

## SOLDERING INSTRUCTIONS FOR THROUGH HOLE LEDs

DIP AND WAVE SOLDERING			IRON SOLDERING (with 1.5mm IRON TIP)		
Temperature of the Soldering Bath	Maximum Soldering Time	Distance from Solder Joint to Case	Temperature of the Soldering Iron	Maximum Soldering Time	Distance From Solder Joint to Case
≤260°C	3s	>2mm	≤260°C	3s	>2mm
≤260°C	5s	>4mm	≤260°C	5s	>4mm

## RECOMMENDED SOLDERING PATTERN FOR SMT LEDs

<p><b>1</b></p>	<p><b>2</b></p>	<p><b>3</b></p>
<p><b>4</b></p>	<p><b>5</b></p>	<p><b>6</b></p>
<p><b>7</b></p>	<p><b>8</b></p>	<p><b>9</b></p>
<p><b>10</b></p>	<h3 style="text-align: center;">SOLDERING INSTRUCTIONS FOR SMT LEDs</h3> <p>Surface Mount LEDs are temperature sensitive and must be handled with extreme care. IR Reflow Soldering and Vapor Phase Reflow Soldering are recommended. Wave Soldering is not recommended for surface mount LEDs. Please request our SMT LED Soldering Notes 155-1209.</p> <p>Note: Above dimensions in millimeters</p>	

## LED TECHNICAL DATA

Absolute Maximum Ratings (TA=25°C)	430nm (GaN)	470nm (GaN)	525nm (GaN)	555nm (GaP)	565nm (GaP)	590nm (GaAsP/ GaP)	595nm (InGaAlP)	Unit
Reverse Voltage	5	5	5	5	5	5	5	V
Forward Current	30	30	25	30	25	30	25	mA
Forward Current (Peak) t ≤ 10µs	100	100	150	100	150	150	150	mA
Power Dissipation	105	120	105	120	105	105	105	mW
Operating Temperature	-20 to +80	-30 to +85	-40 to +85	-30 to +85	-40 to +85	-40 to +85	-40 to +85	°C
Storage Temperature	-30 to +100	-40 to +100	-40 to +85	-40 to +100	-40 to +85	-40 to +85	-40 to +85	°C

Operating Characteristics (TA=25°C)	430nm (GaN)	470nm (GaN)	525nm (GaN)	555nm (GaP)	565nm (GaP)	590nm (GaAsP/ GaP)	595nm (InGaAlP)	Unit
Forward Voltage (typ.) I <sub>F</sub> =20mA	4.5	3.6	3.5	2.25	2.2	2.1	2.0	V
Forward Voltage (max.) I <sub>F</sub> =20mA	5.5	4.0	4.0	2.6	2.5	2.5	2.5	V
Reverse Current V <sub>R</sub> =5V	100	50	50	10	10	10	10	µA
Wavelength at Peak Emission I <sub>F</sub> =20mA	430	470	525	555	565	590	595	nm
Spectral line half-width I <sub>F</sub> =20mA	65	30	40	30	30	35	15	nm
Capacitance V <sub>F</sub> =0V, f=1MHz	100	50	50	45	45	10	33	pF

