



HIRC3020Q13-B20

SMD Type 850nm 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

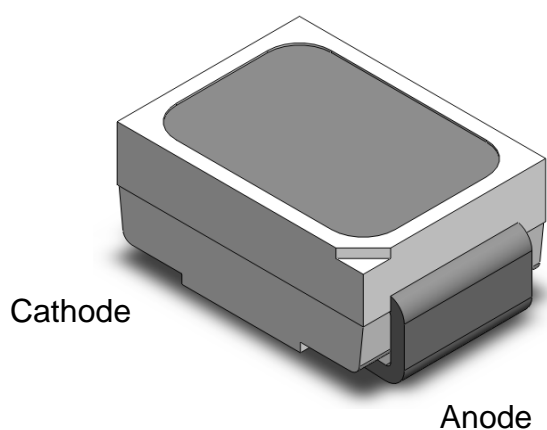
Applications

- Infrared sensor

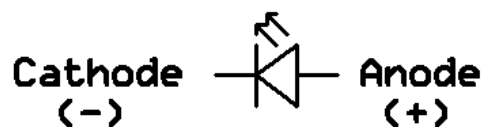
Description

The HIRC3020Q13-B20 is a GaAlAs infrared LED housed in a miniature SMD package. The device has a peak wavelength of 850nm LED spectrally matched with phototransistor or photodiode.

Package Outline



Schematic



**Absolute Maximum Rating at 25°C**

| Symbol | Parameters | Ratings | Units | Notes |
|------------------|--|------------|-------|-------|
| I _F | Continuous Forward Current | 70 | mA | |
| I _{FP} | Peak Forward Current | 0.7 | 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 |
| P _D | Power Dissipation at(or below) 25°C Free Air Temperature | 140 | mW | |

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

| Symbol | Parameters | Test Conditions | Min | Typ | Max | Units | Notes |
|------------------|-------------------------|----------------------|-----|-----|-----|-------|-------|
| I _e | Radiant Intensity | I _F =20mA | 1.5 | 3.0 | - | mW/sr | |
| | | I _F =70mA | - | 10 | - | | |
| λ _p | Peak Wavelength | I _F =20mA | - | 850 | - | nm | |
| Δλ | Spectral Bandwidth | I _F =20mA | - | 30 | - | nm | |
| θ _{1/2} | Angle of Half Intensity | I _F =20mA | - | ±60 | - | deg | |

Electrical Characteristics

| Symbol | Parameters | Test Conditions | Min | Typ | Max | Units | Notes |
|----------------|-----------------|----------------------|------|------|-----|-------|-------|
| V _F | Forward Voltage | I _F =20mA | 1.30 | 1.40 | 1.7 | V | |
| | | I _F =70mA | 1.40 | 1.60 | 2.0 | | |
| I _R | Reverse Current | V _R =5V | - | - | 10 | μA | |

Notes:1 : I_{FP} Conditions--Pulse Width ≤ 100μs and Duty ≤ 1%.

2 : Soldering time ≤ 5 seconds.



