



# IRC3020N13-B20

## SMD Type 940nm Infrared Emitter

### Features

- Small double-end package
- Viewing Angle =  $\pm 60^\circ$
- High radiant intensity
- High reliability
- Good spectral matching to Si photo detector
- RoHS compliance

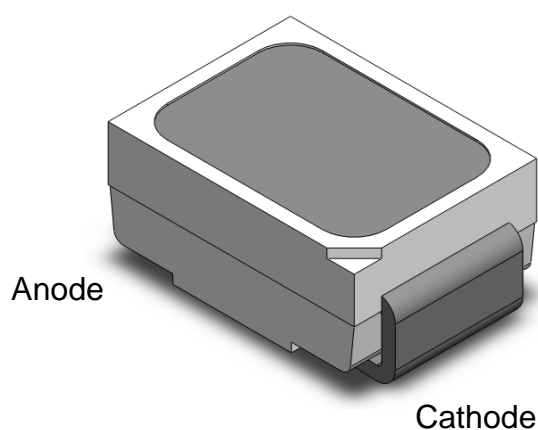
### Applications

- Infrared sensor

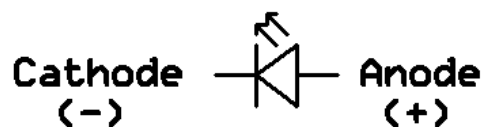
### Description

The IRC3020N13-B20 is a GaAIAs infrared LED housed in a miniature SMD package. The device has a peak wavelength of 940nm LED spectrally matched with phototransistor or photodiode.

### Package Outline



### Schematic



**Absolute Maximum Rating at 25°C**

Symbol	Parameters	Ratings	Units	Notes
I <sub>F</sub>	Continuous Forward Current	70	mA	
I <sub>FP</sub>	Peak Forward Current	0.7	A	1
V <sub>R</sub>	Reverse Voltage	5	V	
T <sub>opr</sub>	Operating Temperature	-40 ~ +85	°C	
T <sub>stg</sub>	Storage Temperature	-40 ~ +100	°C	
T <sub>sol</sub>	Soldering Temperature	260	°C	2
P <sub>D</sub>	Power Dissipation at(or below) 25°C Free Air Temperature	119	mW	

**Electro-Optical Characteristics** *TA = 25°C (unless otherwise specified)***Optical Characteristics**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>e</sub>	Radiant Intensity	I <sub>F</sub> =20mA	1.0	1.8	-	mW/sr	
		I <sub>F</sub> =70mA	-	6.0	-		
λ <sub>p</sub>	Peak Wavelength	I <sub>F</sub> =20mA	-	940	-	nm	
Δλ	Spectral Bandwidth	I <sub>F</sub> =20mA	-	50	-	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =20mA	-	±60	-	deg	

**Electrical Characteristics**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =20mA	1.0	1.2	1.5	V	
		I <sub>F</sub> =70mA	1.1	1.34	1.7		
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	10	μA	

**Notes:**1 : I<sub>FP</sub> Conditions--Pulse Width ≤ 100μs and Duty ≤ 1%.

2 : Soldering time ≤ 5 seconds.