## LED TECHNICAL DATA

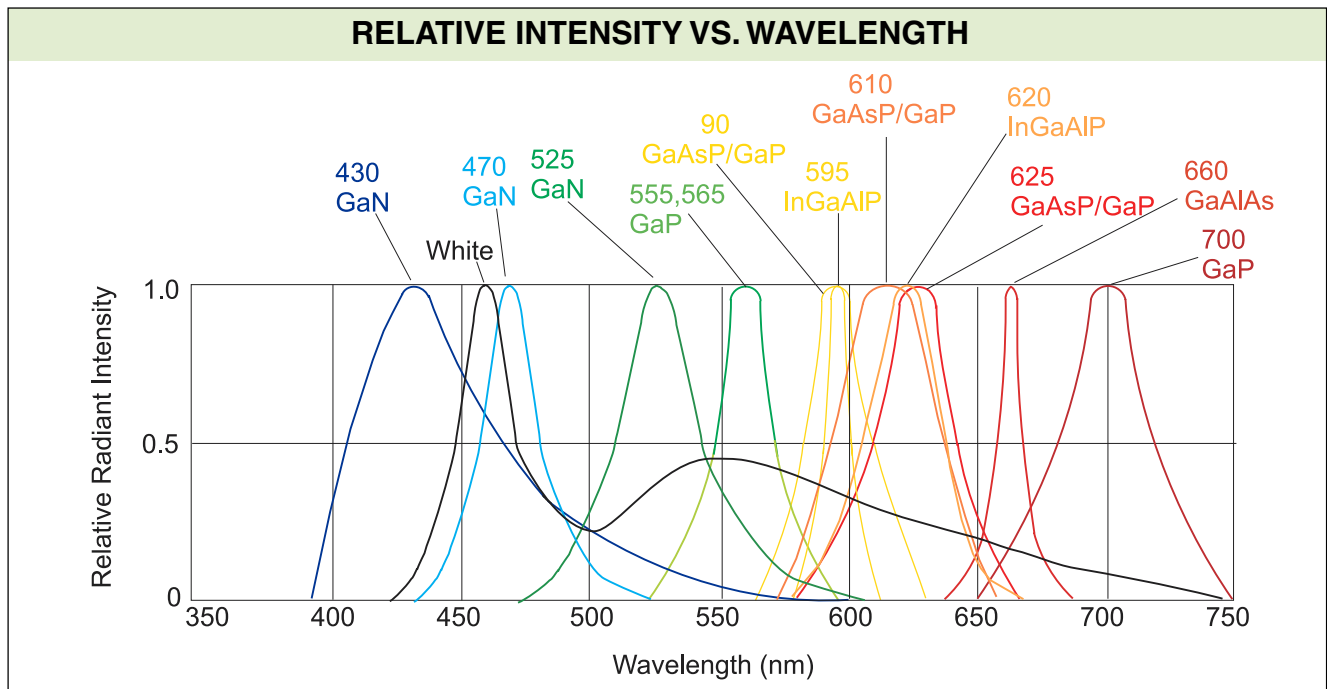
Absolute Maximum Ratings (TA=25°C)	610nm (GaAsP/ GaP)	620nm (InGaAlP)	625nm (GaAsP/ GaP)	660nm (GaAlAs)	700nm (GaP)	880nm (GaAlAs)	940nm (GaAs)	Unit
Reverse Voltage	5	5	5	5	5	5	5	V
Forward Current	30	30	30	30	25	50	50	mA
Forward Current (Peak) t ≤ 10us	150	150	150	150	150	1200	1200	mA
Power Dissipation	105	75	105	100	120	100	100	mW
Operating Temperature	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	°C
Storage Temperature	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	°C

Operating Characteristics (TA=25°C)	610nm (GaAsP/ GaP)	620nm (InGaAlP)	625nm (GaAsP/ GaP)	660nm (GaAlAs)	700nm (GaP)	880nm (GaAlAs)	940nm (GaAs)	Unit
Forward Voltage (typ.) I <sub>F</sub> =20mA	2.0	1.95	2.0	1.85	2.0	1.4	1.2	V
Forward Voltage (max.) I <sub>F</sub> =20mA	2.6	2.5	2.5	2.5	2.5	1.7	1.5	V
Reverse Current V <sub>R</sub> =5V	10	10	10	10	10	10	10	uA
Wavelength at Peak Emission I <sub>F</sub> =20mA	610	620	625	660	700	880	940	nm
Spectral line half-width I <sub>F</sub> =20mA	35	15	45	20	45	50	50	nm
Capacitance V <sub>F</sub> =0V, f=1MHz	15	40	12	95	40	90	90	pF

## TECHNICAL DATA 5V/12V LED WITH INTERNAL RESISTANCE

Absolute Maximum Ratings (TA=25°C)	565nm (GaP)	590nm (GaAsP/GaP)	625nm (GaAsP/GaP)	660nm (GaAlAs)	Unit
Reverse Voltage	5	5	5	5	V
Forward Current (Peak) $t \leq 10\mu s$	150	150	150	200	mA
Derating linear from 50°C	0.7	0.7	0.7	0.35	mA
Power Dissipation	310	310	310	300	mW
Operating/Storage Temperature	-40 to +85	-40 to +85	-40 to +85	-40 to +85	°C

