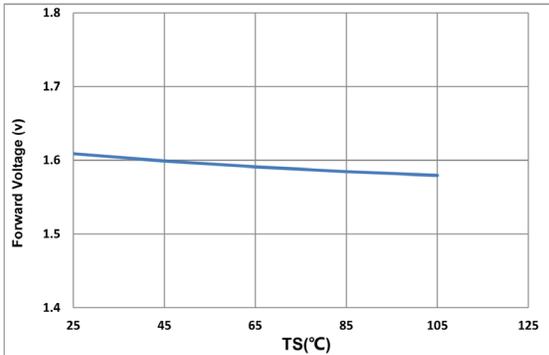
Solder Temperature vs Relative Intensity



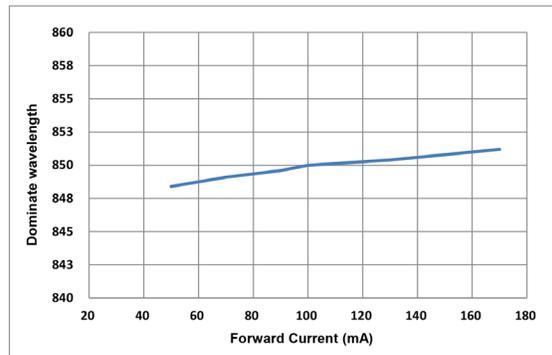
Forward Current vs Relative Intensity



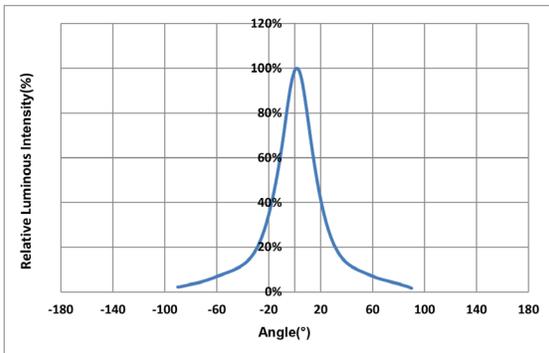
Solder Temperature vs Forward Current Tj ≤ 120°C



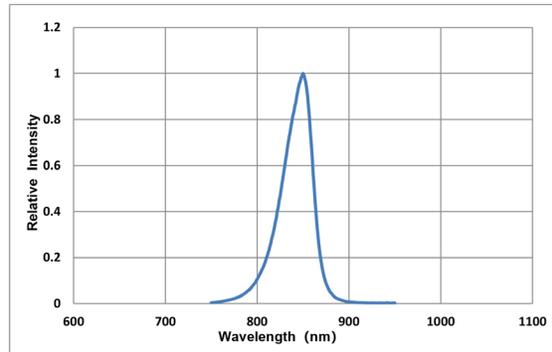
Forward Voltage vs Solder Temperature



Forward current vs Dominate Wavelength (Ts=25°C)

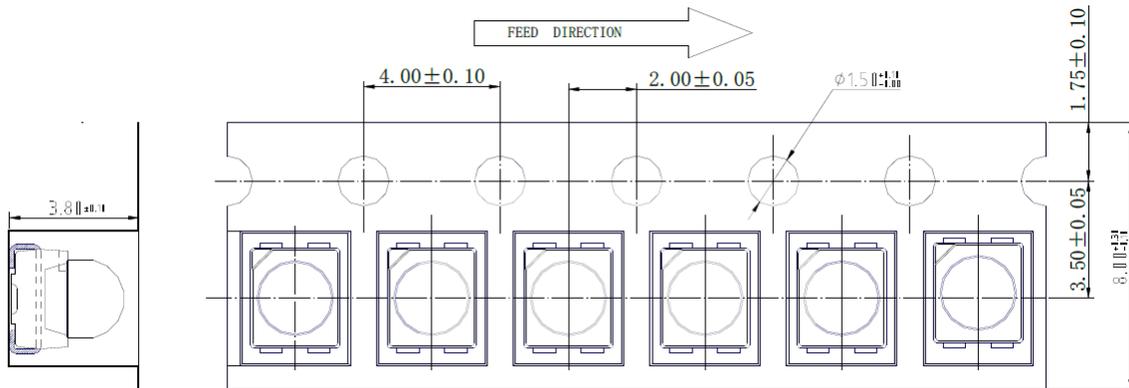


Radiation Diagram

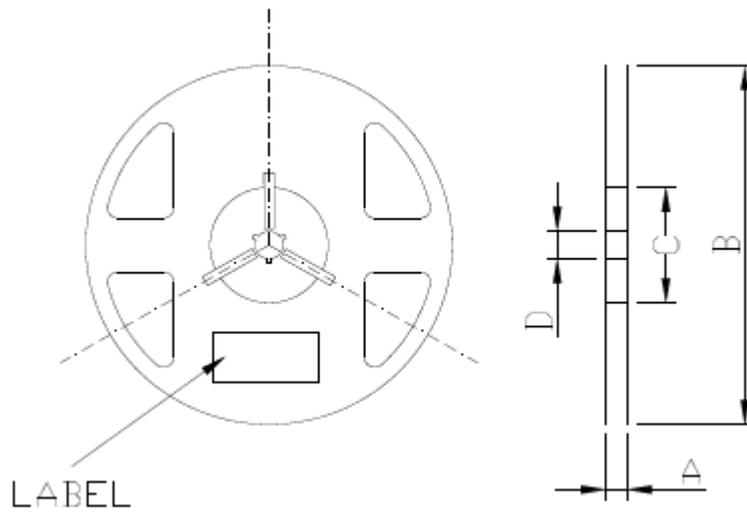


Spectrum Distribution

TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Dim D
16.6±0.3	330±1	60±0.2	13.6±2

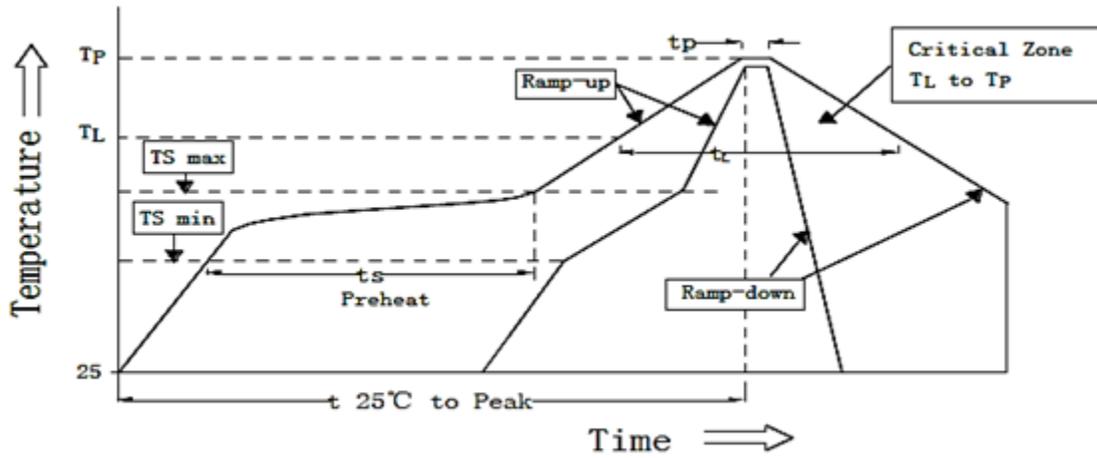


REFLOW SOLDERING

Recommended soldering paste specifications:

1. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Average temperature rise speed (T <sub>smax</sub> - T <sub>F</sub> )	Max 3 °C/ s
Preheating: minimum temperature (T <sub>smin</sub> )	150 °C
Preheating: Max temperature (T <sub>smax</sub> )	200 °C
Preheating: Time ( T <sub>smin</sub> - T <sub>smax</sub> )	60s-120s
Time limited to maintain high temperature: the temperature ( T <sub>L</sub> )	217 °C
Time limited to maintain high temperature: The Time ( t <sub>L</sub> )	Max 60s
Peak / Classification of temperature ( T <sub>P</sub> )	260 °C
Time limit classification of peak temperature time ( t <sub>p</sub> )	Max 10s
Hold time within 5 °C with the actual peak temperature ( T <sub>P</sub> )	Max 30s
Cooling speed	Max 6 °C/ s
Needed time from 25 °C to T <sub>p</sub>	Max 8 minutes



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



598 SERIES

**Infrared SMD LED**

3528 PLCC-4 Package Top View 940nm  
With Dome Lens

MECHANICAL / SPECIFICATIONS

PART NUMBER:  
[598-2JC0-103IRF](#)

DIMENSIONS:  
3.5 x 2.8 x 3.5mm

LENS COLOR:  
Diffused

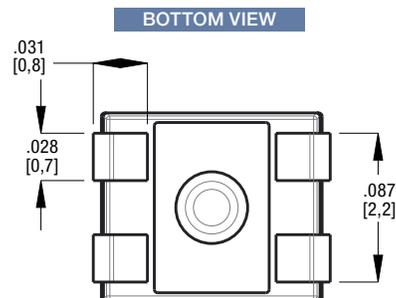
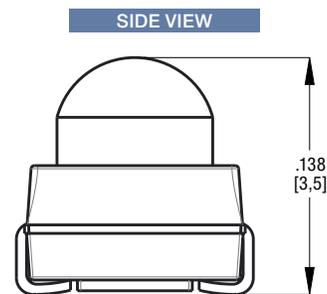
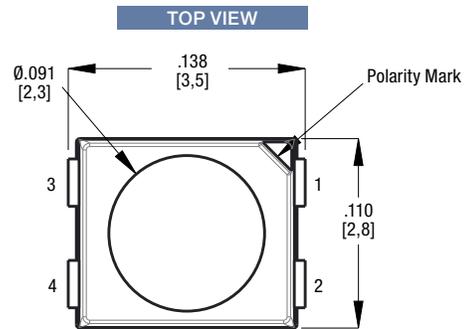
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
2000/reel

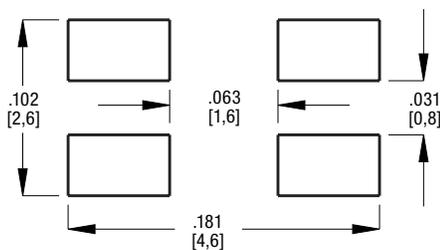
MOISTURE SENSITIVITY LEVEL:  
3

CERTIFICATIONS & RATINGS  
RoHS Compliant

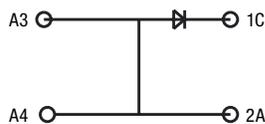
DIMENSIONS inches [mm]



RECOMMENDED PAD LAYOUT



LED SCHEMATIC



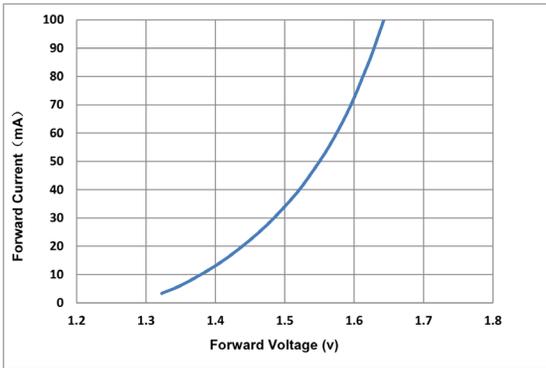
ABSOLUTE MAXIMUM RATINGS AT  $T_s=25^{\circ}\text{C}$

Symbol	Parameter	Ratings	Units
$P_D$	Power Dissipation	180	mW
$I_F$	Forward Current	100	mA
$I_{FP}$	Peak Forward Current	700	mA
$V_R$	Reverse Voltage	5	V
$E_{SD}$	Electrostatic Discharge	2000	V
$T_{OPR}$	Operating Temperature	-40~+100	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-40~+100	$^{\circ}\text{C}$
$T_J$	Junction Temperature	120	$^{\circ}\text{C}$

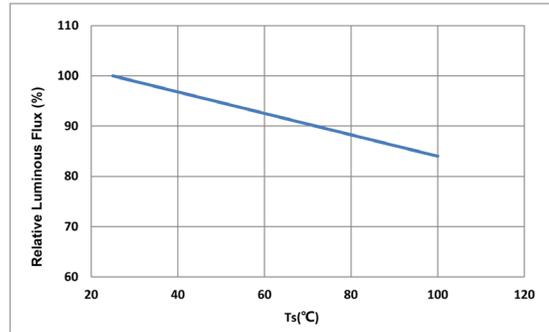
ELECTRICAL - OPTICAL CHARACTERISTICS AT  $T_s=25^{\circ}\text{C}$

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$V_F$	Forward Voltage	$I_F=100\text{mA}$	1.2	1.6	1.8	V
$I_R$	Reverse Current	$V_R=5\text{V}$	-	-	10	$\mu\text{A}$
$I_e$	Radiant Intensity	$I_F=100\text{mA}$	71.5	120	180	mW/sr
$\lambda_d$	Peak Wavelength	$I_F=100\text{mA}$	930	940	960	nm
$2\theta_{1/2}$	Viewing Angle	$I_F=100\text{mA}$	-	30	-	deg
$R_{THJ-S}$	Thermal Resistance	$I_F=100\text{mA}$	-	-	130	K/W

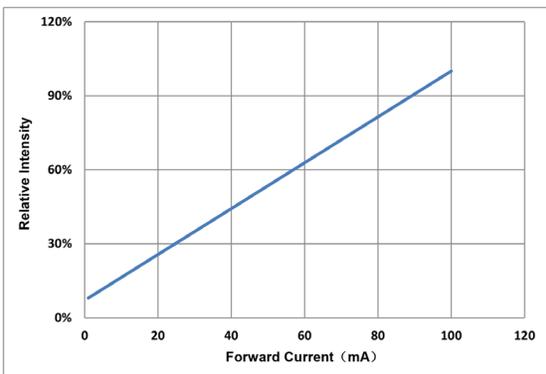
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



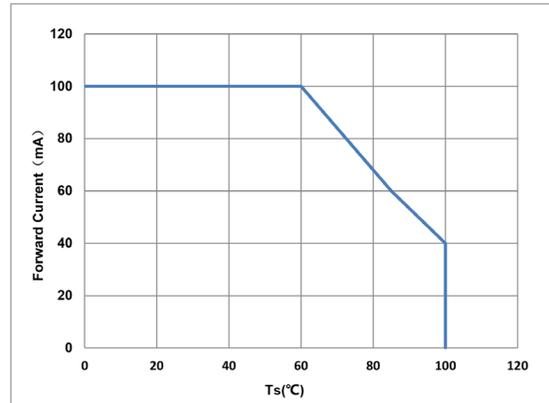
Forward Voltage vs Forward Current



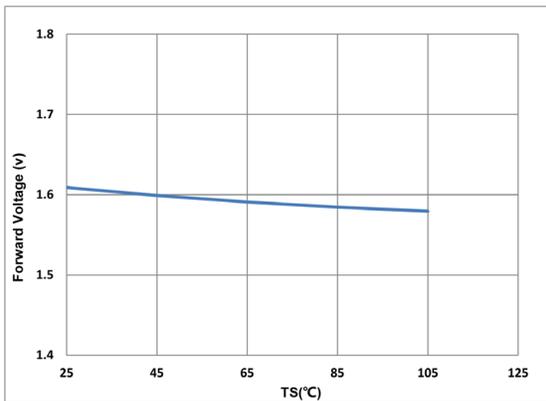
Solder Temperature vs Relative Intensity



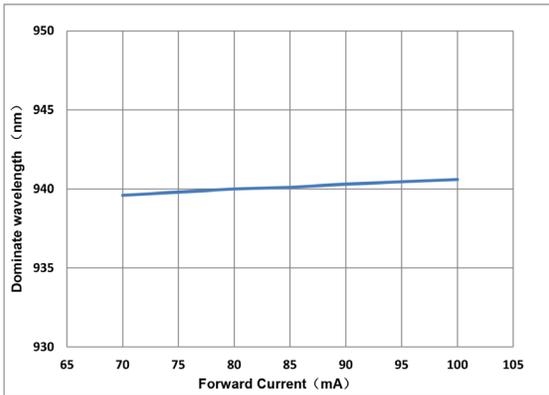
Forward Current vs Relative Intensity



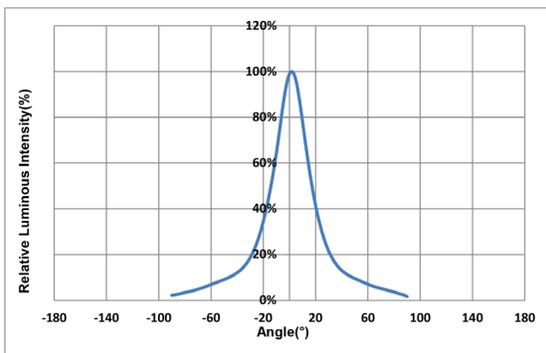
Solder Temperature vs Forward Current  $T_j \leq 120^\circ\text{C}$



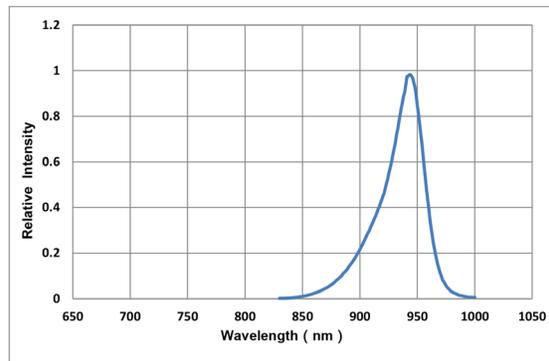
Forward Voltage vs Solder Temperature



Forward Current vs. Dominate Wavelength (Ts=25°C)