### Typical Characteristic Curves

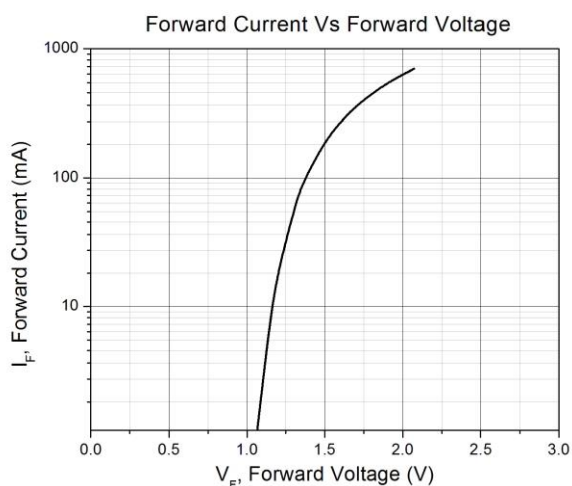


Figure 1

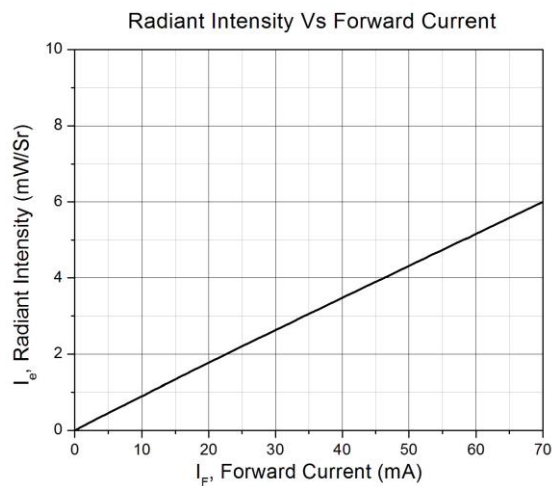


Figure 2

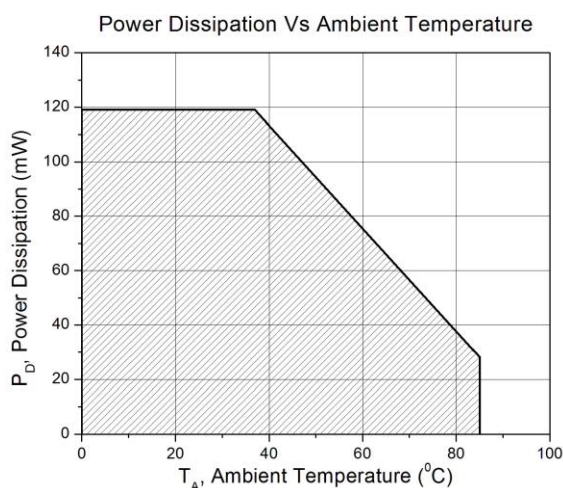


Figure 3

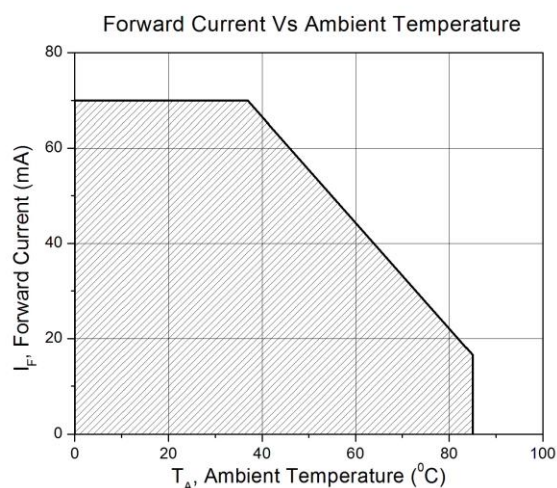


Figure 4

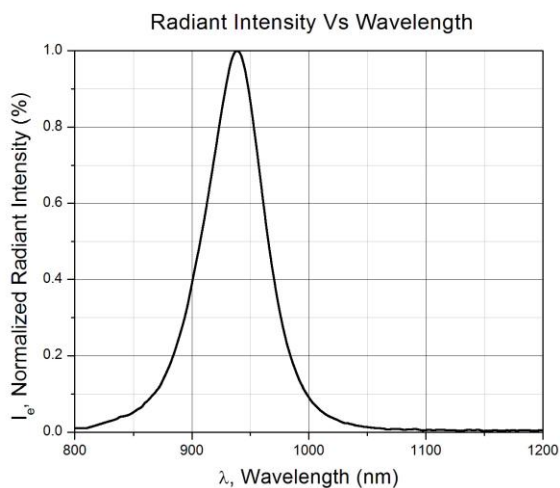