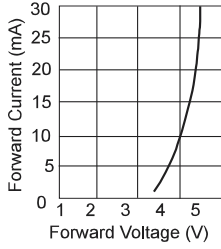
Operating Characteristics (TA=25°C)	565nm (GaP)	590nm (GaAsP/GaP)	625nm (GaAsP/GaP)	660nm (GaAlAs)	Unit
Forward Current (typ) VF=5V	12	12	12	13	mA
VF=12V	11	11	11	10	mA
Reverse Current VR=5v	10	10	10	10	uA
Wavelength at Peak Emission IF=20mA	565	590	625	660	nm
Spectraline half-width IF=20mA	30	35	45	20	nm



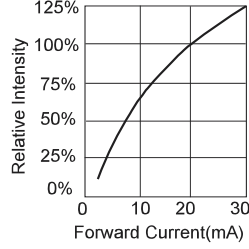
# LED TECHNICAL DATA

## 430nm (GaN)

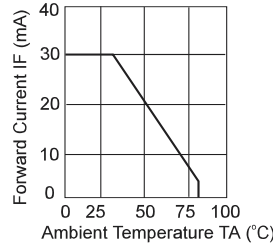
FORWARD CURRENT VS. FORWARD VOLTAGE



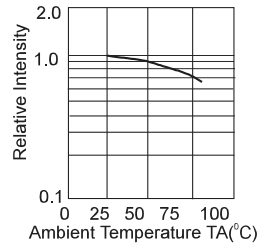
RELATIVE INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

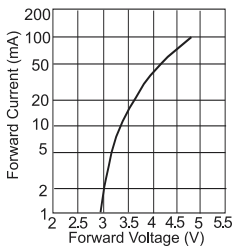


LUMINOUS INTENSITY Vs. AMBIENT TEMP.

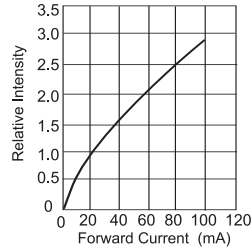


## 470nm (GaN)

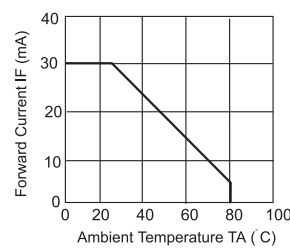
FORWARD CURRENT VS. FORWARD VOLTAGE



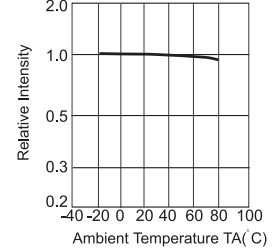
RELATIVE INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

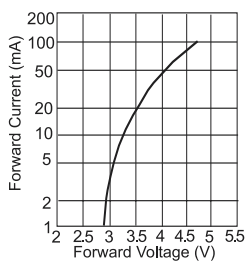


LUMINOUS INTENSITY Vs. AMBIENT TEMP.

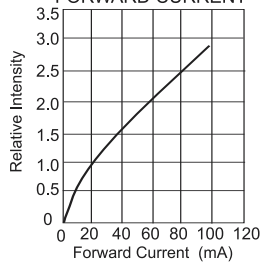


## 525nm (GaN)

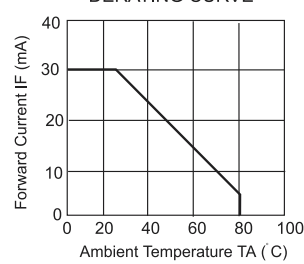
FORWARD CURRENT VS. FORWARD VOLTAGE



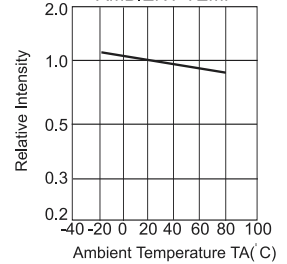
RELATIVE INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

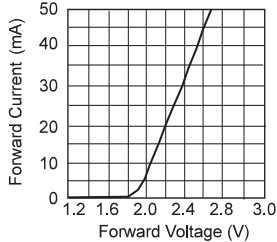


LUMINOUS INTENSITY Vs. AMBIENT TEMP.