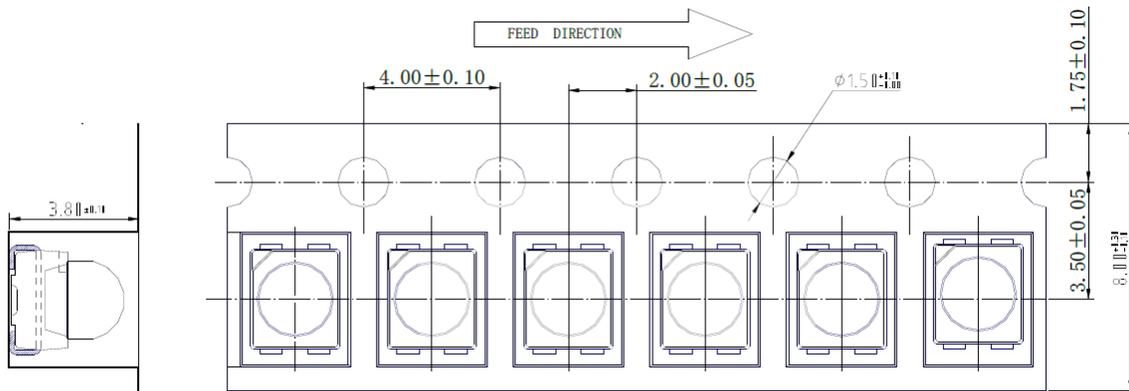


Radiation Diagram

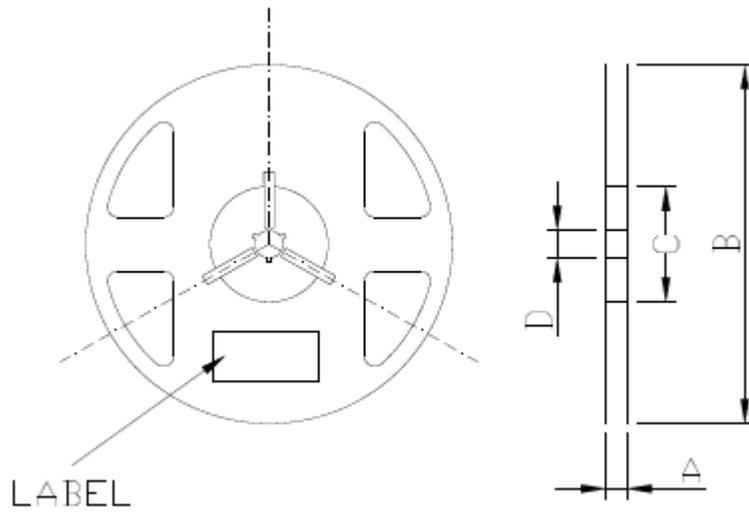


Spectrum Distribution

TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Dim D
$16.6 \pm 0.3$	$330 \pm 1$	$60 \pm 0.2$	$13.6 \pm 0.2$

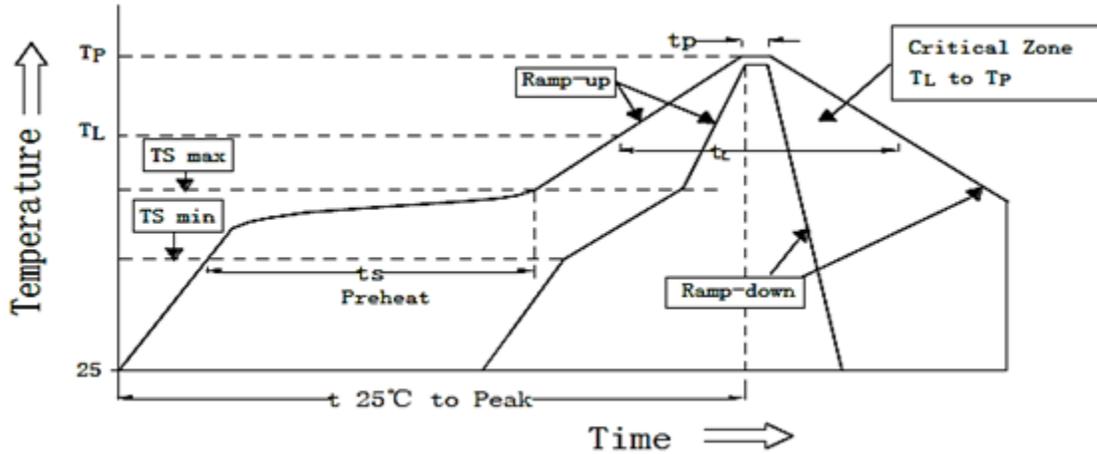


REFLOW SOLDERING

Recommended soldering paste specifications:

1. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Average temperature rise speed (T <sub>smax</sub> - T <sub>p</sub> )	Max 3 °C/ s
Preheating: minimum temperature (T <sub>smin</sub> )	150 °C
Preheating: Max temperature (T <sub>smax</sub> )	200 °C
Preheating: Time ( T <sub>smin</sub> - T <sub>smax</sub> )	60s-120s
Time limited to maintain high temperature: the temperature (T <sub>L</sub> )	217 °C
Time limited to maintain high temperature: The Time (t <sub>L</sub> )	Max 60s
Peak / Classification of temperature (T <sub>p</sub> )	260 °C
Time limit classification of peak temperature time ( t <sub>p</sub> )	Max 10s
Hold time within 5 °C with the actual peak temperature (TP)	Max 30s
Cooling speed	Max 6 °C/ s
Needed time from 25 °C to T <sub>p</sub>	Max 8 minutes



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
3528 PLCC-2 Package Top View 850nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-4FA0-147IRF](#)

DIMENSIONS:  
3.5 x 2.8 x 1.9mm

LENS COLOR:  
Clear

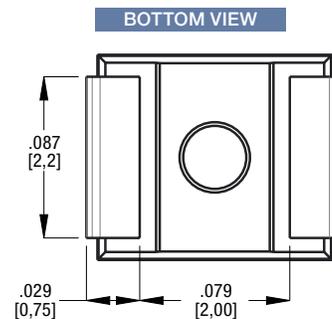
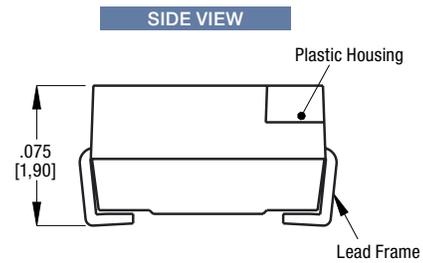
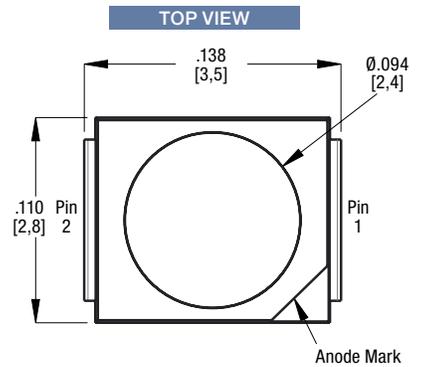
LENS MATERIAL:  
Silicon

STANDARD PACKAGING:  
2000/reel

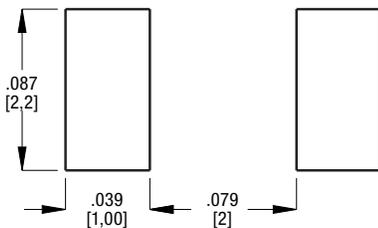
MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	100	mA	
$I_{FP}$	Peak Current	1000	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

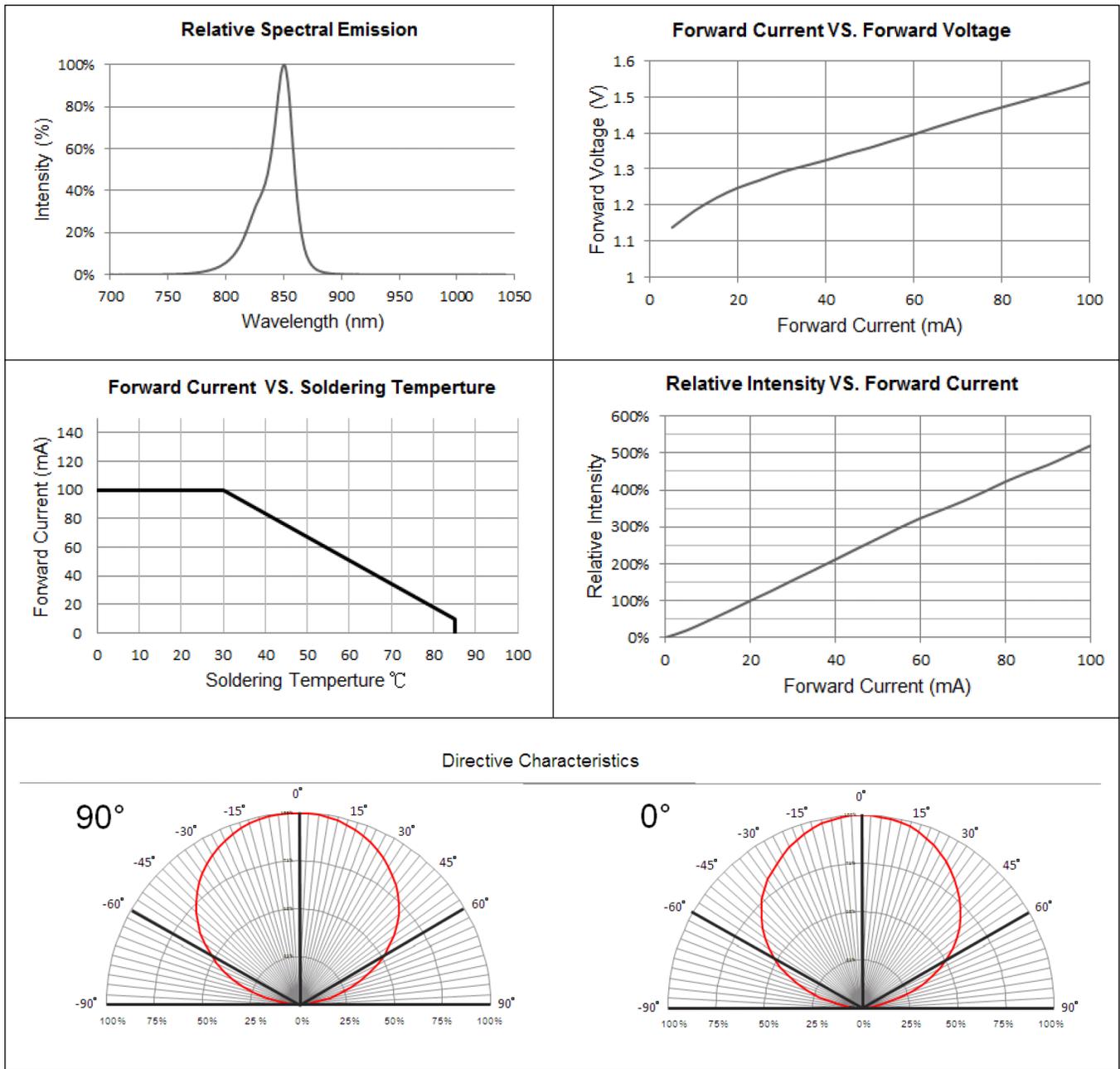
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

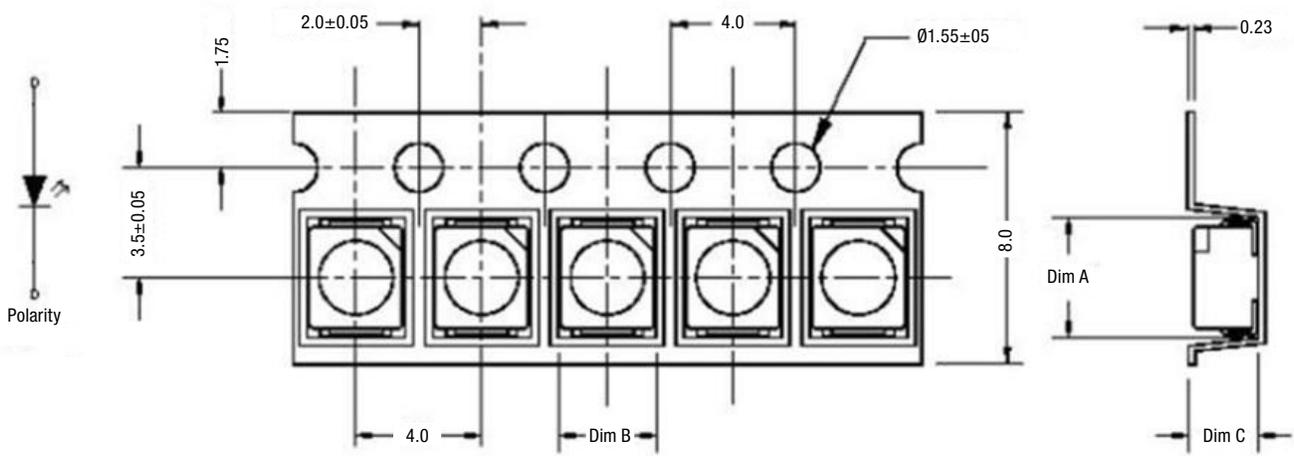
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	1.75	-	7.25	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	-	850	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.35	1.5	1.65	V
$I_R$	Reverse Current	$V_R=5V$	-	-	100	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	120	-	deg
	Angle of Half Intensity (Y)		-	120	-	

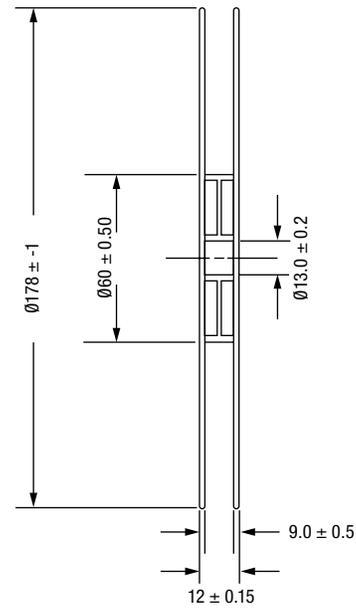
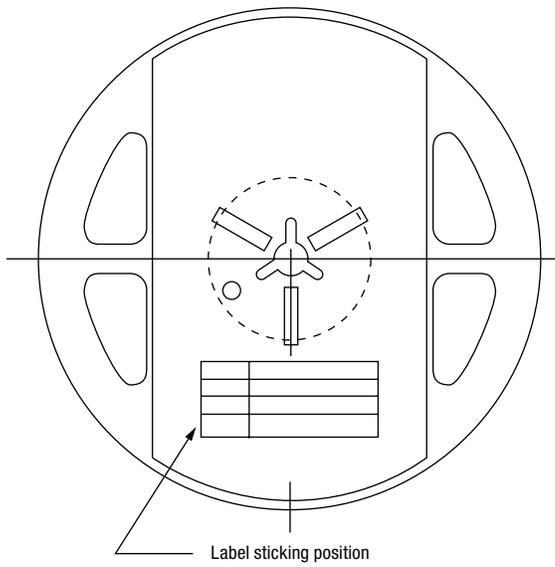
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.73±0.10	2.95±0.10	2.12±0.10	2K



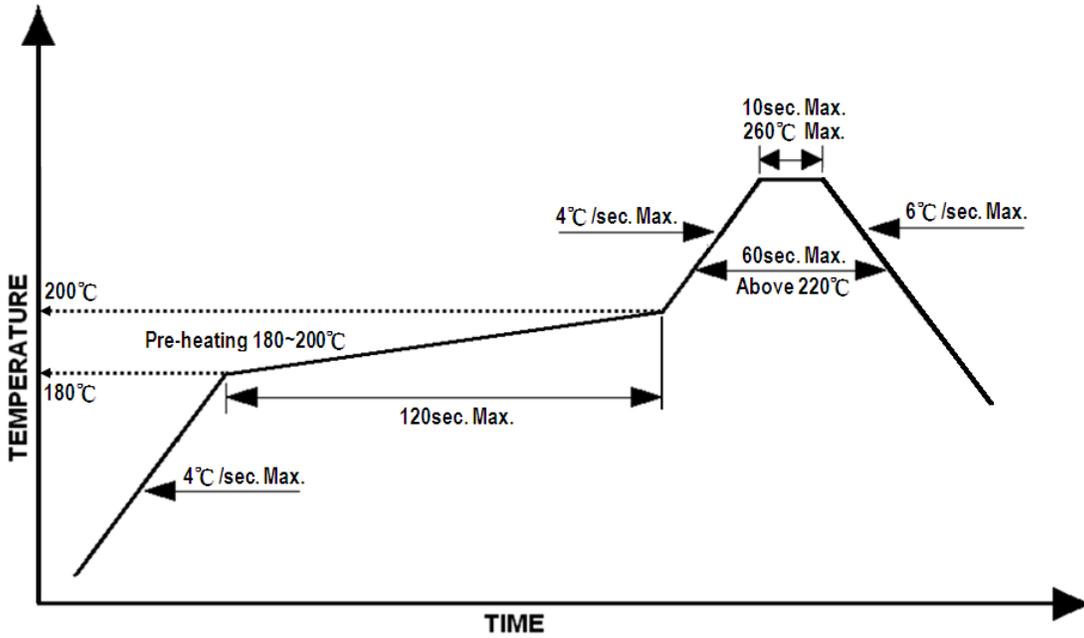
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Infrared SMD LED**  
3528 PLCC-2 Package Top View 880nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-4FB0-147IRF](#)