Figure 5



Typical Characteristic Curves

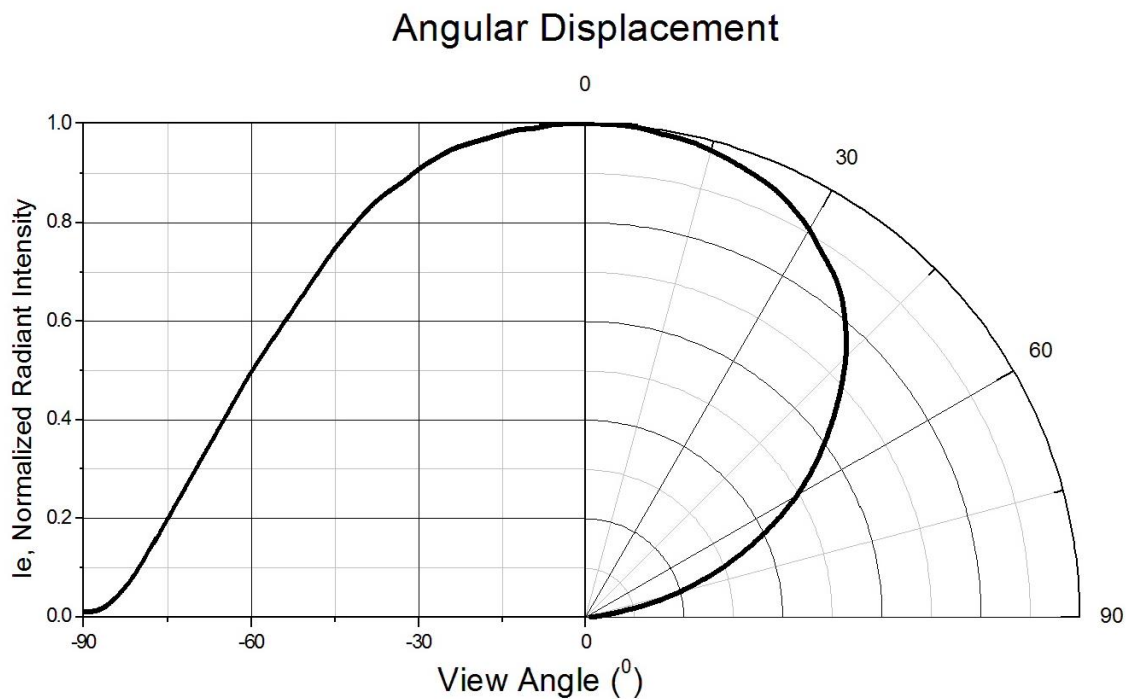


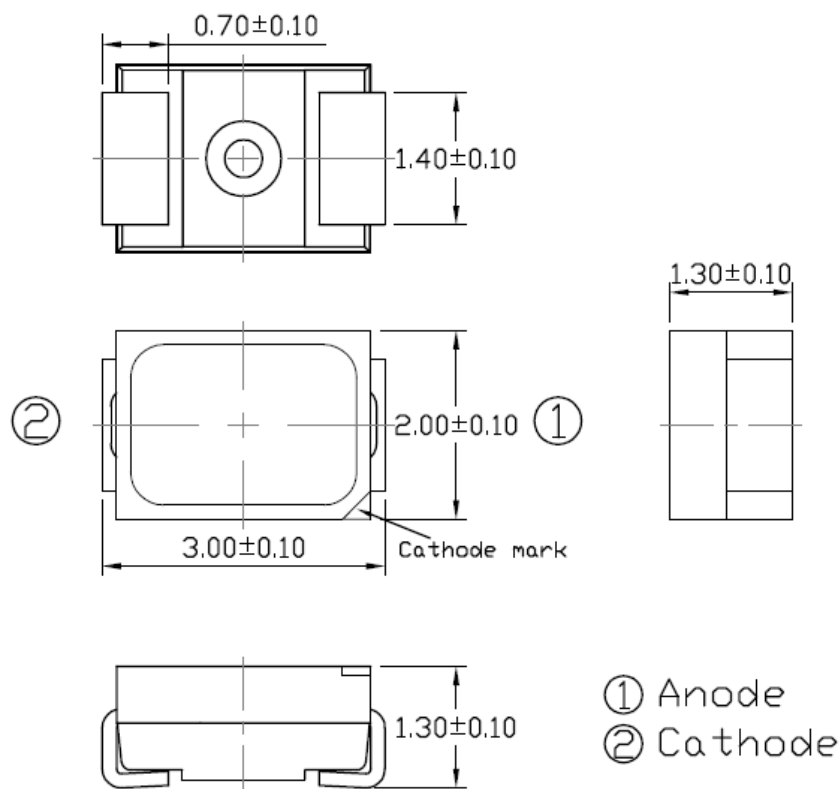
Figure 6



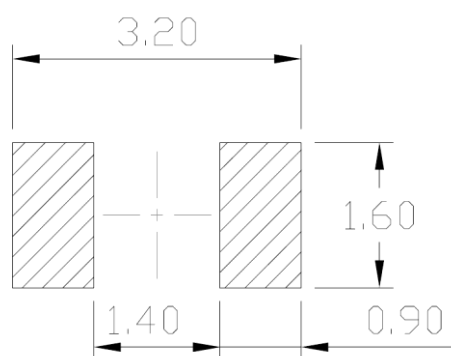
IRC3020N13-B20

SMD Type 940nm Infrared Emitter

**Package Dimension** *All dimensions are in mm, unless