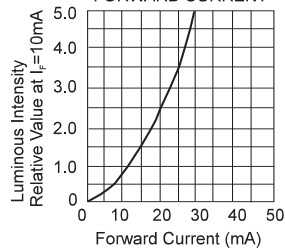


## 555nm (GaP)

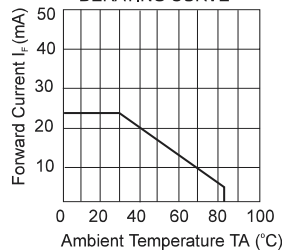
FORWARD CURRENT VS. FORWARD VOLTAGE



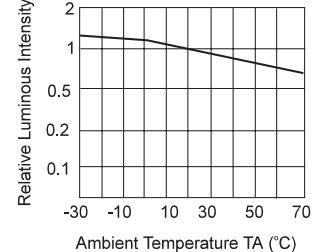
LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

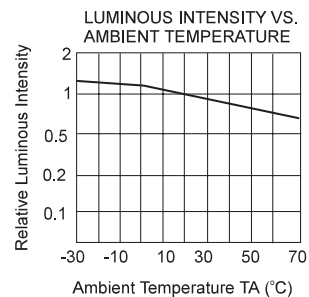
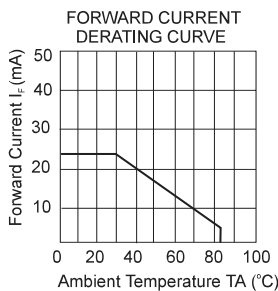
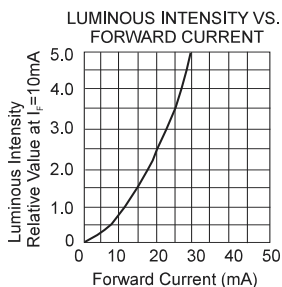
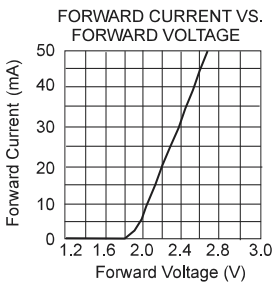


LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

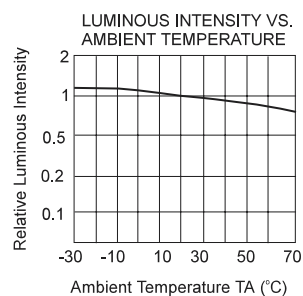
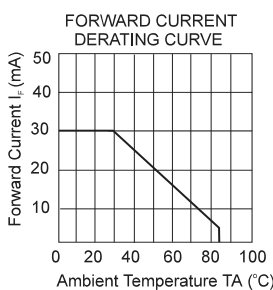
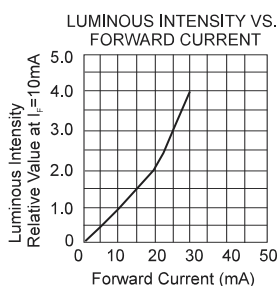
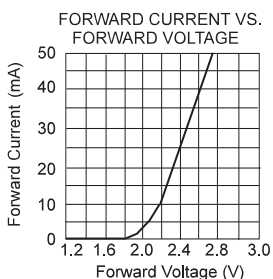