DIMENSIONS:  
3.5 x 2.8 x 1.9mm

LENS COLOR:  
Clear

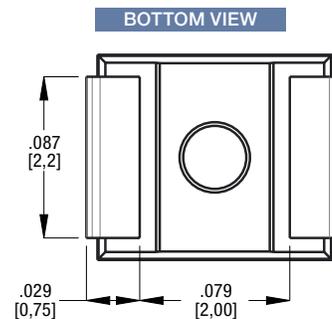
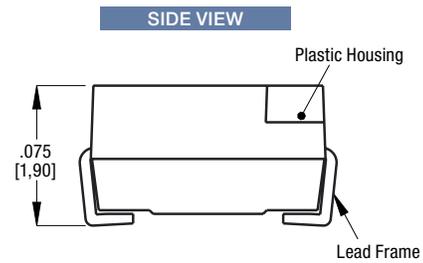
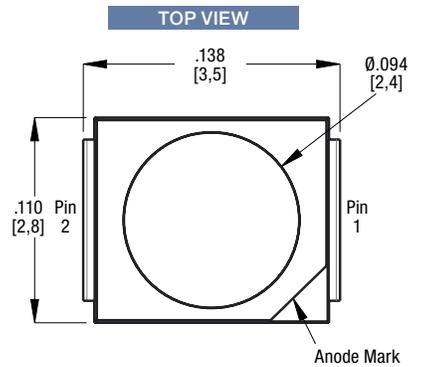
LENS MATERIAL:  
Silicon

STANDARD PACKAGING:  
2000/reel

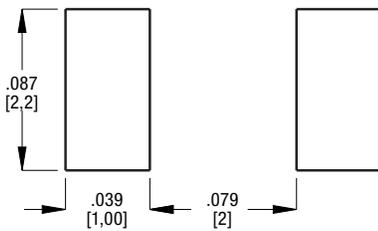
MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	50	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

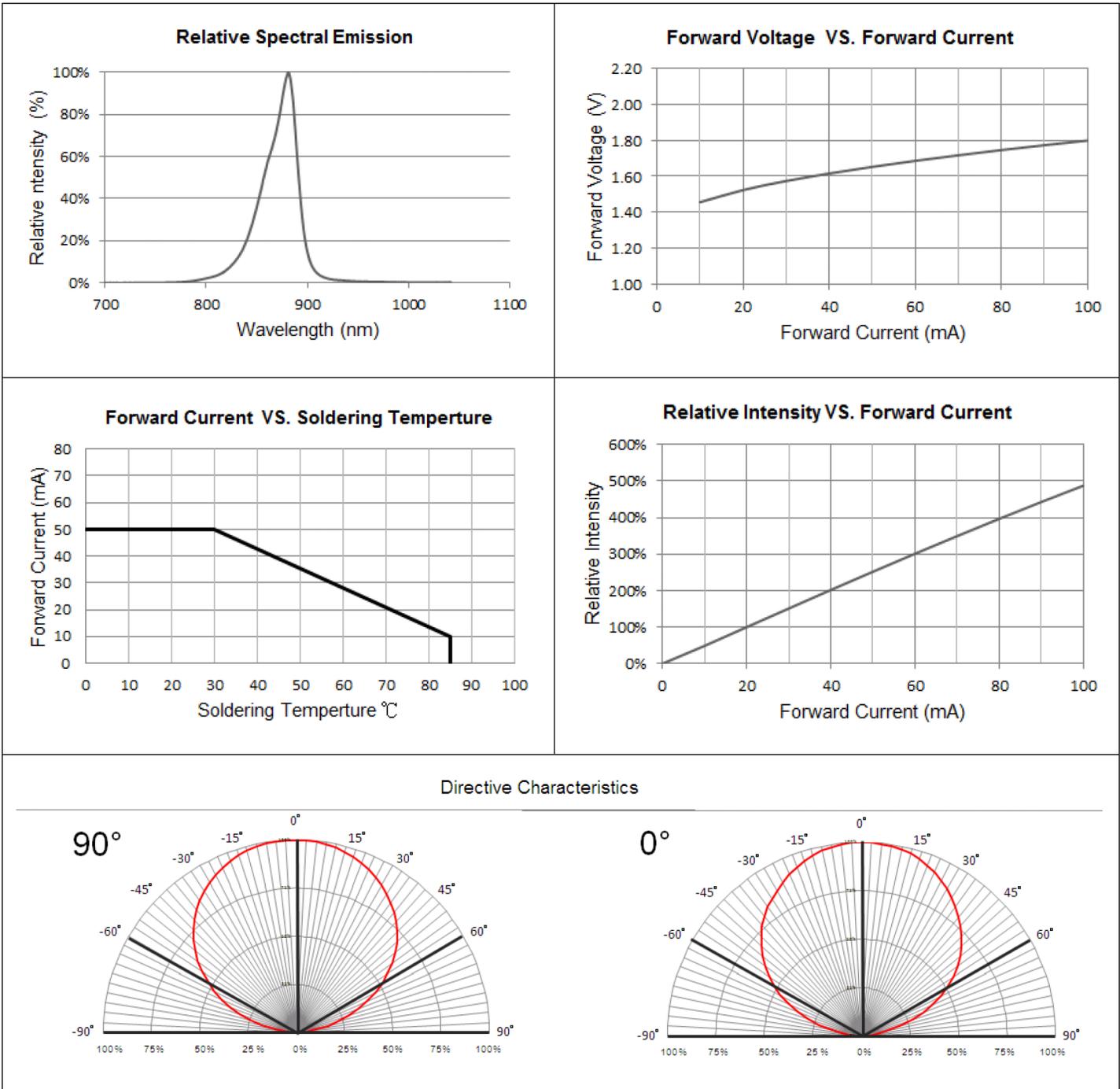
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

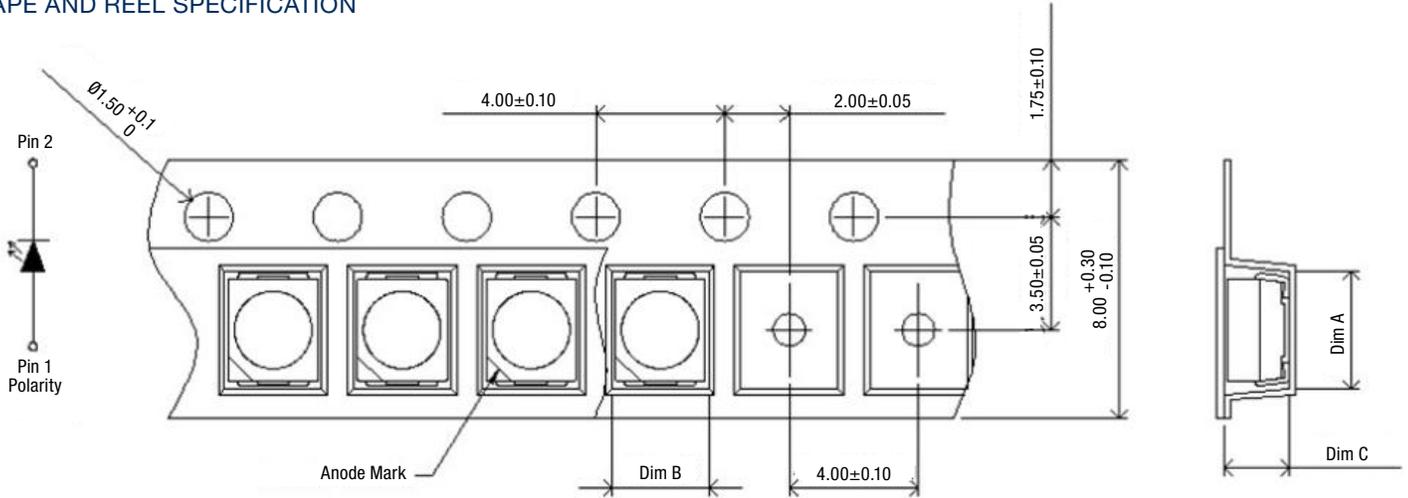
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	2.0	2.9	4.0	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	-	880	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		35	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.52	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	100	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	120	-	deg
	Angle of Half Intensity (Y)		-	120	-	

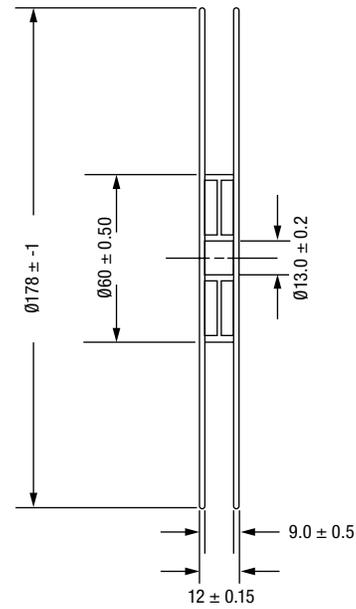
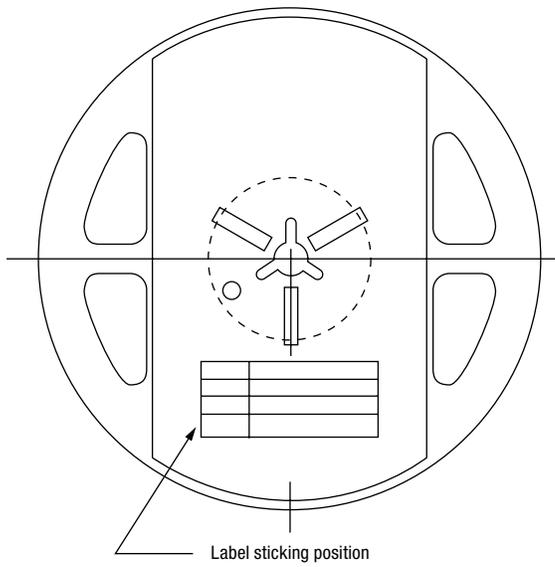
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.73±0.10	2.95±0.10	2.12±0.10	2K



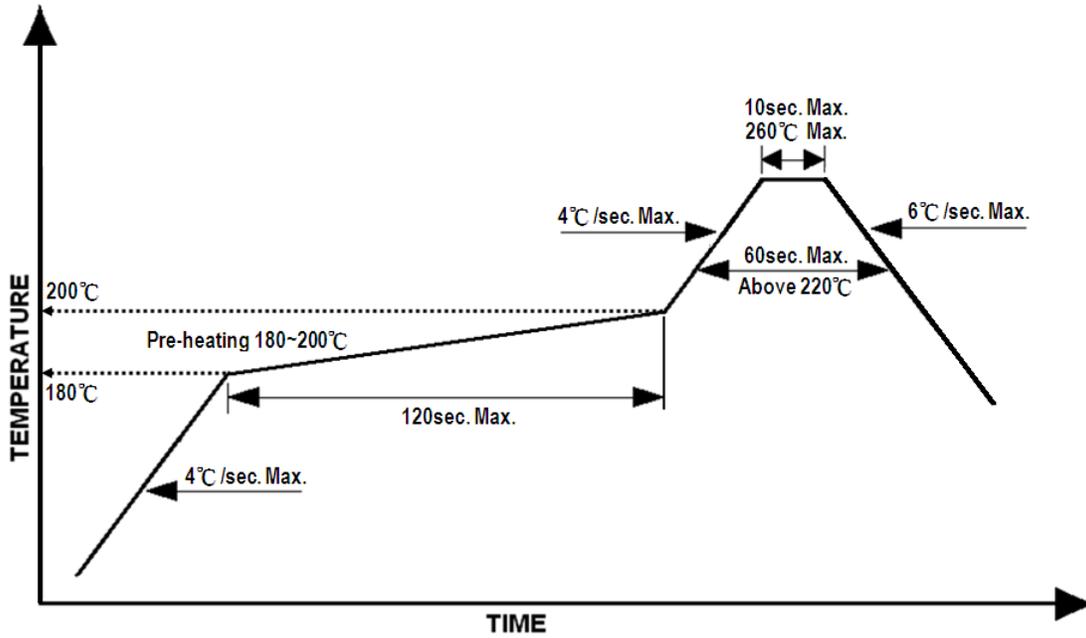
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Infrared SMD LED**  
3528 PLCC-2 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-4FC0-147IRF](#)

DIMENSIONS:  
3.5 x 2.8 x 1.9mm

LENS COLOR:  
Clear

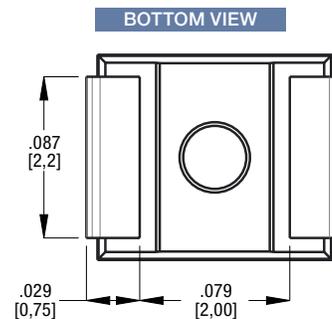
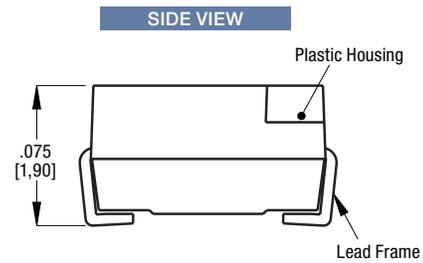
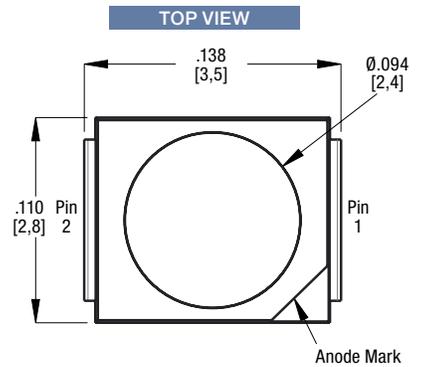
LENS MATERIAL:  
Silicon

STANDARD PACKAGING:  
2000/reel

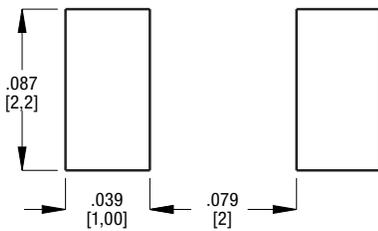
MOISTURE SENSITIVITY LEVEL:  
4

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$I_F$	Forward Current	70	mA	
$I_{FP}$	Peak Current	500	mA	1
$V_R$	Reverse Voltage	5	V	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	2

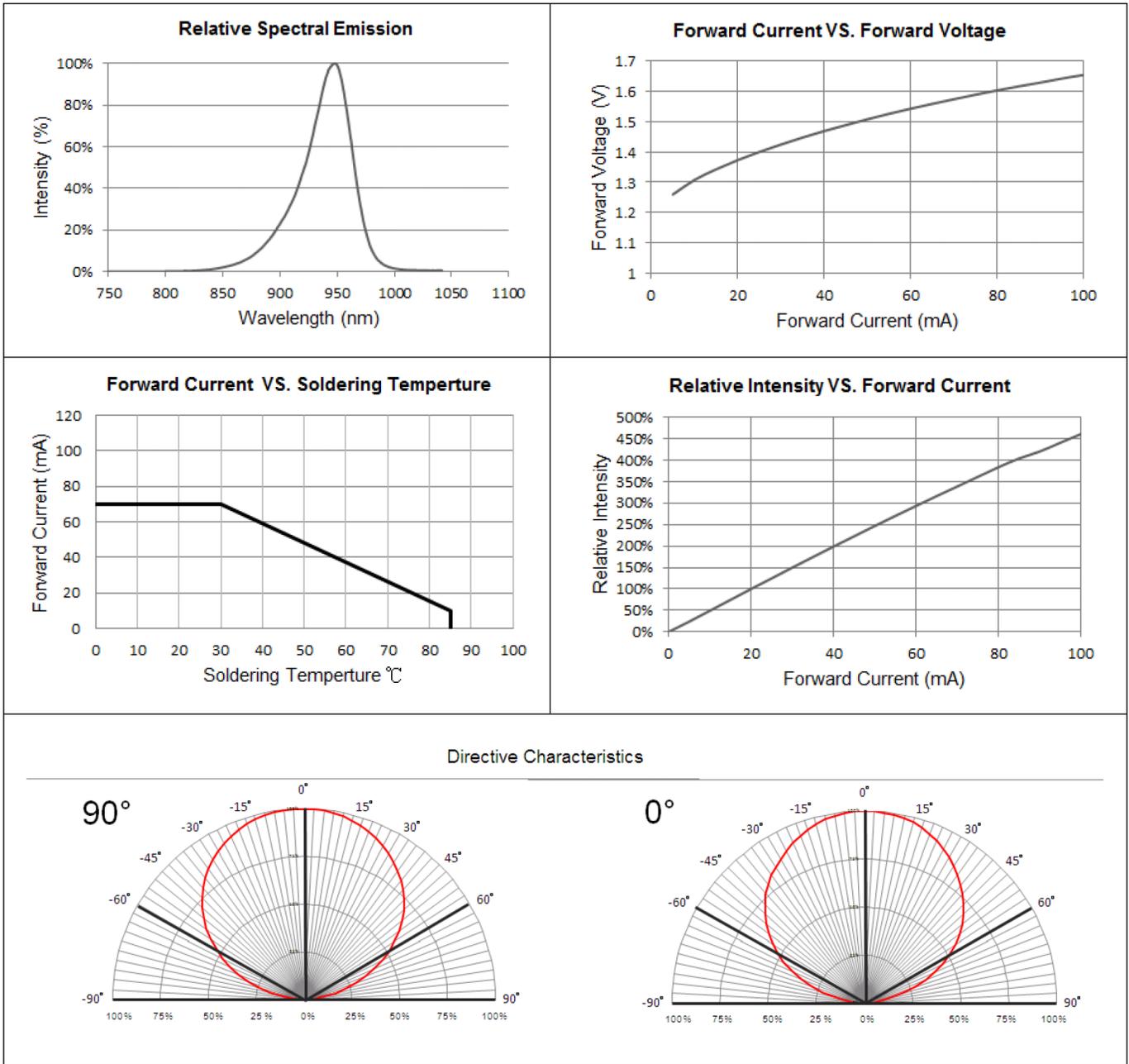
Notes:

1. IFP Conditions — Pulse Width  $\leq 100\mu s$  and Duty  $\leq 1\%$ .
2. Soldering time  $\leq 5$  seconds.

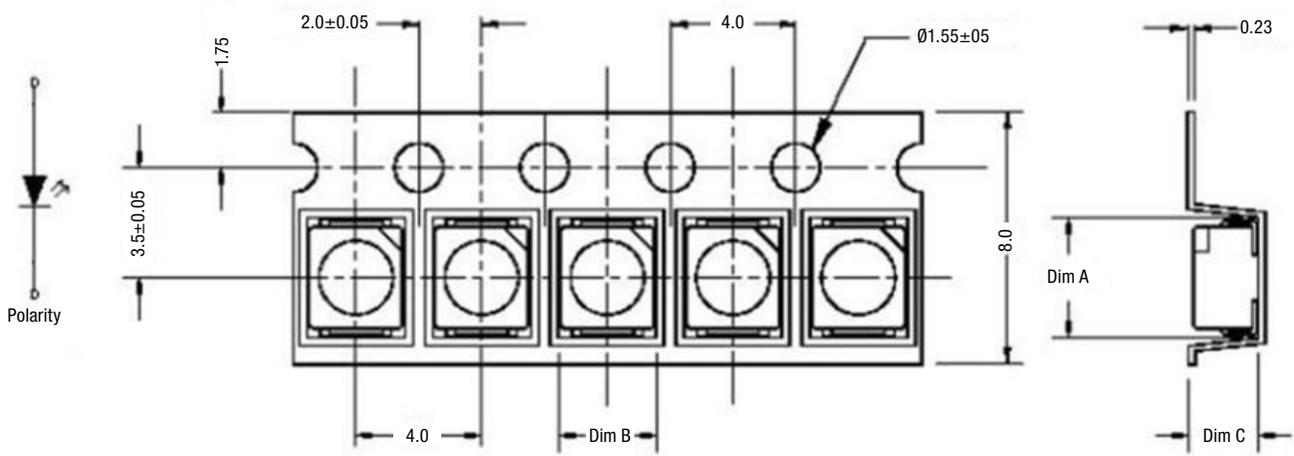
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_e$	Radiant Intensity	$I_F=20mA$	3	-	7.5	mW/sr
$\lambda_P$	Peak Wavelength	$I_F=20mA$	-	940	-	nm
$\Delta\lambda$	Spectral bandwidth at 50% of $I_{max}$	$I_F=20mA$		30	-	nm
$V_F$	Forward Voltage	$I_F=20mA$	1.2	1.4	2.0	V
$I_R$	Reverse Current	$V_R=5V$	-	-	100	$\mu A$
$2\theta_{1/2}$	Angle of Half Intensity (X)	$I_F=20mA$	-	120	-	deg
	Angle of Half Intensity (Y)		-	120	-	

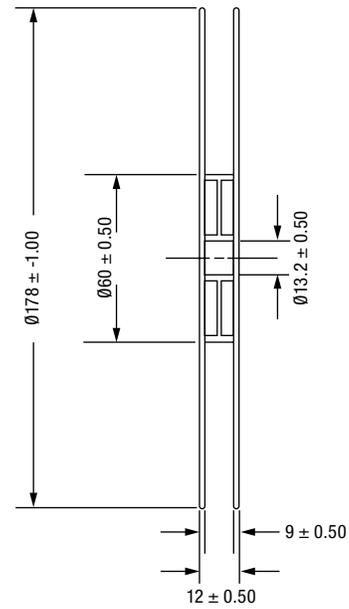
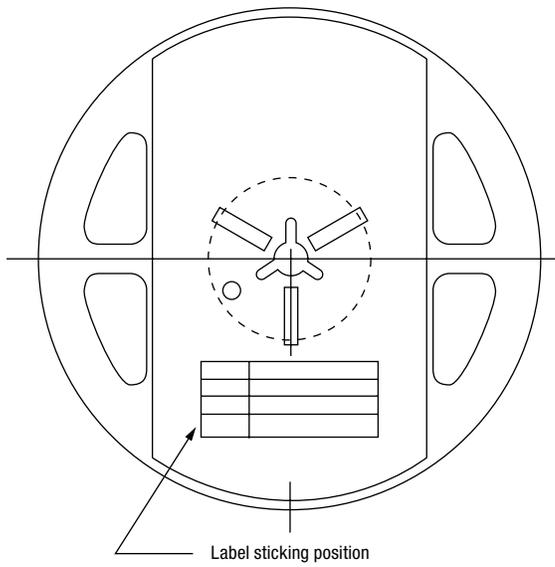
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.73±0.10	2.95±0.10	2.12±0.10	2K



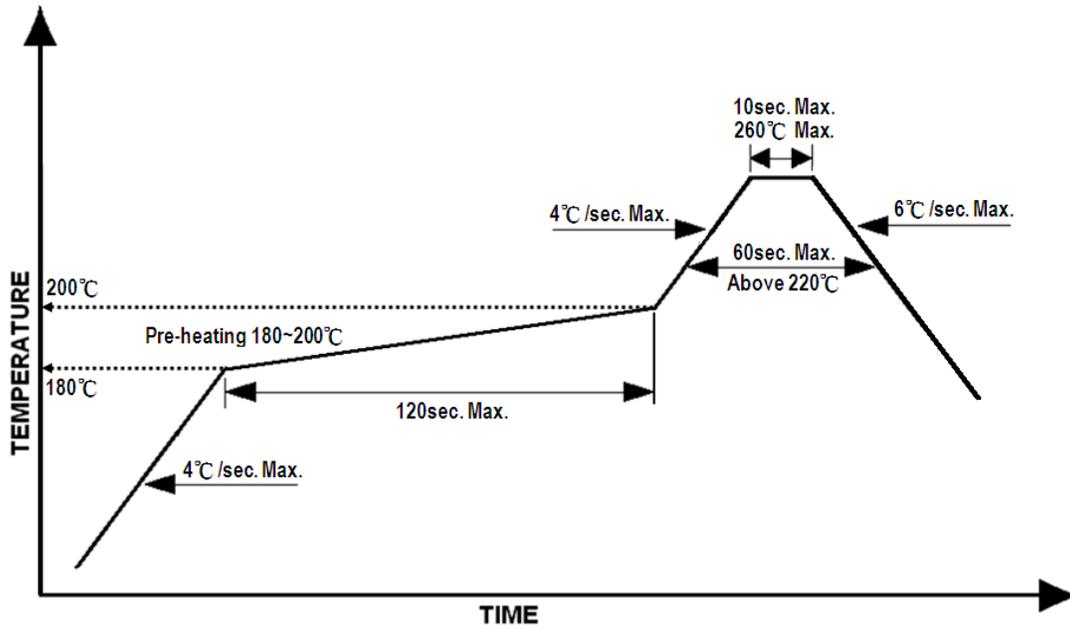
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

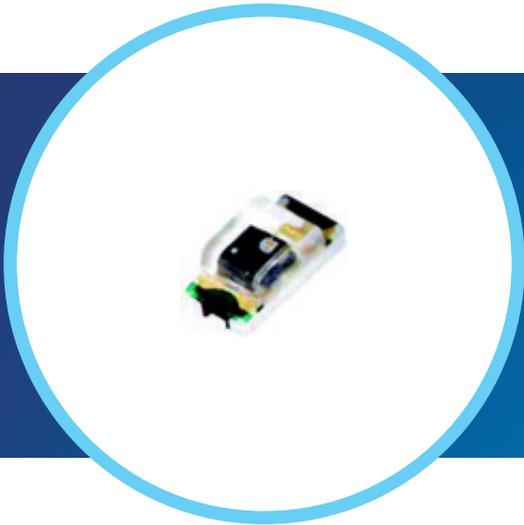
- 1. Operating temp.: Above 220°C, 60sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES  
**Phototransistor  
SMD LED**  
0603 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
599-30C0-147PTE

DIMENSIONS:  
1.6 x 0.8 x 0.66mm

LENS COLOR:  
Black

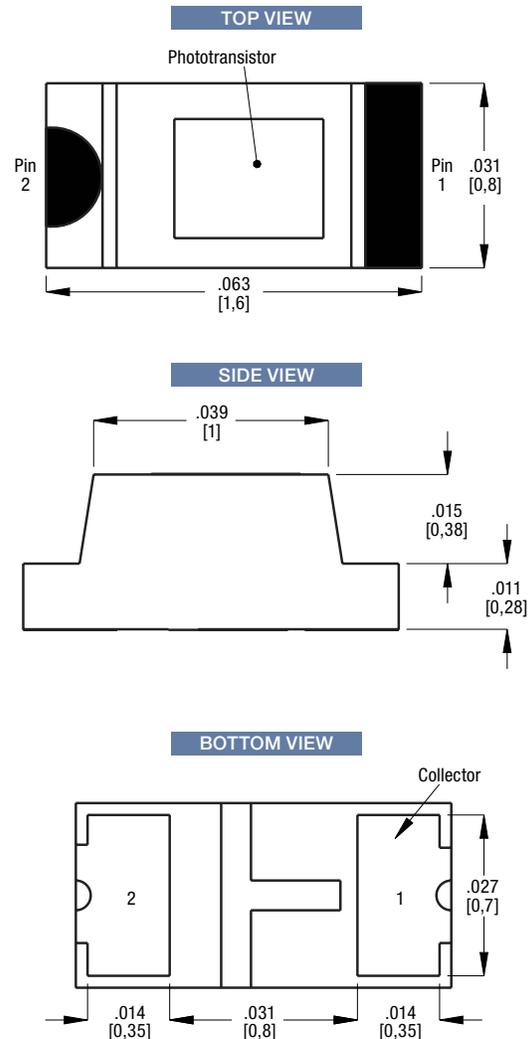
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
4000/reel

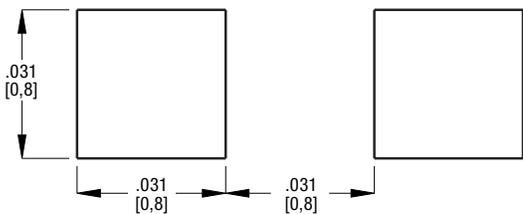
MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

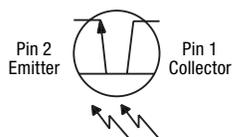
**DIMENSIONS** inches [mm]



**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



ABSOLUTE MAXIMUM RATINGS AT 25°C

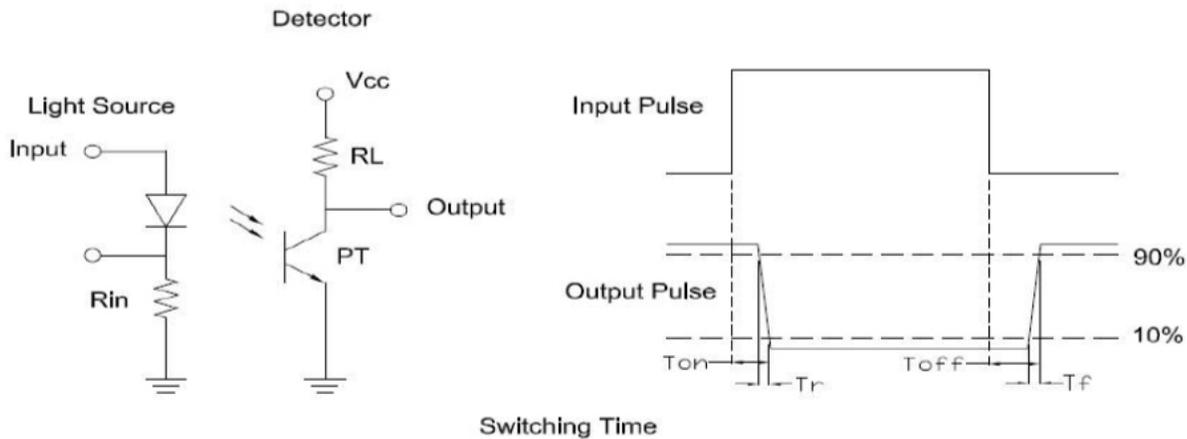
Symbol	Parameter	Ratings	Units	Notes
$V_{CE0}$	Collector-Emitter Voltage	30	V	
$V_{ECO}$	Emitter-Collector Voltage	5	V	
$I_C$	Collector Current	20	mA	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	1

Notes:  
1. Soldering time ≤ 5 seconds.

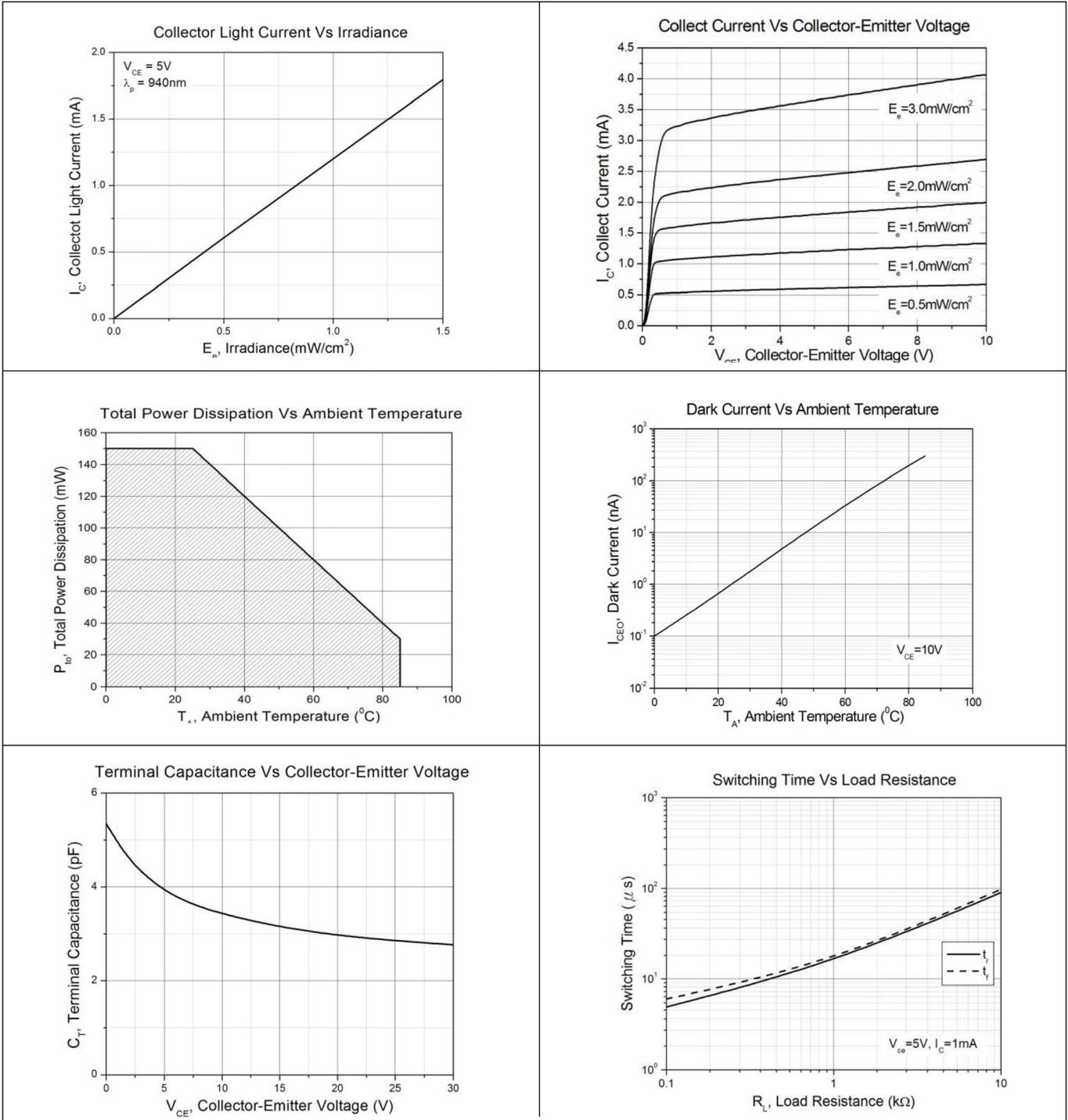
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$\lambda_{0.5}$	Range Of Spectral Bandwidth	-	750	-	1100	nm
$\lambda_p$	Wavelength Of Peak Sensitivity	-	-	940	-	nm
$BV_{CE0}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu A$ $E_e = 0mW/cm^2$	30	-	-	V
$BV_{ECO}$	Emitter-Collector Breakdown Voltage	$I_E = 100\mu A$ $E_e = 0mW/cm^2$	5	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2mA$ $E_e = 1mW/cm^2$	-	-	0.4	V
$I_{CEO}$	Collector Dark Current	$V_{CE} = 20V$ $E_e = 0mW/cm^2$	-	-	100	nA
$I_{C(ON)}$	On State Collector Current	$E_e = 1mW/cm^2$ $\lambda_p = 940nm, V_{CE} = 5V$	0.54	-	1.0	mA
$t_r$	Rise Time	$V_{CE} = 5V, I_C = 1mA$ $R_L = 1000\Omega$	-	15	-	$\mu S$
$t_f$	Fall Time		-	15	-	$\mu S$