otherwise stated*



**Recommended Soldering Mask** *All dimensions are in mm, unless otherwise stated*

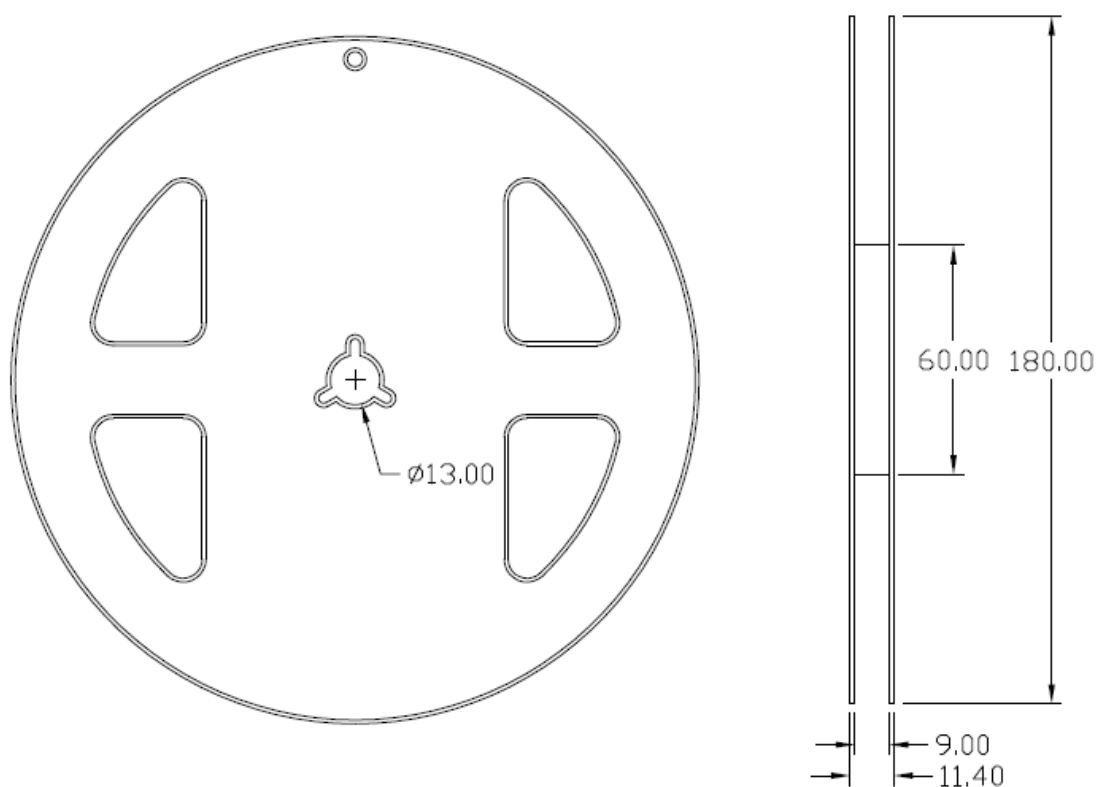


**Ordering Information**

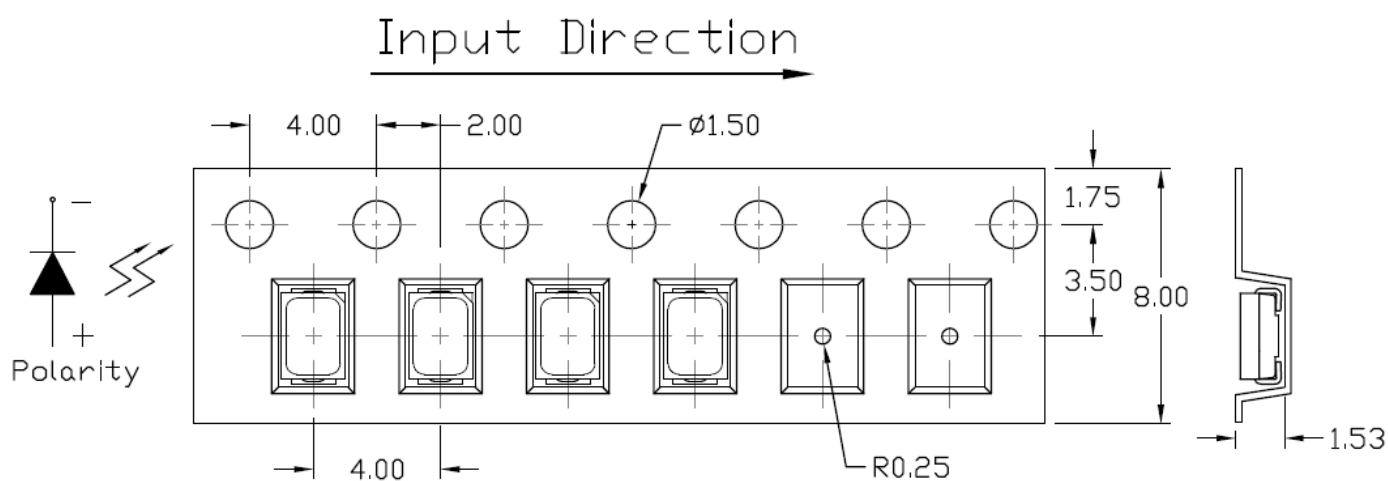
Part Number	Description	Quantity
IRC3020N13-B20	Tape & Reel	2000 pcs