Typical Characteristic Curves

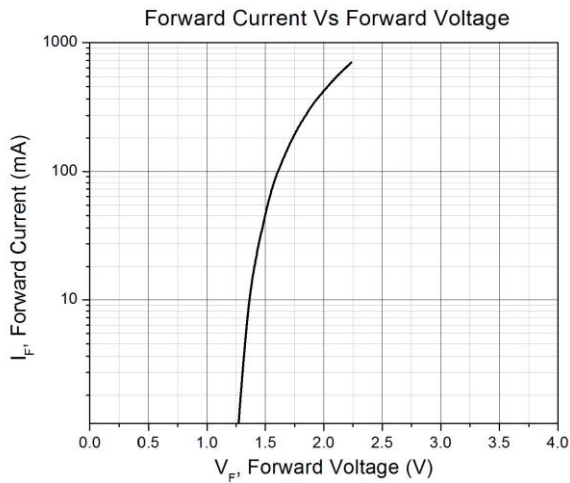


Figure 1

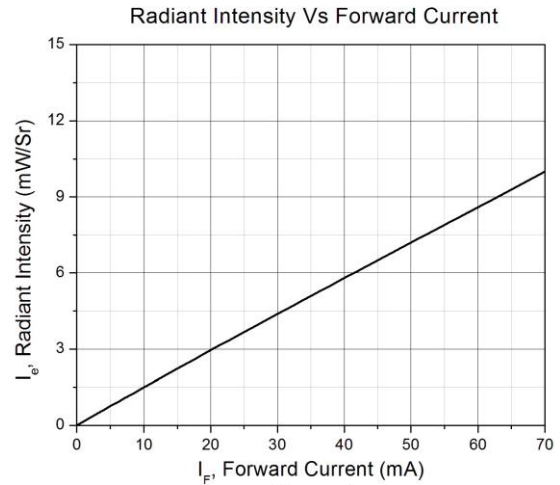


Figure 2

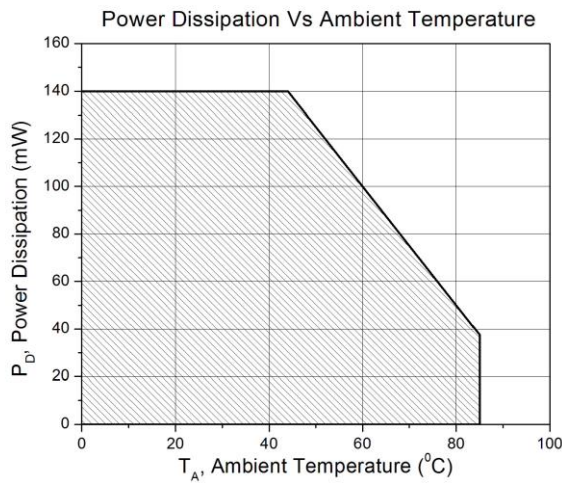


Figure 3

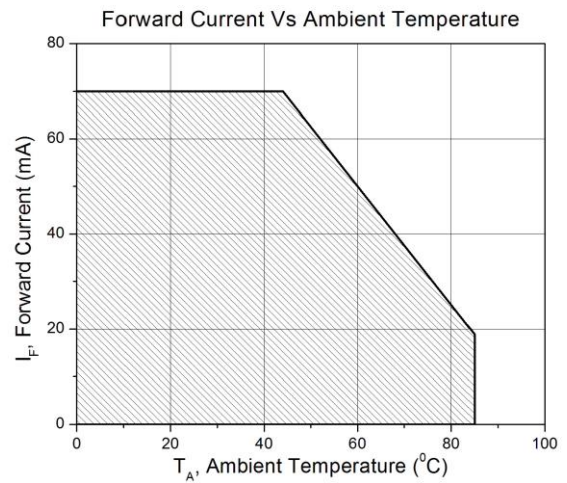


Figure 4

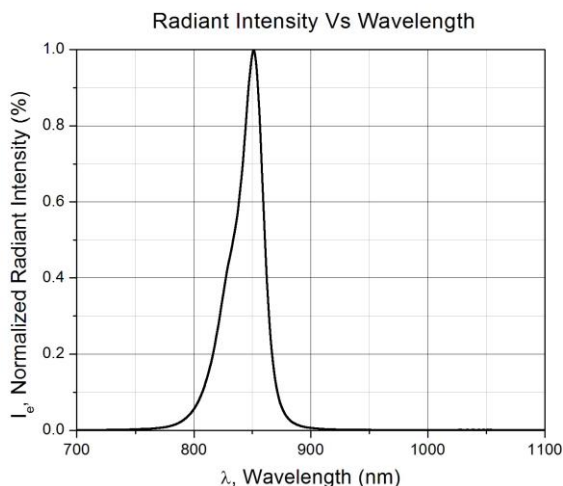