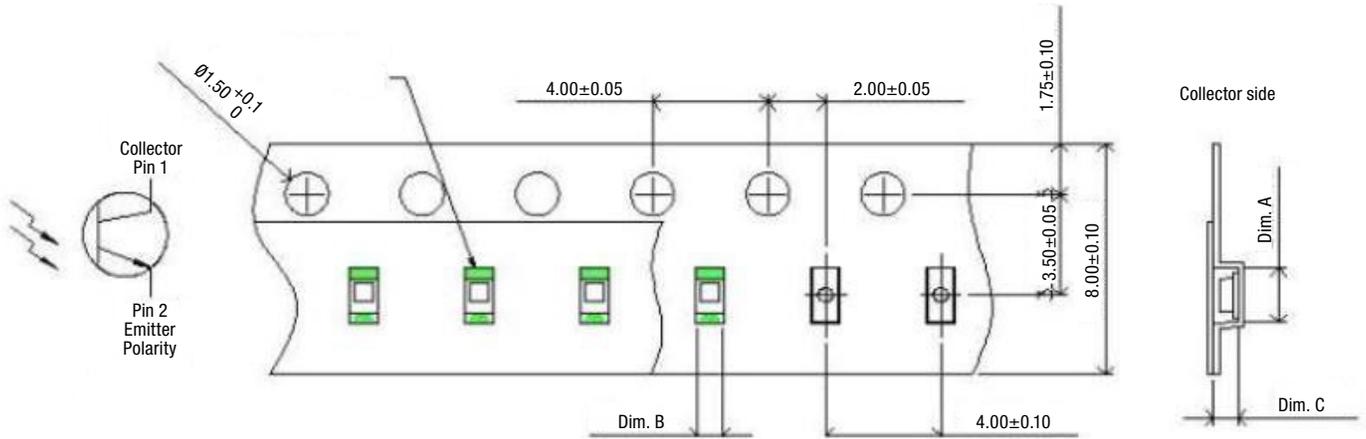
TEST CIRCUIT



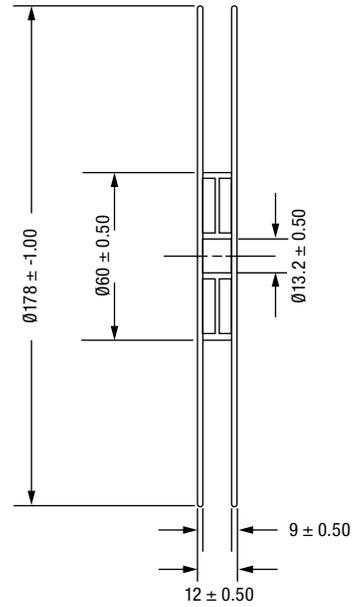
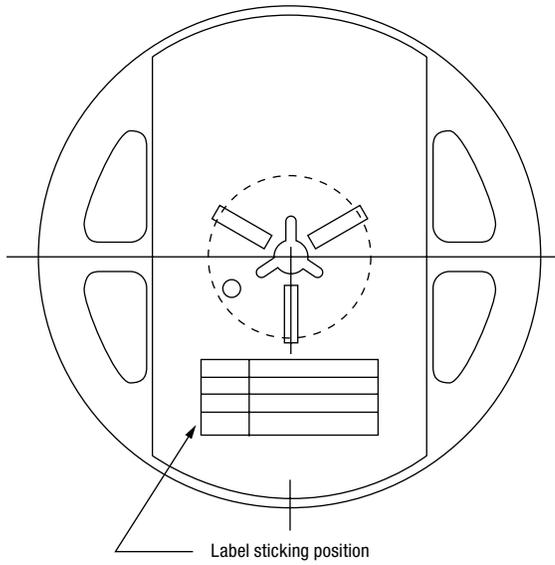
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
1.85±0.05	0.88±0.05	0.85±0.05	4K



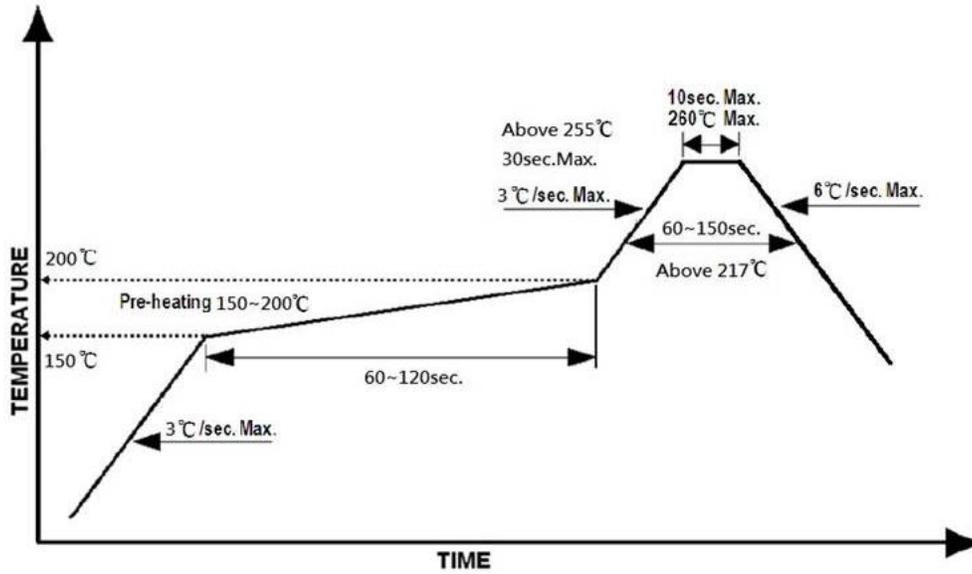
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Phototransistor**  
**SMD LED**  
0805 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-11C0-147PTF](#)

DIMENSIONS:  
2.0 x 1.3 x 0.8mm

LENS COLOR:  
**Clear**

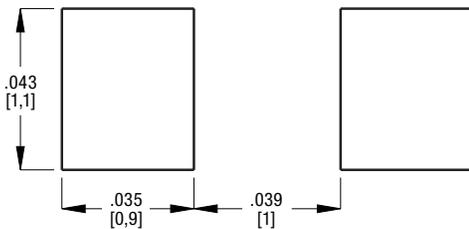
LENS MATERIAL:  
**Epoxy**

STANDARD PACKAGING:  
**4000/reel**

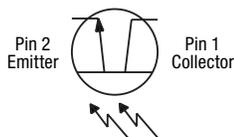
MOISTURE SENSITIVITY LEVEL:  
**2a**

**CERTIFICATIONS & RATINGS**  
**RoHS Compliant**

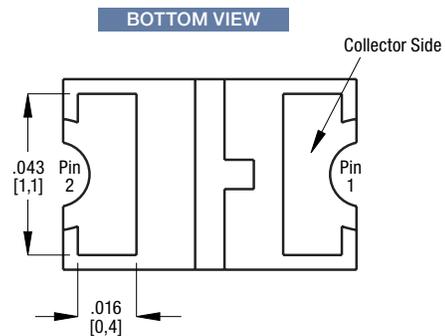
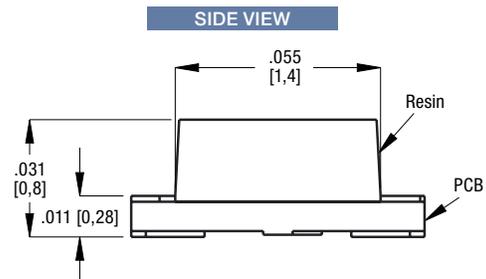
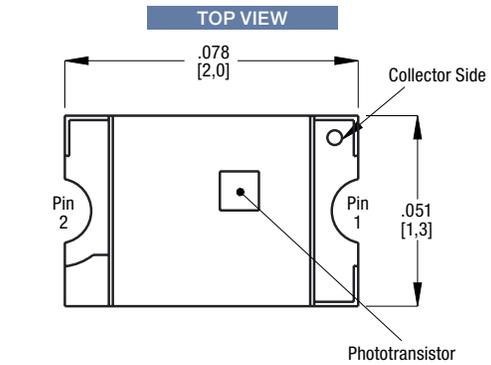
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$V_{CE0}$	Collector-Emitter Voltage	35	V	
$V_{ECO}$	Emitter-Collector Voltage	5	V	
$I_C$	Collector Current	20	mA	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	1
$P_{to}$	Total Power Dissipation	150	mW	

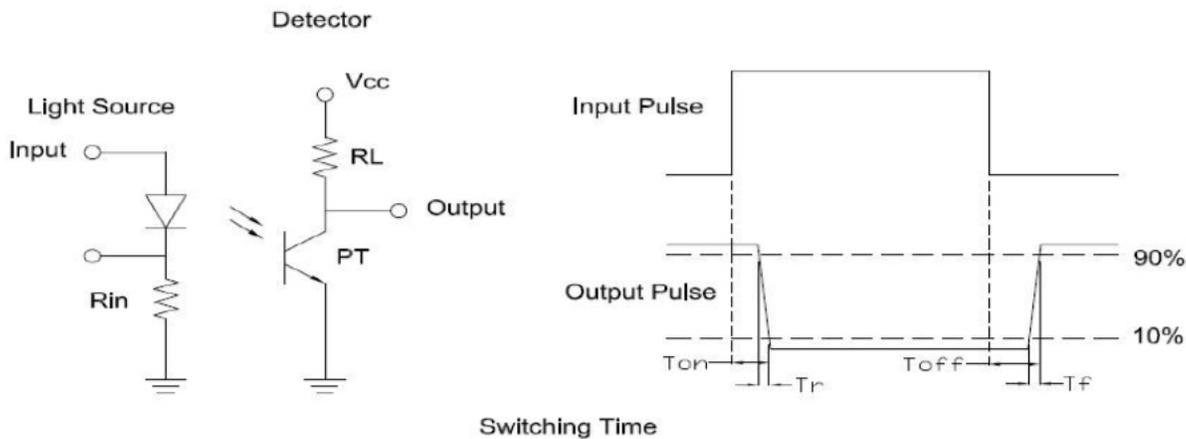
Notes:

1. Soldering time  $\leq$  5 seconds.

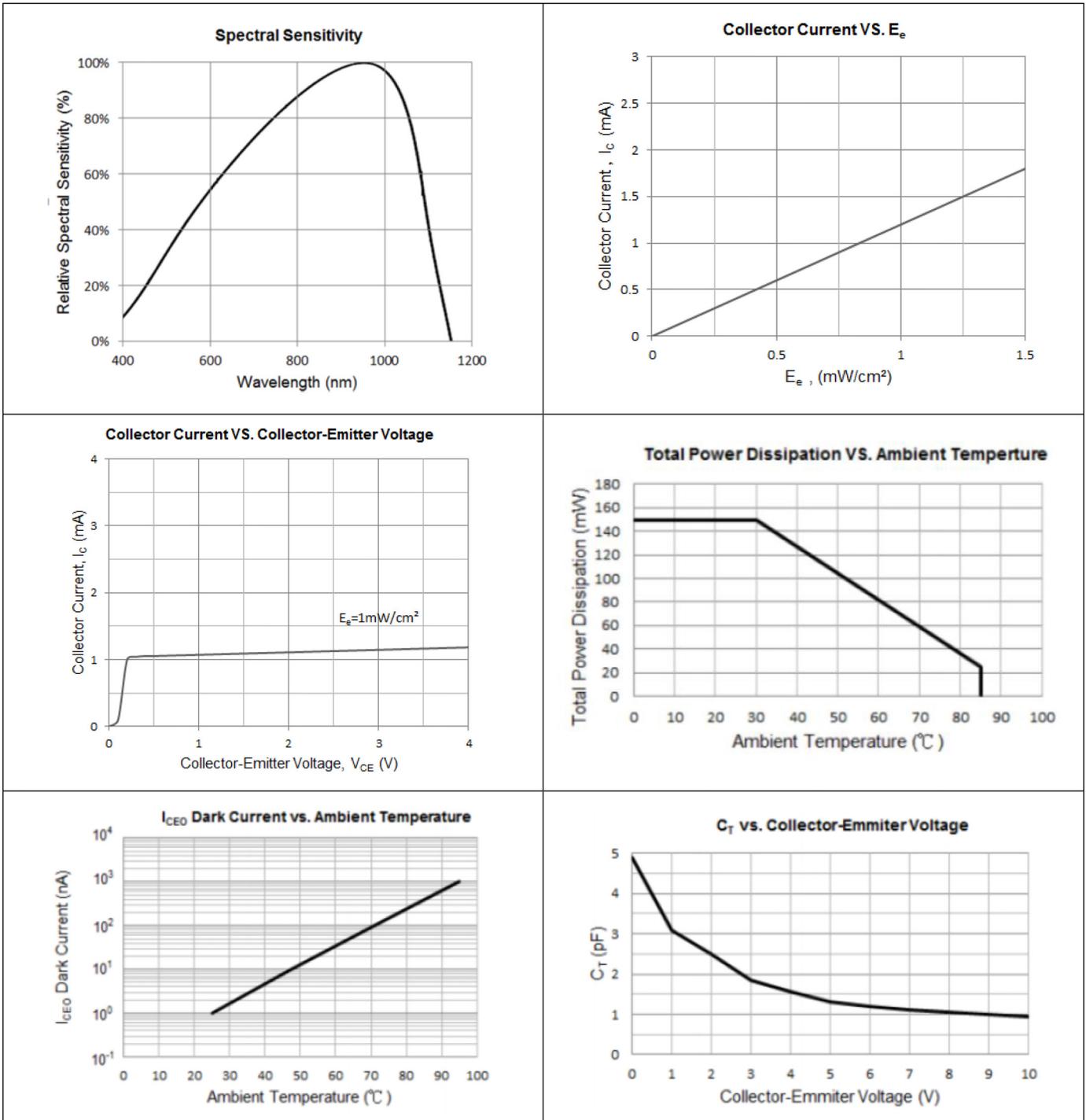
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$\lambda_{0.5}$	Range Of Spectral Bandwidth	-	400	-	1100	nm
$\lambda_p$	Wavelength Of Peak Sensitivity	-	-	940	-	nm
$BV_{CE0}$	Collector-Emitter Breakdown Voltage	$I_C=100\mu A$ $E_e=0mW/cm^2$	35	-	-	V
$BV_{ECO}$	Emitter-Collector Breakdown Voltage	$I_E=100\mu A$ $E_e=0mW/cm^2$	5	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2mA$ $E_e=1mW/cm^2$	-	-	0.4	V
$I_{CE0}$	Collector Dark Current	$V_{CE}=20V$ $E_e=0mW/cm^2$	-	-	100	nA
$I_{C(ON)}$	On State Collector Current	$E_e=1mW/cm^2$ $\lambda_p=940nm, V_{CE}=5V$	0.1	1.0	2.0	mA
$t_r$	Rise Time	$V_{CE}=5V, I_C=1mA$ $R_L=1000\Omega$	-	15	-	$\mu S$
$t_f$	Fall Time		-	15	-	$\mu S$
$C_T$	Transition Capacitance	$E_e=0mW/cm^2$ $F=1MHz, V_r=5V$	-	5	-	pF

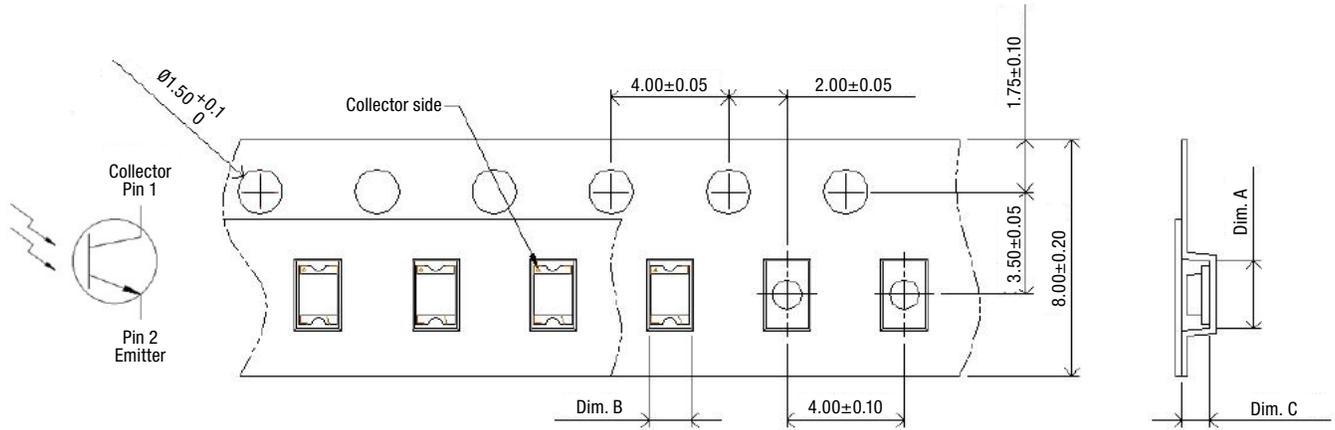
TEST CIRCUIT



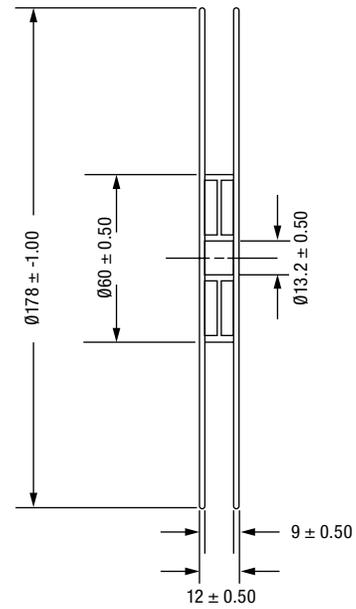
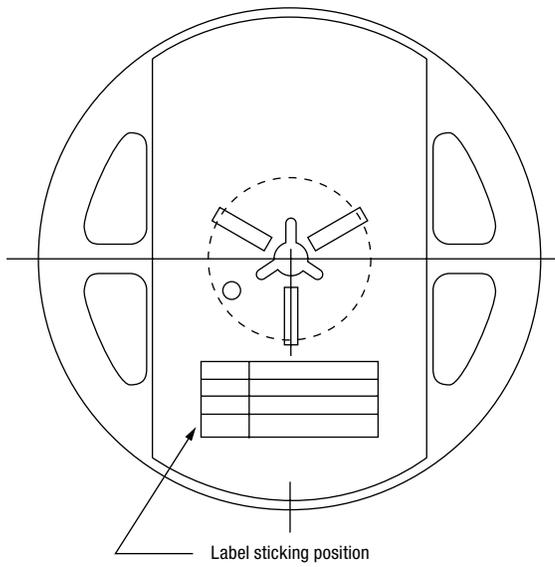
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
2.30±0.05	1.45±0.05	0.95±0.05	4K