# LED TECHNICAL DATA

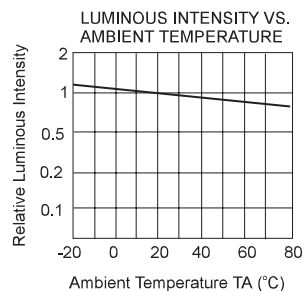
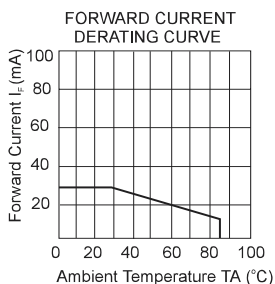
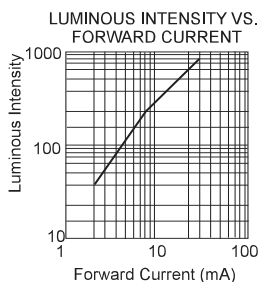
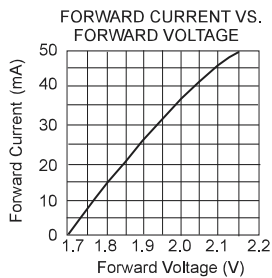
## 565nm (GaP)



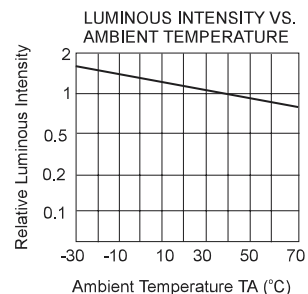
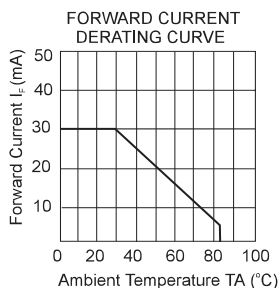
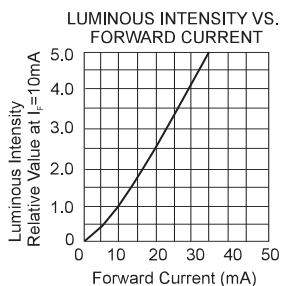
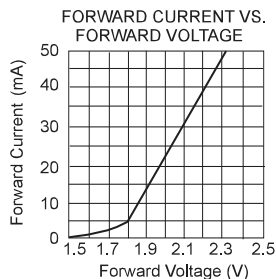
## 590nm (GaAsP/GaP)



## 595nm (InGaAlP)

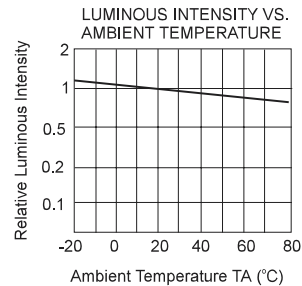
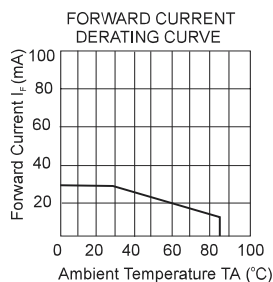
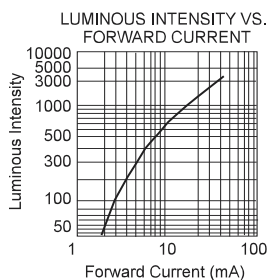
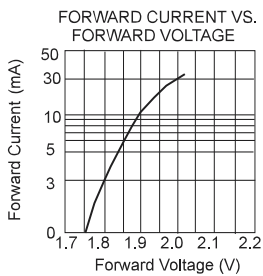


## 610nm (GaAsP/GaP)

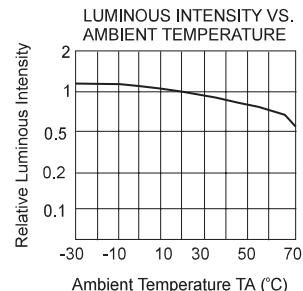
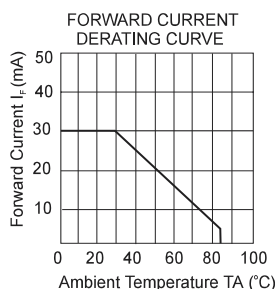
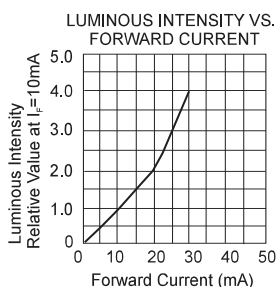
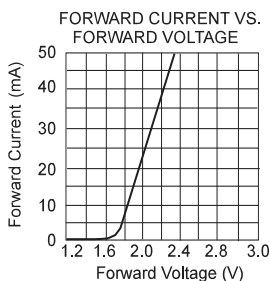