Figure 5



Typical Characteristic Curves

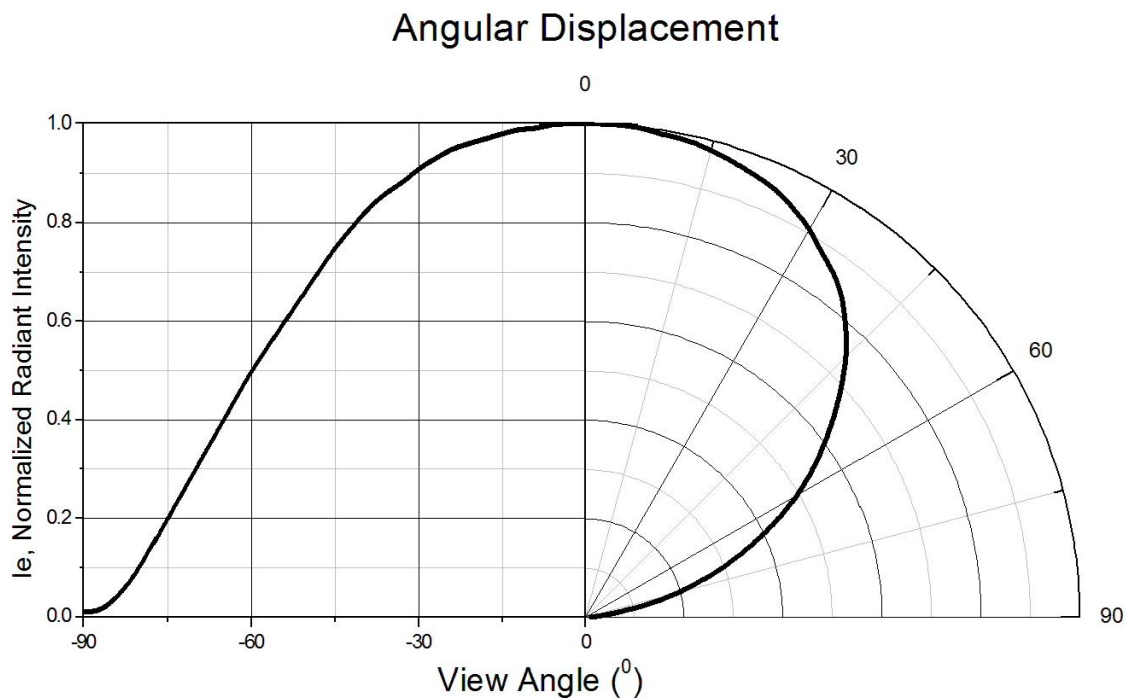


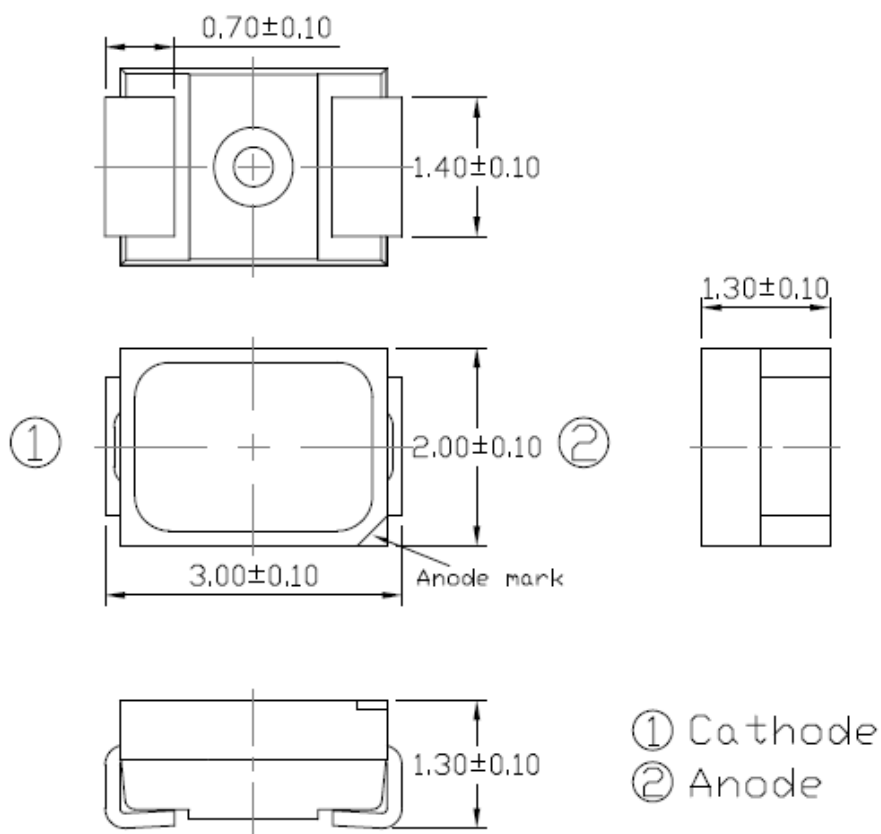
Figure 6



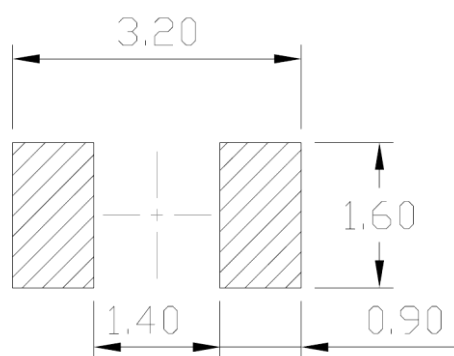
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Package Dimension *All dimensions are in mm, unless otherwise stated*