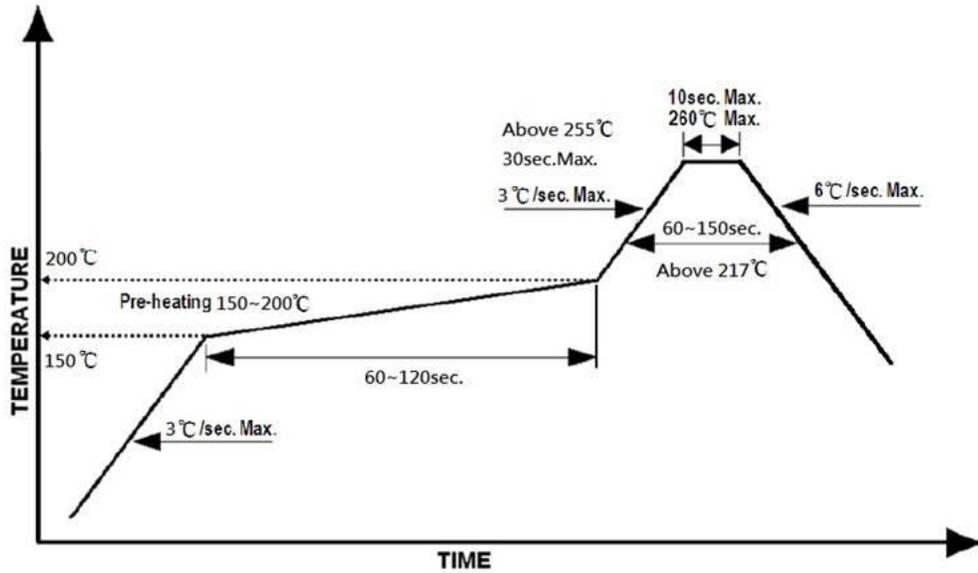
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

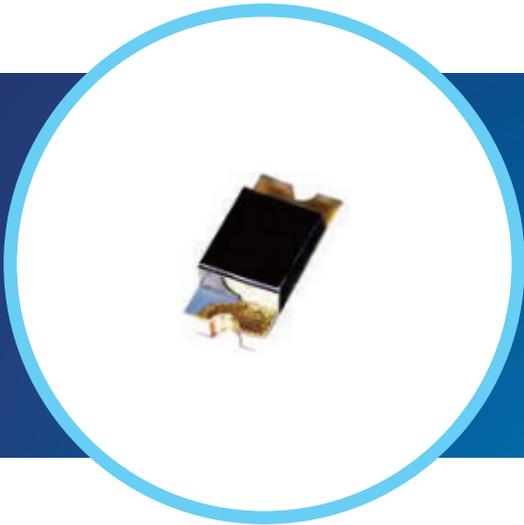
- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Phototransistor**  
**SMD LED**  
1206 Package Top View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-32C0-147PTE](#)

DIMENSIONS:  
3.2 x 1.6 x 1.1mm

LENS COLOR:  
Black

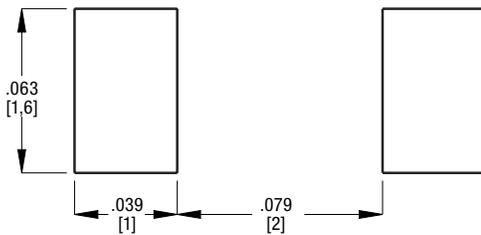
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
3000/reel

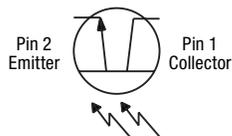
MOISTURE SENSITIVITY LEVEL:  
2a

CERTIFICATIONS & RATINGS  
RoHS Compliant

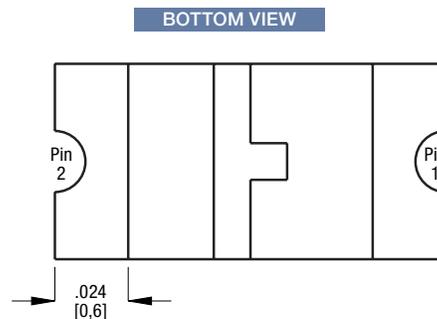
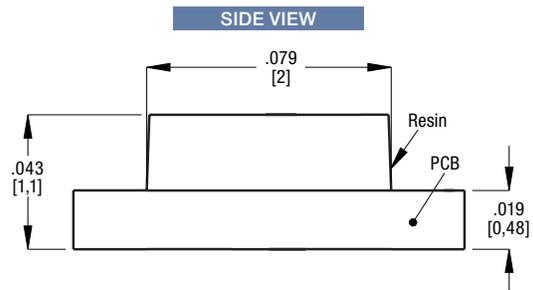
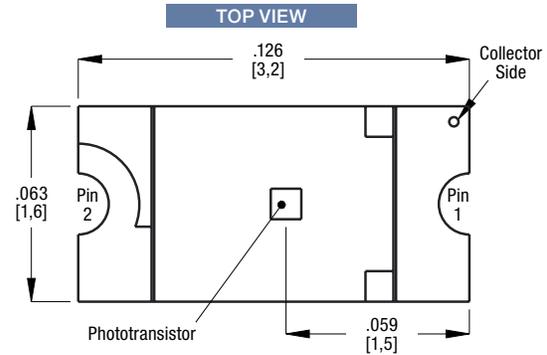
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

Symbol	Parameter	Ratings	Units	Notes
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	30	V	1
$BV_{ECO}$	Emitter-Collector Breakdown Voltage	5	V	2
$I_C$	Collector Current	20	mA	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	3

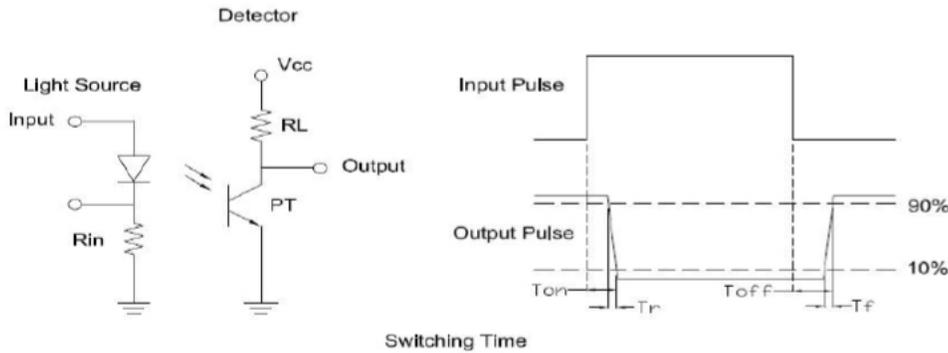
Notes:

1. Test conditions:  $I_C = 100\mu A$ ,  $E_e = 0mW/cm^2$
2. Test conditions:  $I_E = 100\mu A$ ,  $E_e = 0mW/cm^2$
3. Soldering time  $\leq 5$  seconds.

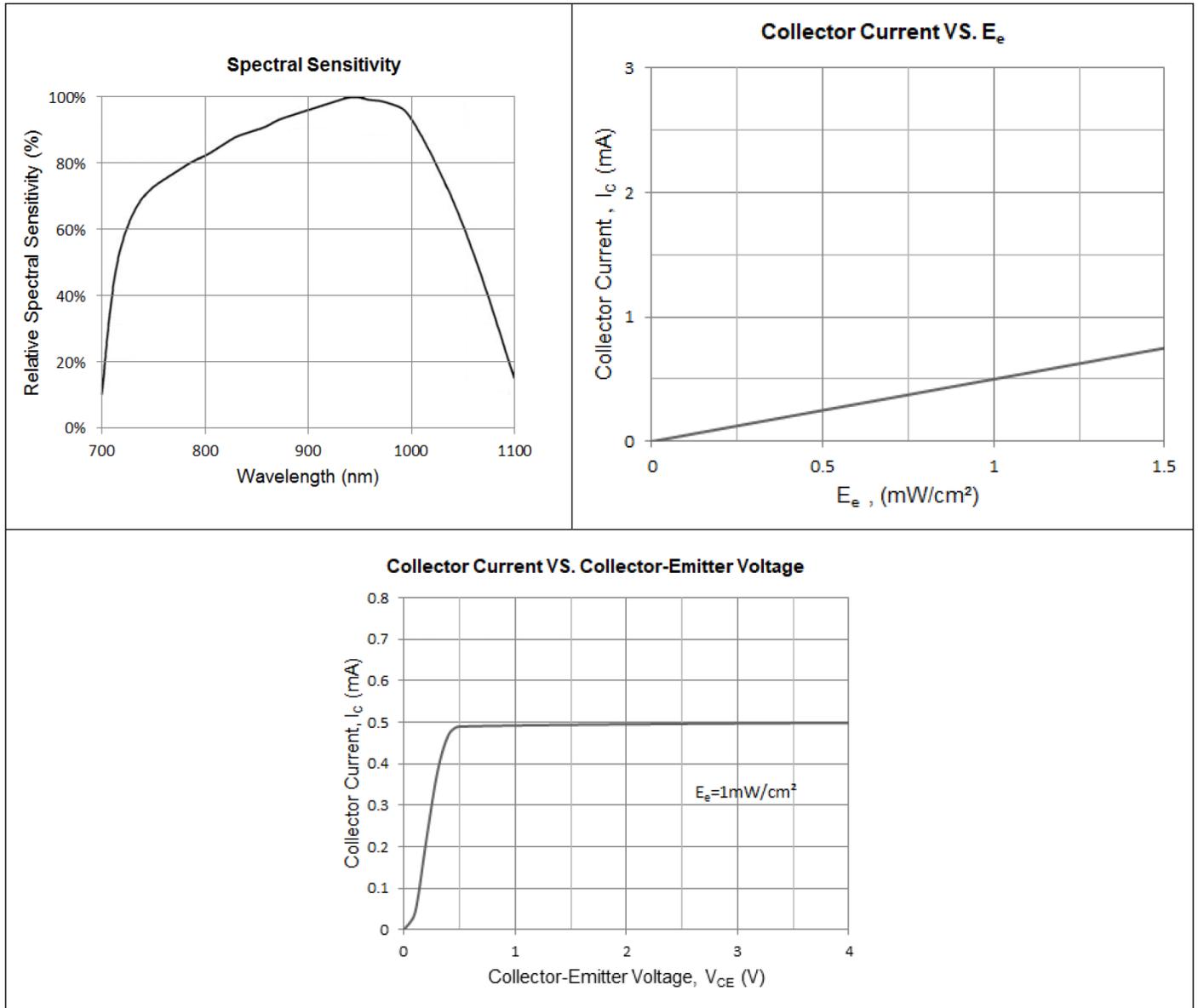
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$\lambda_{0.5}$	Range Of Spectral Bandwidth	-	700	-	1100	nm
$\lambda_p$	Wavelength Of Peak Sensitivity	-	-	940	-	nm
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu A$ $E_e = 0mW/cm^2$	30	-	-	V
$BV_{ECO}$	Emitter-Collector Breakdown Voltage	$I_E = 100\mu A$ $E_e = 0mW/cm^2$	5	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2mA$ $E_e = 1mW/cm^2$	-	-	0.4	V
$I_{CEO}$	Collector Dark Current	$V_{CE} = 20V$ $E_e = 0mW/cm^2$	-	-	100	nA
$I_{C(ON)}$	On State Collector Current	$E_e = 1mW/cm^2$ $\lambda_p = 940nm$ , $V_{CE} = 5V$	0.1	0.5	0.8	mA
$t_r$	Rise Time	$V_{CE} = 5V$ , $I_C = 1mA$ $R_L = 1000\Omega$	-	15	-	$\mu S$
$t_f$	Fall Time		-	15	-	$\mu S$

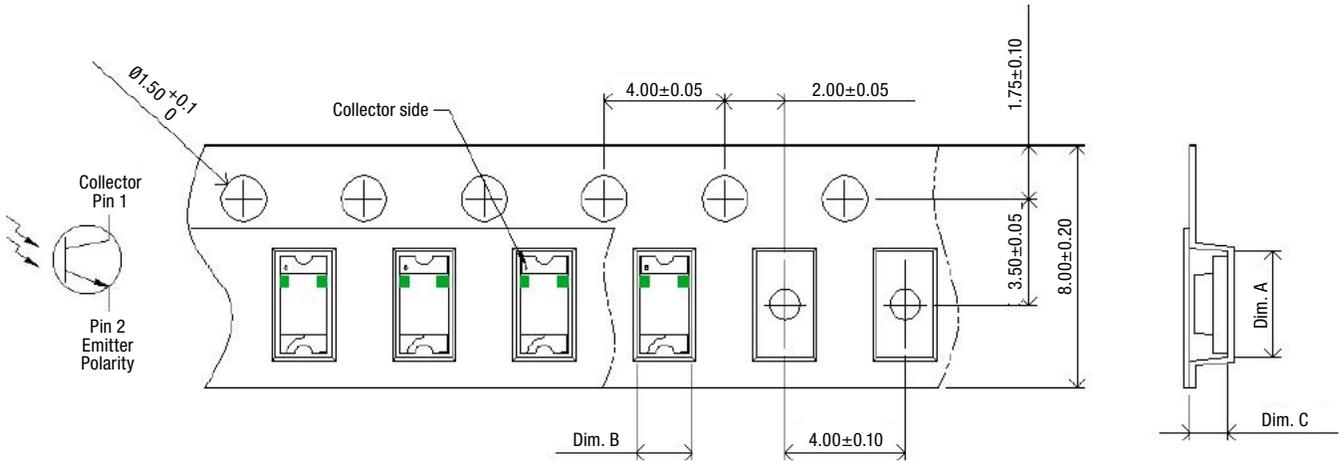
TEST CIRCUIT



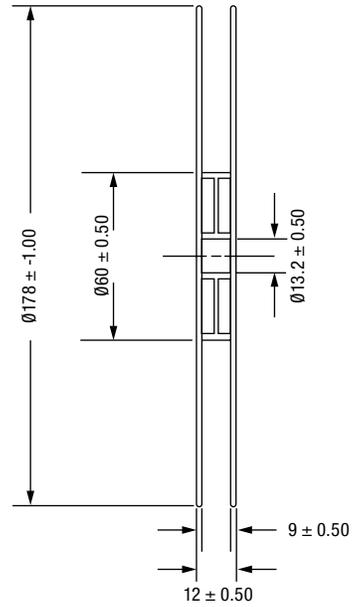
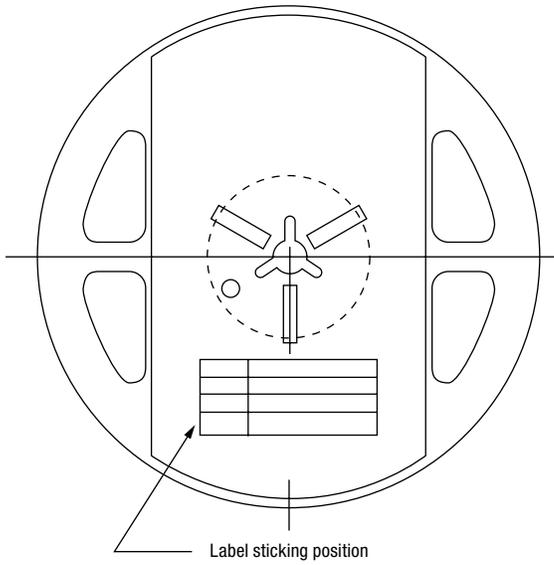
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
3.50±0.05	1.88±0.05	1.27±0.05	3K



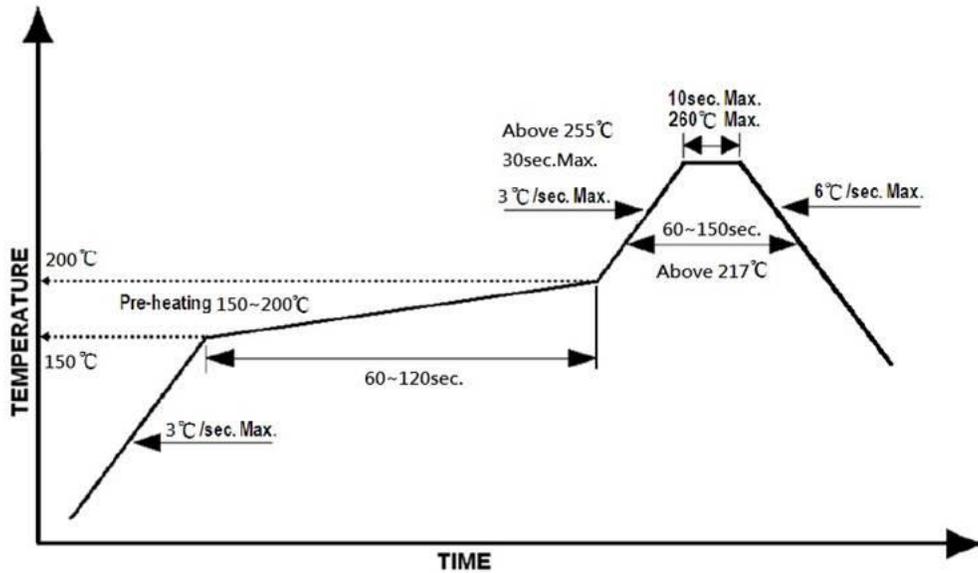
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



**599 SERIES**  
**Phototransistor**  
**SMD LED**  
1208 Package Side View 940nm

**MECHANICAL / SPECIFICATIONS**

PART NUMBER:  
[599-3QC0-147PTF](#)