# LED TECHNICAL DATA

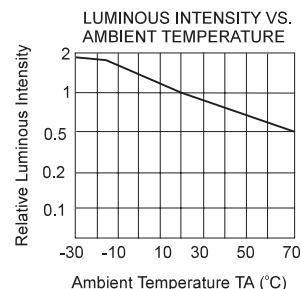
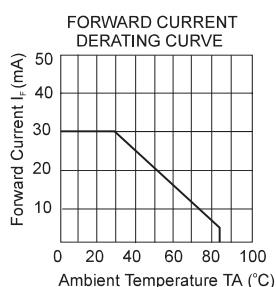
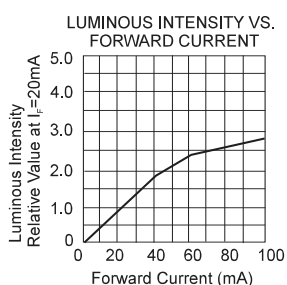
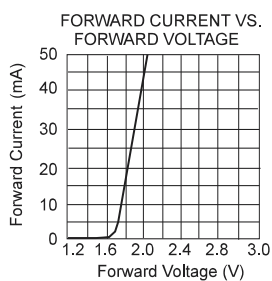
## 620nm (InGaAlP)



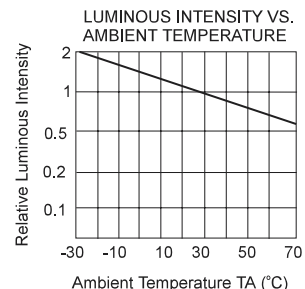
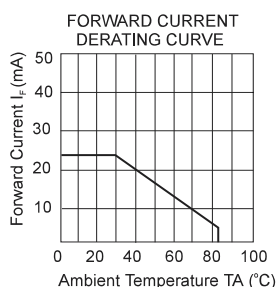
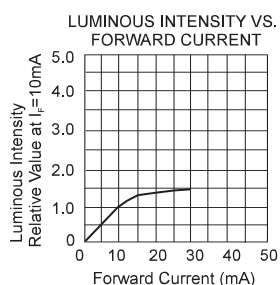
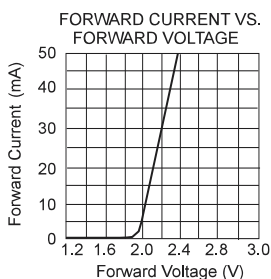
## 625nm (GaAsP/GaP)



## 660nm (GaAlAs)



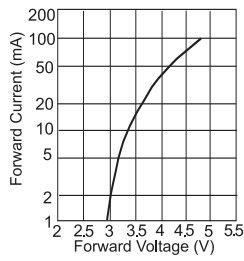
## 700nm (GaP)



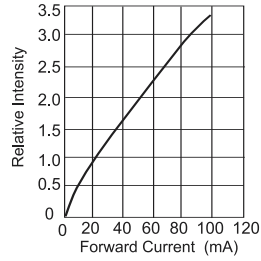
# LED TECHNICAL DATA

## WHITE

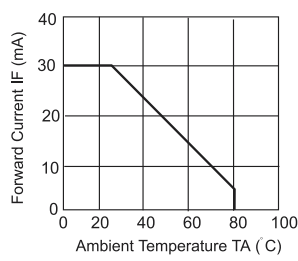
FORWARD CURRENT VS. FORWARD VOLTAGE



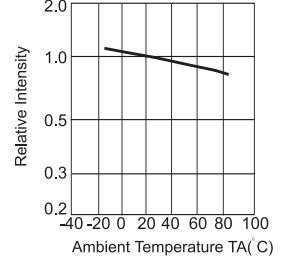
RELATIVE INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

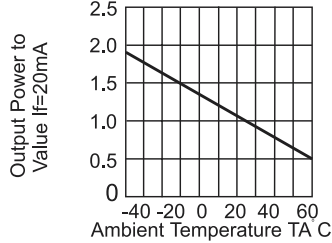


LUMINOUS INTENSITY VS. AMBIENT TEMP.