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



Ordering Information

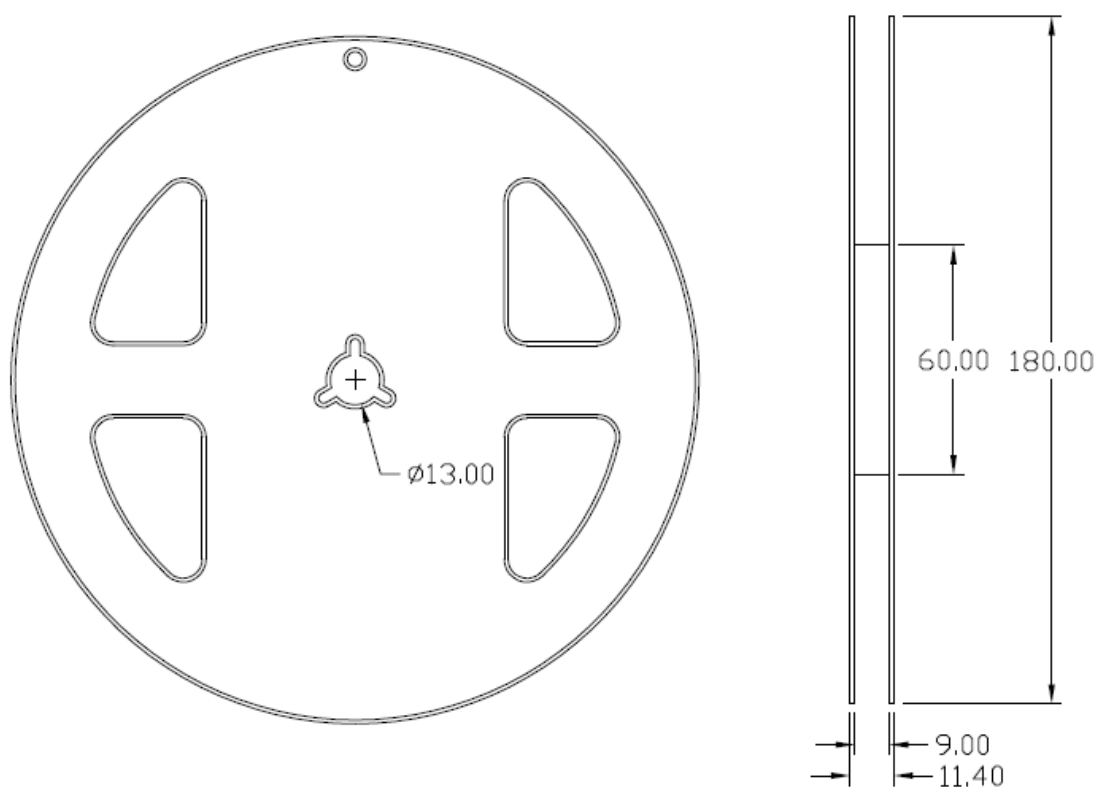
| Part Number | Description | Quantity |
|--------------------|--------------------|-----------------|
| HIRC3020Q13-B20 | Tape & Reel | 2000 pcs |