DIMENSIONS:  
3.0 x 2.0 x 1.0mm

LENS COLOR:  
Black

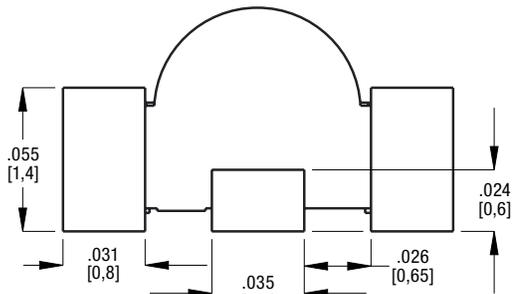
LENS MATERIAL:  
Epoxy

STANDARD PACKAGING:  
3000/reel

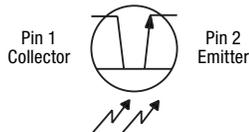
MOISTURE SENSITIVITY LEVEL:  
2a

**CERTIFICATIONS & RATINGS**  
RoHS Compliant

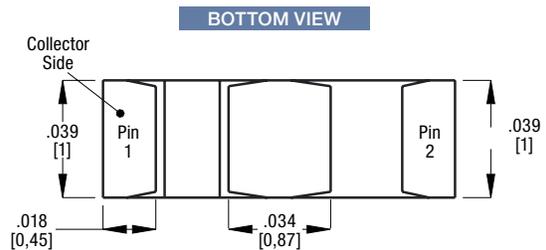
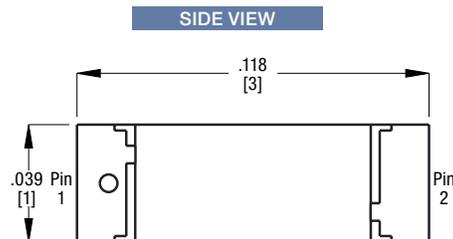
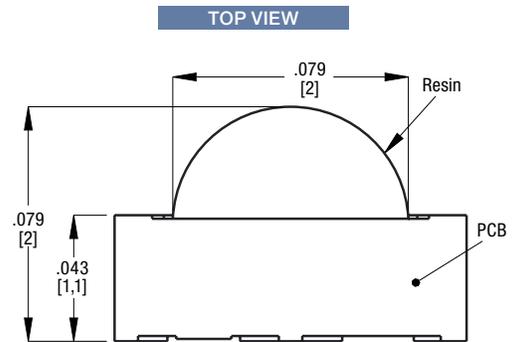
**RECOMMENDED PAD LAYOUT**



**LED SCHEMATIC**



**DIMENSIONS inches [mm]**



ABSOLUTE MAXIMUM RATINGS AT 25°C

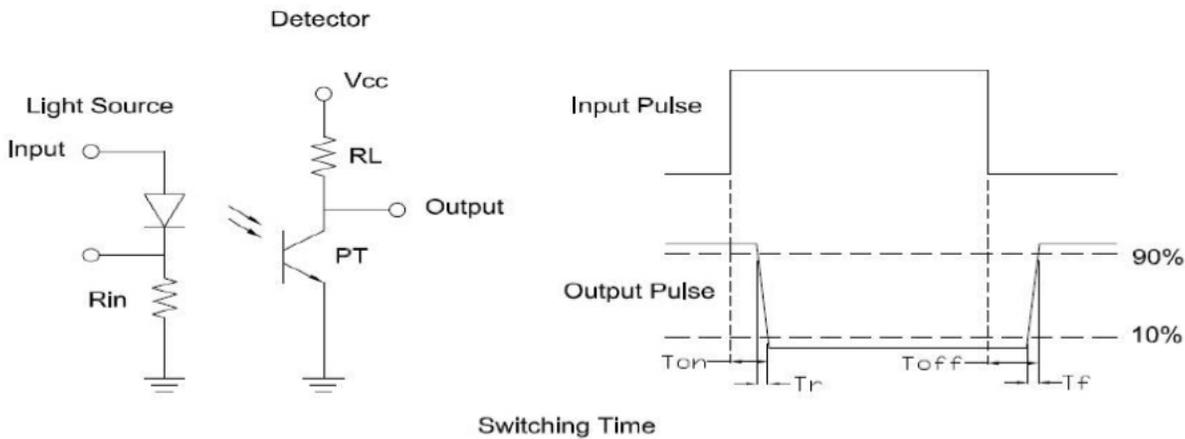
Symbol	Parameter	Ratings	Units	Notes
$V_{CE0}$	Collector-Emitter Voltage	30	V	
$V_{ECO}$	Emitter-Collector Voltage	5	V	
$I_C$	Collector Current	50	mA	
$T_{opr}$	Operating Temperature	-40~+85	°C	
$T_{stg}$	Storage Temperature	-40~+100	°C	
$T_{sol}$	Soldering Temperature	260	°C	1

Notes:  
1. Soldering time ≤ 5 seconds.

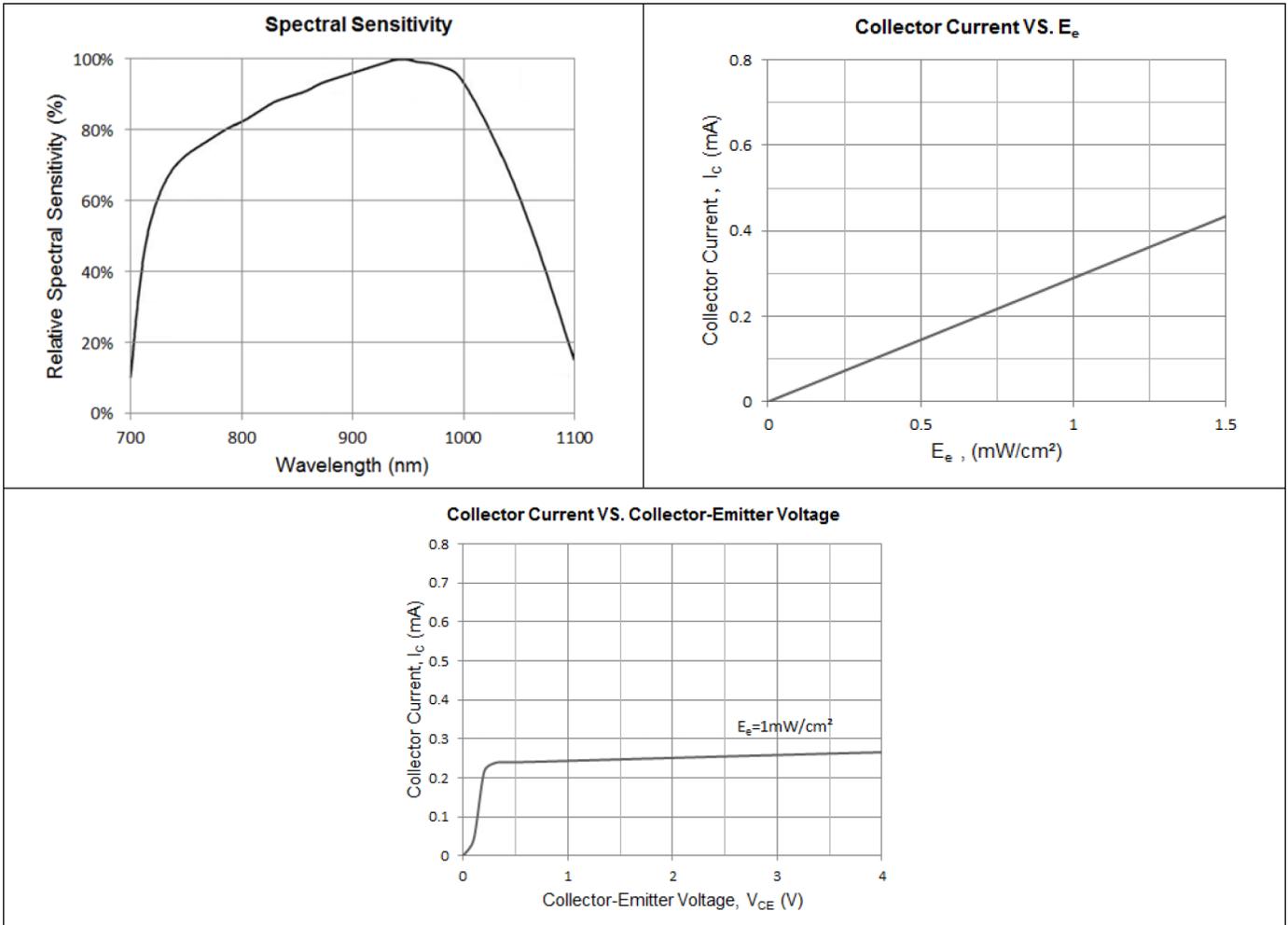
ELECTRICAL - OPTICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$\lambda_D$	Range Of Spectral Bandwidth	-	700	-	1100	nm
$\lambda_p$	Wavelength Of Peak Sensitivity	-	-	940	-	nm
$BV_{CE0}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu A$ $E_e = 0mW/cm^2$	30	-	-	V
$BV_{ECO}$	Emitter-Collector Breakdown Voltage	$I_E = 100\mu A$ $E_e = 0mW/cm^2$	5	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2mA$ $E_e = 1mW/cm^2$	-	-	0.4	V
$I_{CEO}$	Collector Dark Current	$V_{CE} = 20V$ $E_e = 0mW/cm^2$	-	-	100	nA
$I_{C(ON)}$	On State Collector Current	$E_e = 1mW/cm^2$ $\lambda_p = 940nm, V_{CE} = 5V$	0.2	-	0.8	mA
$t_r$	Rise Time	$V_{CE} = 5V, I_C = 1mA$ $R_L = 1000\Omega$	-	15	-	$\mu S$
$t_f$	Fall Time		-	15	-	$\mu S$

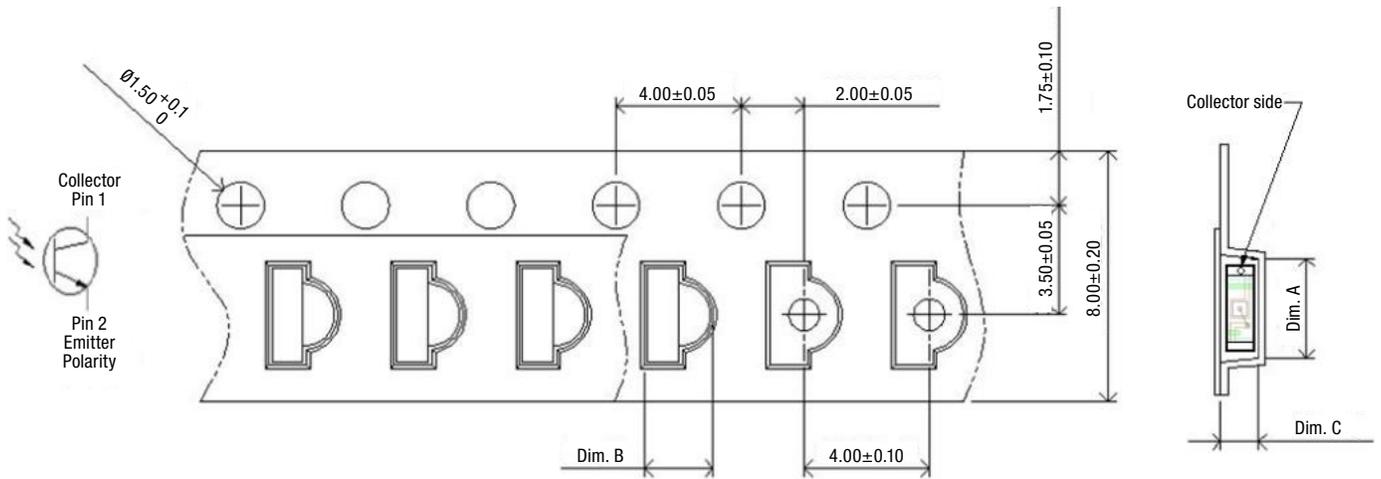
TEST CIRCUIT



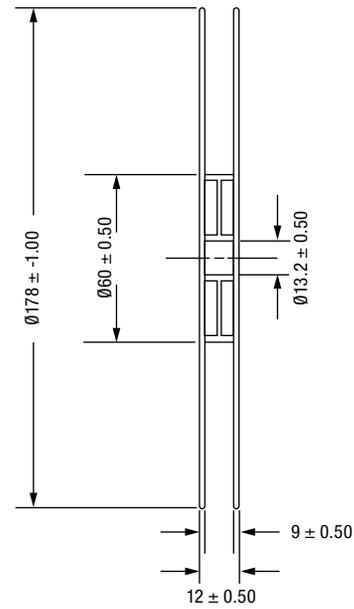
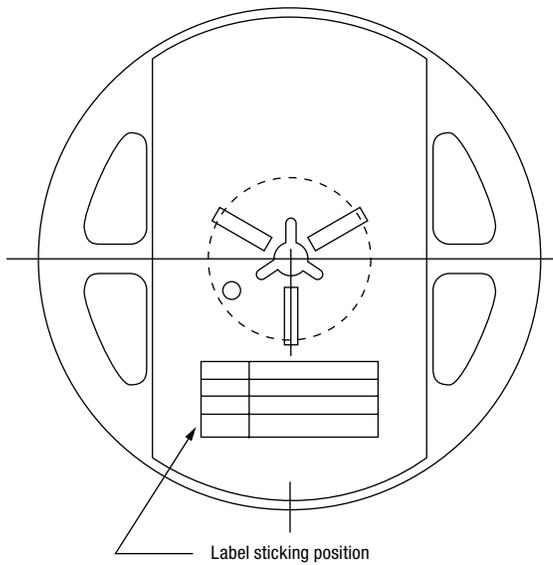
TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



TAPE AND REEL SPECIFICATION



Dim A	Dim B	Dim C	Quantity/Reel
$3.2 \pm 0.10$	$2.20 \pm 0.10$	$1.20 \pm 0.10$	3K



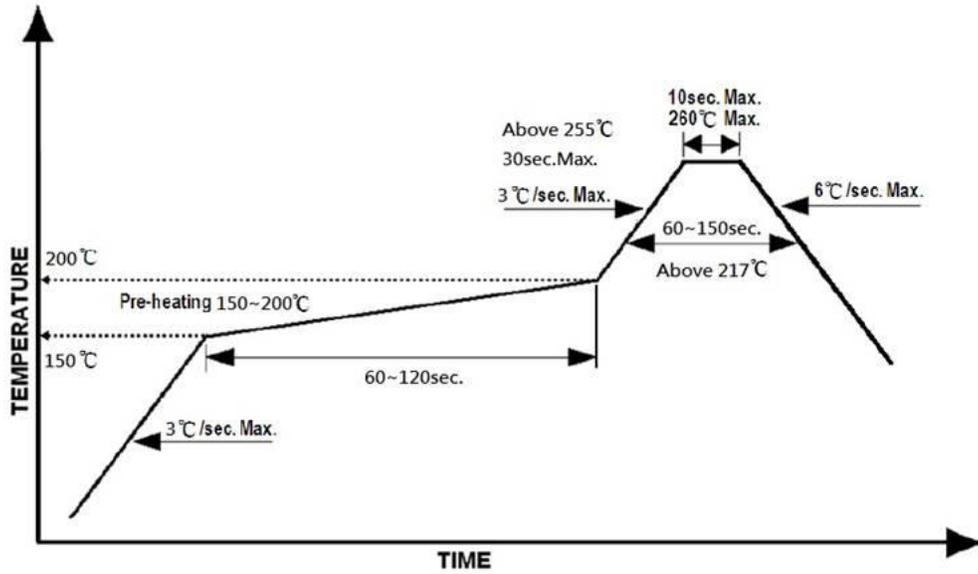
Unit: mm

REFLOW SOLDERING

Recommended soldering paste specifications:

- 1. Operating temp.: Above 217°C, 60~150sec.
- 2. Peak temp.: 260°C Max., 10sec Max.
- 3. Reflow soldering should not be done more than two times.

LEAD-FREE SOLDER PROFILE



Dialight reserves the right to make changes at any time in order to supply the best product possible. The most current version of this document will always be available at: [www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)

**Warranty Statement:** Except for the warranty expressly provided for at: [www.dialight.com/resources/warranties/](http://www.dialight.com/resources/warranties/), Dialight disclaims any and all other warranties, express or implied, including, without limitation, any warranties of merchantability, fitness for a particular purpose, title, and noninfringement.