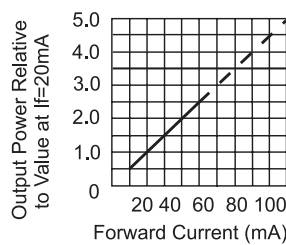


## 880nm (GaAlAs)

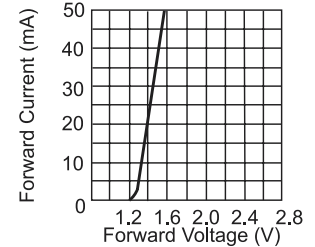
RELATIVE RADIANT INTENSITY VS. AMBIENT TEMPERATURE



LUMINOUS INTENSITY VS. FORWARD CURRENT

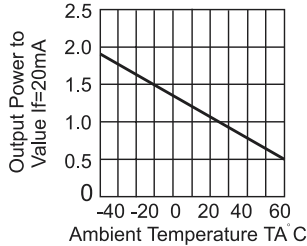


FORWARD CURRENT VS. FORWARD VOLTAGE

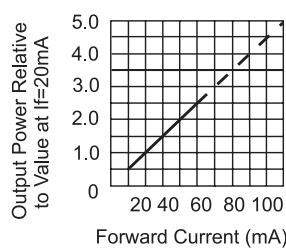


## 940nm (GaAs)

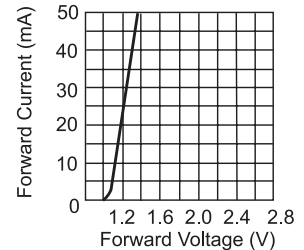
RELATIVE RADIANT INTENSITY VS. AMBIENT TEMPERATURE



LUMINOUS INTENSITY VS. FORWARD CURRENT



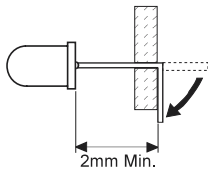
FORWARD CURRENT VS. FORWARD VOLTAGE



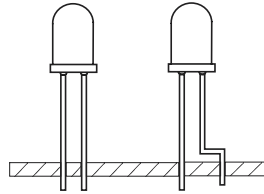


## LED TECHNICAL DATA

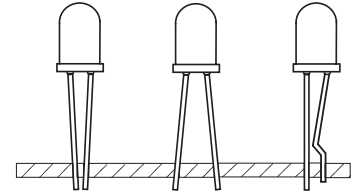
### Lead Forming Guidelines



Leads must be held firmly when bending.  
Do not bend closer than 2mm from LED.



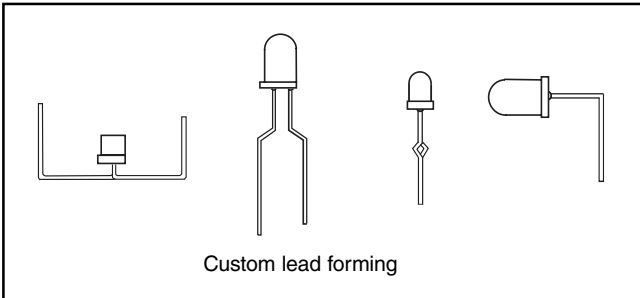
Printed Circuit Board mounting holes must be of same spacing as LED Leads or as alternative shown above.



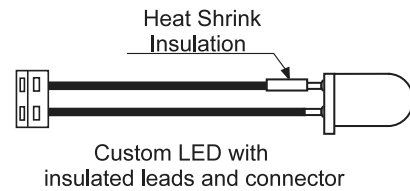
**DO NOT** apply physical stress to LED Leads.

### Custom Lead Options

Contact us with your requirements and specifications.



Custom lead forming



### LED Cleaning

- We recommend using isopropyl alcohol to clean our LEDs.
- Avoid using any unspecified chemical solvent such as Trichloroethylene, Chlorosen or Acetone.
- If cleaning is required, perform in one minute or less under normal temperature conditions.