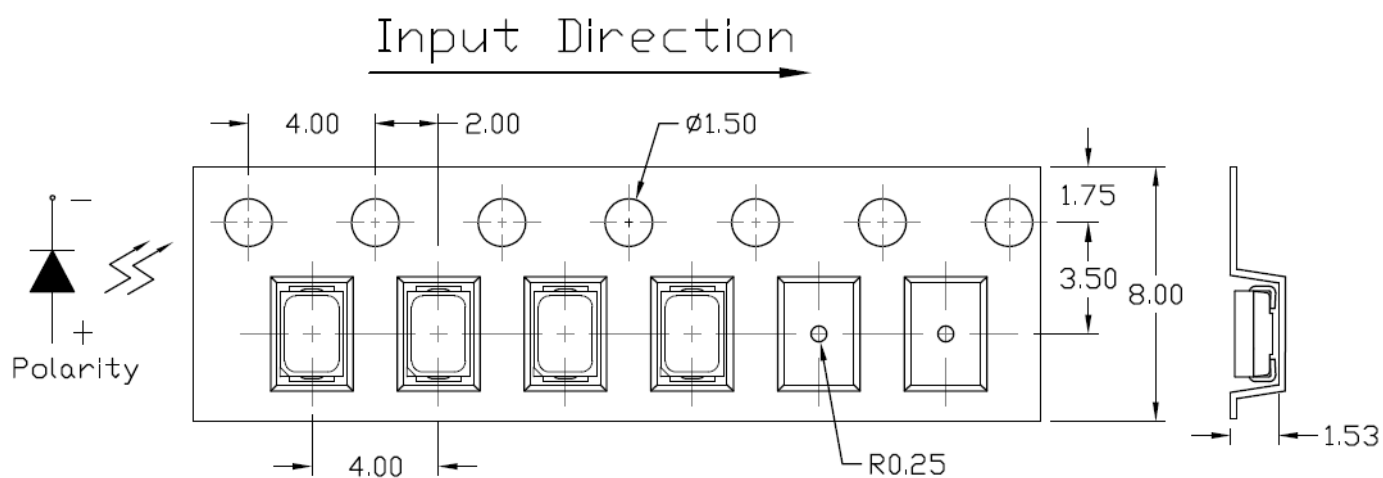
HIRC3020Q13-B20

SMD Type 850nm Infrared Emitter

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

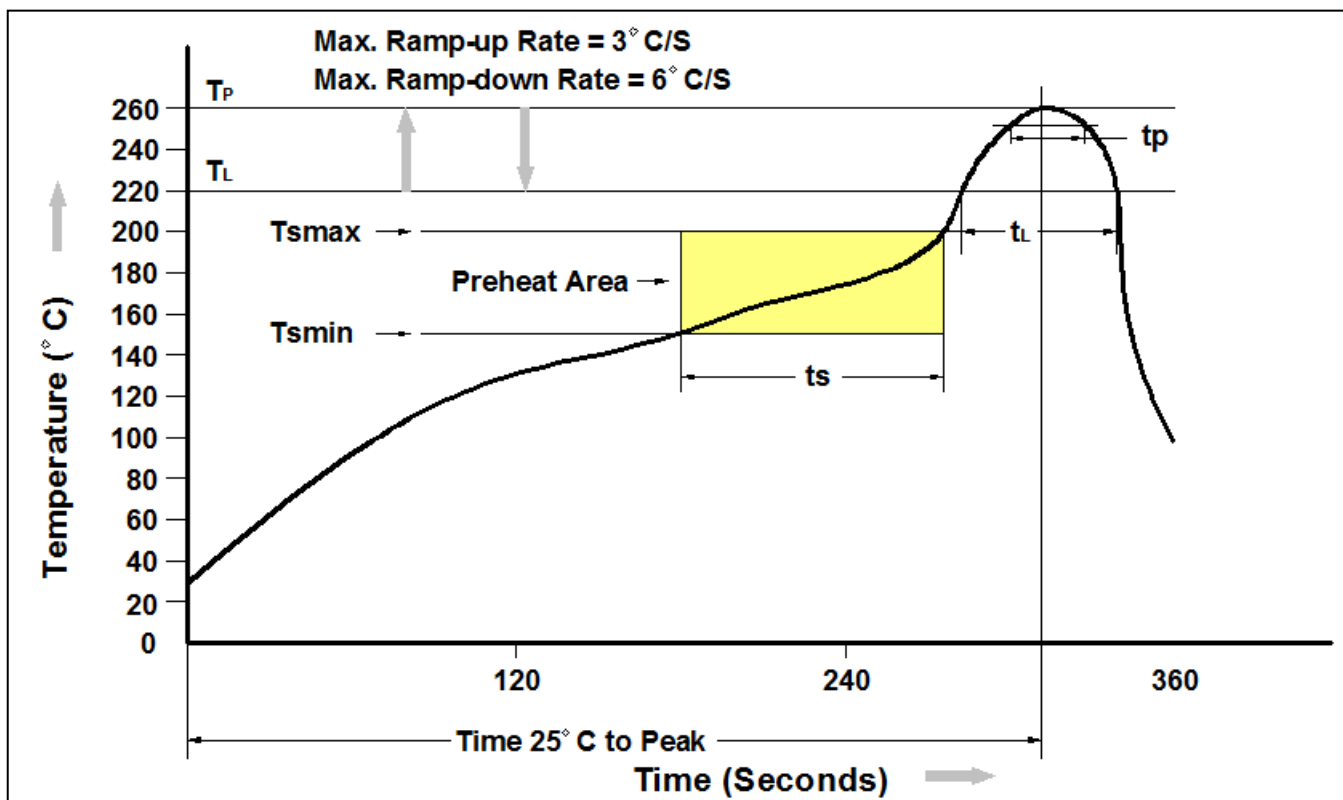


Tape Dimension *All dimensions are in mm, unless otherwise stated*





Reflow Profile



| Profile Feature | Pb-Free Assembly Profile |
|---|--------------------------|
| Temperature Min. (Tsmin) | 150°C |
| Temperature Max. (Tsmax) | 200°C |
| Time (ts) from (Tsmin to Tsmax) | 60-120 seconds |
| Ramp-up Rate (t _L to t _P) | 3°C/second max. |
| Liquidous Temperature (T _L) | 217°C |
| Time (t _L) Maintained Above (T _L) | 60 – 150 seconds |
| Peak Body Package Temperature | 260°C +0°C / -5°C |
| Time (t _P) within 5°C of 260°C | 30 seconds |
| Ramp-down Rate (T _P to T _L) | 6°C/second max |
| Time 25°C to Peak Temperature | 8 minutes max. |



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