599 SERIES

**Phototransistor  
SMD LED**

3528 PLCC-2 Package Top View 940nm

MECHANICAL / SPECIFICATIONS

PART NUMBER:  
599-4FC0-137PTE

DIMENSIONS:  
3.50 x 2.80 x 1.85mm

LENS COLOR:  
**Clear**

LENS MATERIAL:  
**Silicon**

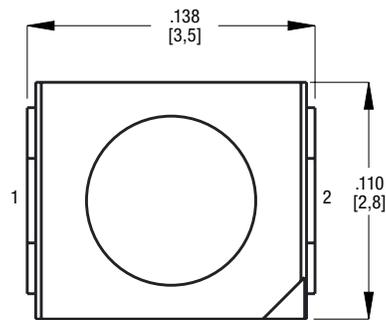
STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
3

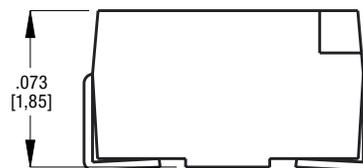
CERTIFICATIONS & RATINGS  
RoHS Compliant

DIMENSIONS inches [mm]

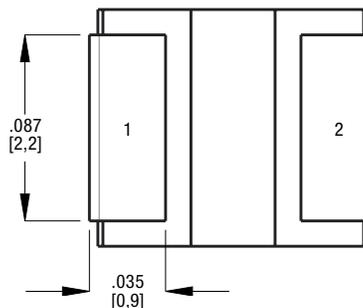
TOP VIEW



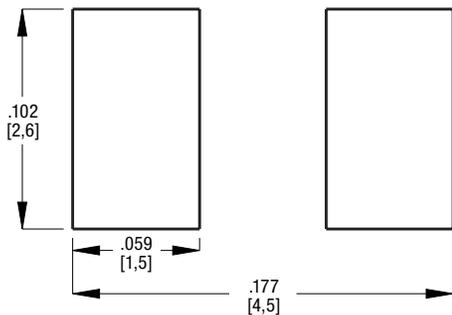
SIDE VIEW



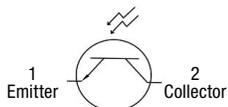
BOTTOM VIEW



RECOMMENDED PAD LAYOUT



LED SCHEMATIC



ABSOLUTE MAXIMUM RATINGS AT Ta=25°C

Symbol	Parameter	Ratings	Units
$V_{CE0}$	Collector-Emitter Voltage	30	V
$V_{ECO}$	Emitter-Collector Voltage	5	V
$I_C$	Collector Current	20	mA
ESD	Electrostatic Discharge	2000	V
$T_{opr}$	Operating Temperature	-25~+85	°C
$T_{stg}$	Storage Temperature	-40~+85	°C
Pc	Power Dissipation at (or below) 25°C Free Air Temperature	75	mW

ELECTRICAL - OPTICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_E=100 \mu A$ $E_e=0mw/cm^2$	30	-	-	V
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	$I_E=100 \mu A$ $E_e=0mw/cm^2$	5.0	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2mA$ $E_e=1mw/cm^2$	-	-	0.4	V
Tr	Rise Time	$V_{CE}=5V$ $I_C=1mA$ $RL=1K\Omega$	-	15	-	$\mu s$
Tf	Fall Time		-	15	-	$\mu s$
$I_{CEO}$	Collector Dark Current	$V_{CE}=20V$ $E_e=0mw/cm^2$	-	-	100	nA
Ip(on)	On State Collector Current	$V_{CE}=5V$ $E_e=1mw/cm^2$ $\lambda P=940nm$	2.0	8.0	16.0	mA

TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS

Fig 1. BV<sub>ceo</sub> vs. Ambient Temperature

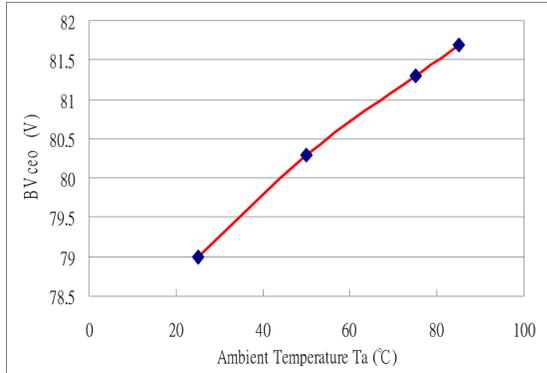


Fig 2. Light Current vs. E<sub>e</sub>

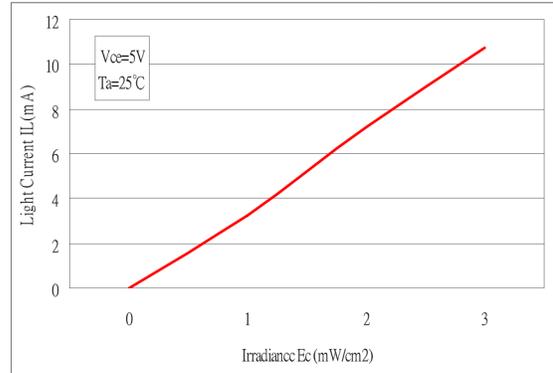


Fig 3. I<sub>ceo</sub> vs. Ambient Temperature

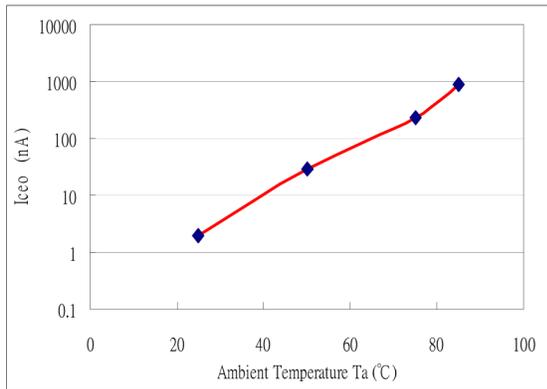


Fig 4. Response Time vs. Load Resistance

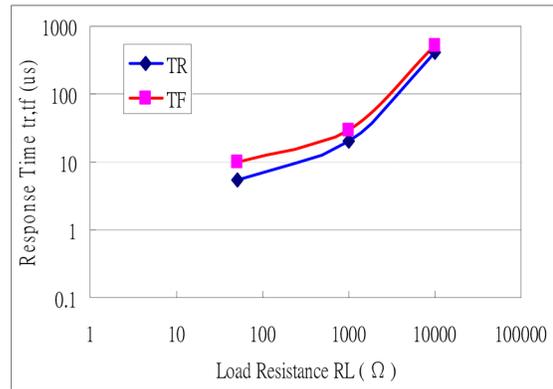


Fig 5. Terminal Capacitance vs. Reverse Voltage

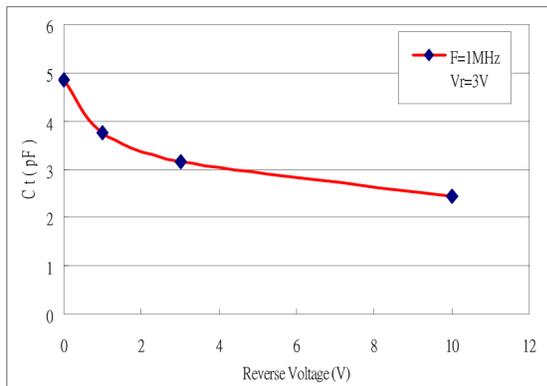
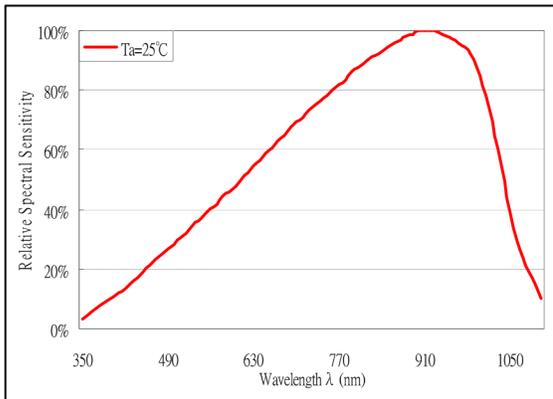
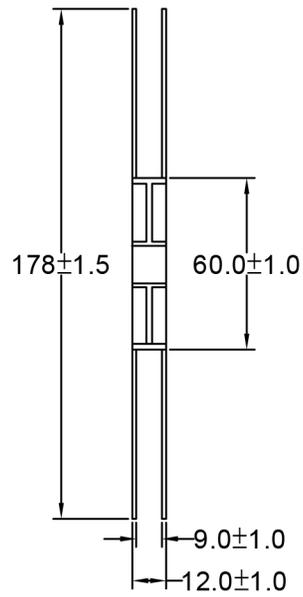
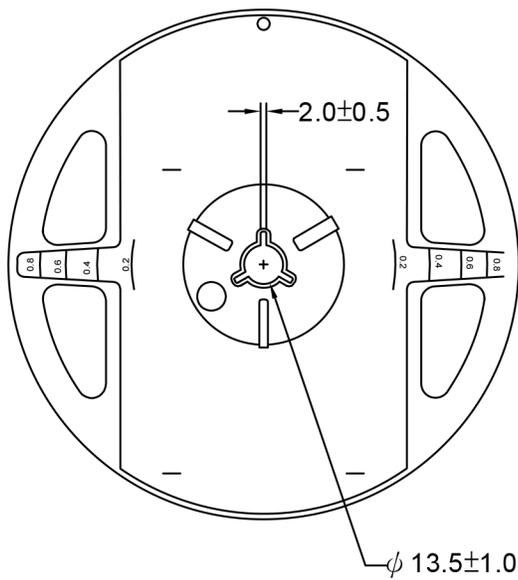
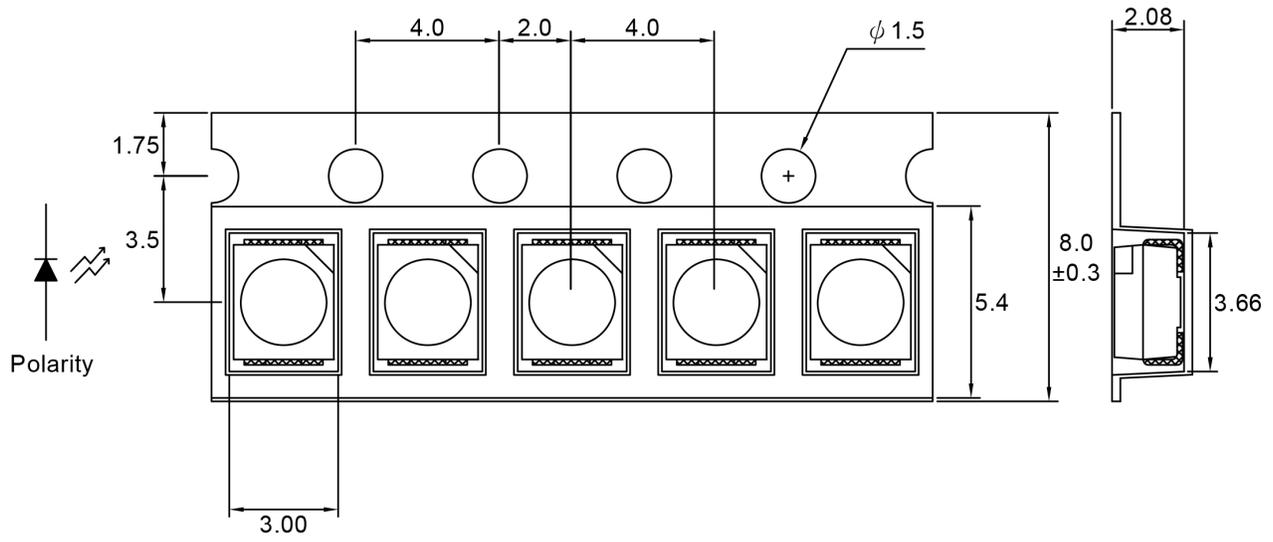


Fig 6. Light Current vs. E<sub>e</sub>



TAPE AND REEL SPECIFICATION

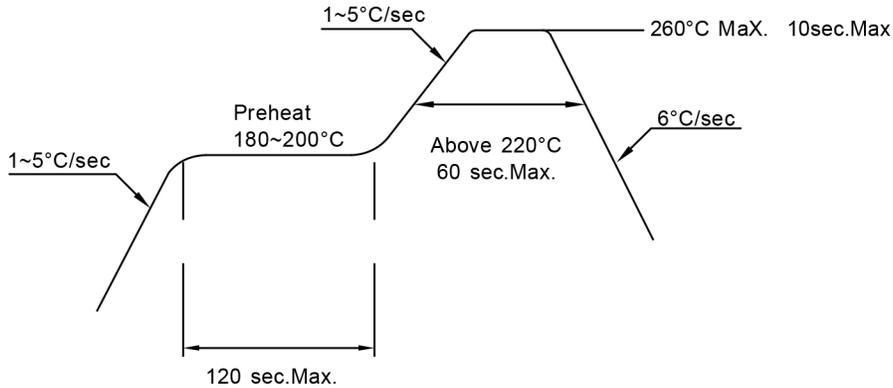


## REFLOW SOLDERING

Recommended soldering paste specifications:

1. Operating temp.: Above 220°C, 60sec.
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.

## LEAD-FREE SOLDER PROFILE



# Circuit Board Indicators

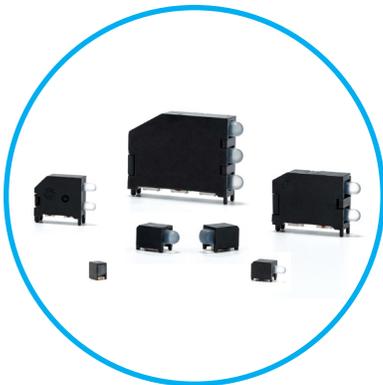


550, 551, 552, 553, 555, 561, 564, 566, 567, 568, 569, 570 AND 571 SERIES

## **CBI® Through Hole** Discrete and housed LEDs

*The widest variety of configurations including:*

- Right angle, vertical and horizontal arrays in single, bi, tri and quad blocks
- 2mm, 3mm, 4mm, 5mm and rectangular LEDs
- Perfect for direct view or backlighting applications
- Single and bi-color, diffused, water-clear, tinted, super-bright and high efficiency
- Over 2500 variations, with custom LED placement available
- All visible colors of the spectrum available (from blue to red)



591, 592, 593, 594, 595 AND 596 SERIES

## **PRISM® Surface Mount LEDs** Right Angle SMDs

- Fully SMD process compliant part (taped and reeled / pick and place / reflow oven compatible)
- 1.6mm, 2mm and 3mm LEDs
- Can withstand higher temp RoHS solder process and eliminates need for secondary optics or separate process
- Available in standard and low current versions
- Available with square or round lens
- Packaged in single, bi- and tri-level configurations



597, 598 AND 599 SERIES

## **microLED®** Surface Mount LEDs

- Twenty plus different package sizes including: 0402, 0404, 0603, 0606, 0805, 1206, 1208, 1210, 1515, 2827, 3528, 4020, 5050, PLCC, Gullwing and 3735
- Single color, bi-color, tri-color in top, right angle, and reverse mount LED configurations
- Latest AlInGaP & InGaN technology
- Cost competitive pricing



515 SERIES

## **OPTOPIPE® Light Pipes** for use with microLED® SMDs

- Light pipes act as a conduit for directing light from LED to front panel viewing
- For PCB and panel mount press-fit mounting
- Right angle and vertical versions available in more than 400 sizes and shapes
- Provides ESD protection, operating / storage temperature -30°C to +100°C
- Allows edge lighting around components such as SFP assemblies and RJ45 jacks
- UL 94V-0 Compliant

# Panel Mount Indicators



585 AND 586

## Based LED Bulbs

- Replaces traditional miniature incandescent bulbs with rugged long-lasting and energy-efficient LEDs
- Base styles including: T 1 3/4 Midget Flange, Wedge Base and Bi-Pin, T 3 1/4 Mini-Bayonet and Mini-Screw, T2 Telephone Slide and 15mm Bayonet
- Voltages from 6, 14 and 28 VDC, 6-36 VDC multi-voltage operation and 125 VAC with non-polarized versions available
- Colors include: red, green, yellow, blue and white while our 558, 559 and some 600 series use a snap-in plastic housing



249, 507, 556, 557, 558, 559, 605, 606, 607, 608, 609, 610, 612, 620, 621, 622, 623, 624, 625, 630, 653, 654, 655, 656, 657, 658, 659, 675, 676, 677, 678, 679, 680 AND 682 SERIES

## LED Panel Mount Indicators

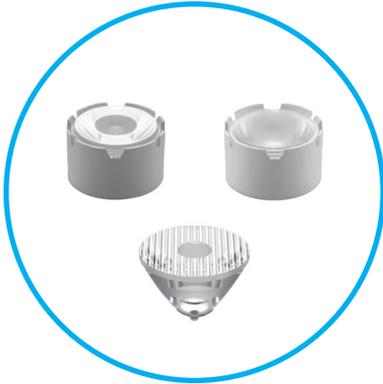
Plastic and metal housings

- Incorporating the latest LED technology in a tamper-proof metal housing enclosures
- Variety of mounting hole diameters from 0.156" (3.9mm) - 1.18" (30 mm)
- Operating voltages 2-72 VDC, 125 and 230 VAC
- Some feature a water-tight seal to NEMA 4X / IP66/67 and daylight viewability
- Available in: red, green, yellow, orange, blue, cyan and white
- 556 and 656 series are UL certified
- RoHS compliant, some with 6C exemptions
- All metal and some plastic housing use lock washer and nut for secure mounting while our 558, 559 and some 600 series use a snap-in plastic housing



## Military And Relampable Panel Mount Indicators

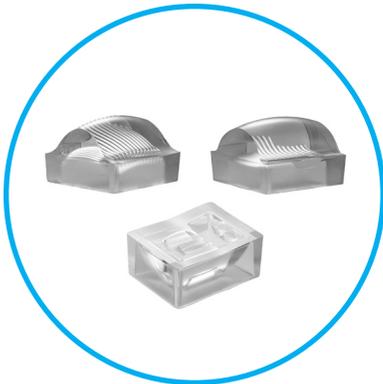
- Military - LH, LC and MS designations and QPL listed
- Incandescent or neon, designed to mount into 15/32", 11/16" and 1" clearance holes
- Feature water-tight and oil-tight, edge lighting, press-to-test, and dimmable semi or total blackout
- Consult Dialight's Military Cross Reference for specific part number
- Commercial - Incandescent or neon indicators UL recognized designed to mount into 15/32", 11/16" and 1" clearance holes
- Lenses are available in flat, dome, torpedo and faceted



OPT SERIES

## TIR Optics

- High transmissivity
- UL rated optic material
- Optic only with tape or Optic pre-installed in housing with tape for mounting



OPT SERIES

## Lens Optics

- High transmissivity
- UL rated optic material
- Lens includes locating pins for consistent alignment



OPT SERIES

## Reflective Optics

- Only 11.5mm (0.453") maximum diameter
- Ideal for tightly spaced LED arrays
- Adhesive backing for easy installation. Adhesive rated from -40°C to +120°C (-40°F to +248°F)
- Automatic alignment feature
- Spot and wide versions available
- Universal version suites Cree XPC, XPE, XPG and standard Rebel LEDs

**OE** is **O**ur **E**xpertise.

[www.dialightsignalsandcomponents.com](http://www.dialightsignalsandcomponents.com)