**Reel Dimension** *All dimensions are in mm, unless otherwise stated*

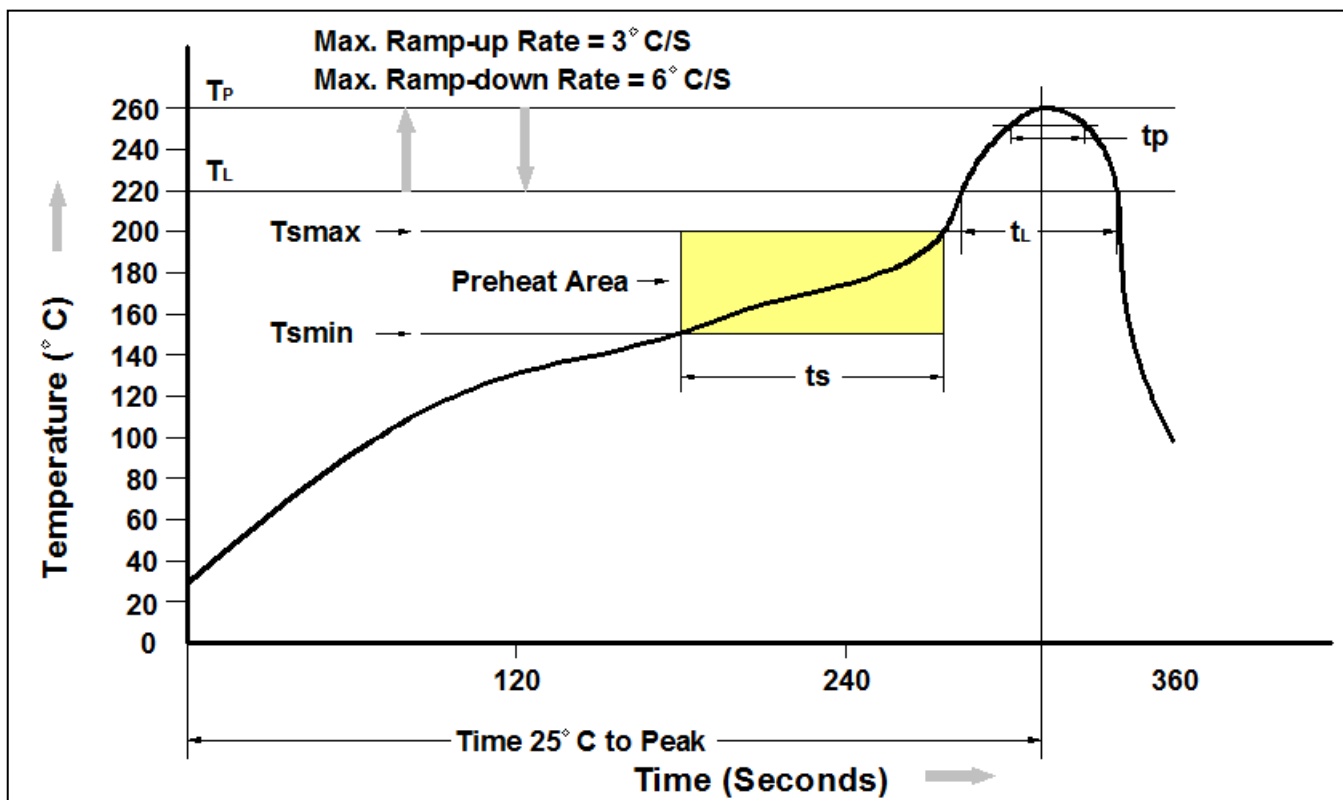


**Tape Dimension** *All dimensions are in mm, unless otherwise stated*





### Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T <sub>min</sub> )	150°C
Temperature Max. (T <sub>max</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>min</sub> to T <sub>max</sub> )	60-120 seconds
Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of 260°C	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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