



IRP3012Q24-E5

SMD Type 940nm Infrared Emitter

Features

- Small double-end package
- Viewing Angle at X axis (Note3) = $\pm 22.5^\circ$
- High reliability
- Good spectral matching to Si photo detector
- RoHS compliance

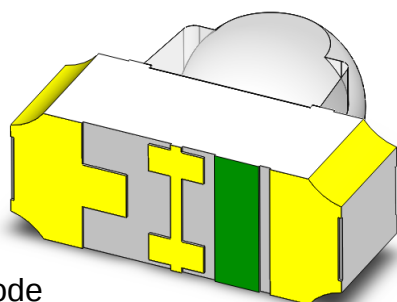
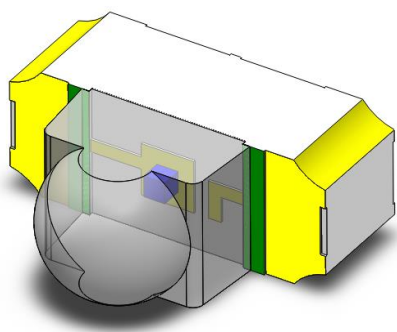
Applications

- Infrared sensor
- Infrared Touch Panel Solutions

Description

The IRP3012Q24-E5 is a GaAlAs infrared LED housed in a miniature SMD package. The device has a peak wavelength of 940nm LED spectrally matched with phototransistor or photodiode.

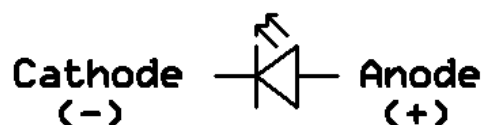
Package Outline



Cathode

Anode

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	
R _{THJA}	Junction to Ambient Thermal Resistance	540	°C/W	

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	6.5	11	-	mW/sr	
		I _F =70mA	-	38	-		
λ _p	Peak Wavelength	I _F =20mA	-	940	-	nm	
Δλ	Spectral Bandwidth	I _F =20mA	-	40	-	nm	
θ _{1/2}	Angle of Half Intensity (X)	I _F =20mA	-	±22.5	-	deg	3
	Angle of Half Intensity (Y)			±20			

Electrical Characteristics

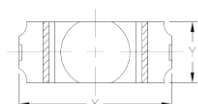
Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V _F	Forward Voltage	I _F =20mA	1.15	1.28	1.5	V	
		I _F =70mA	1.25	1.50	1.8		
I _R	Reverse Current	V _R =5V	-	-	10	μA	

Notes:

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

2: Soldering time ≤ 5 seconds.

3 : Test condition :





Typical Characteristic Curves

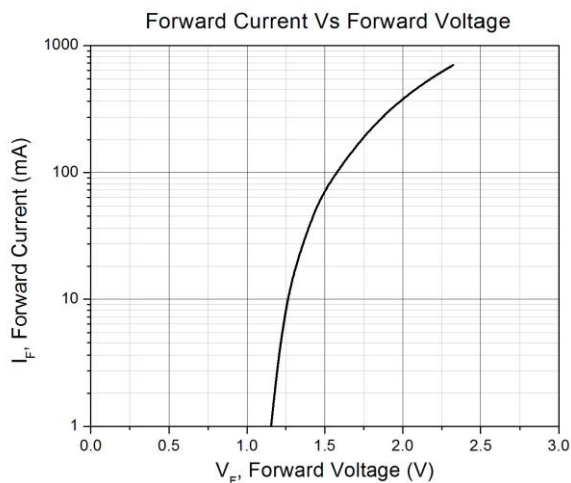


Figure 1

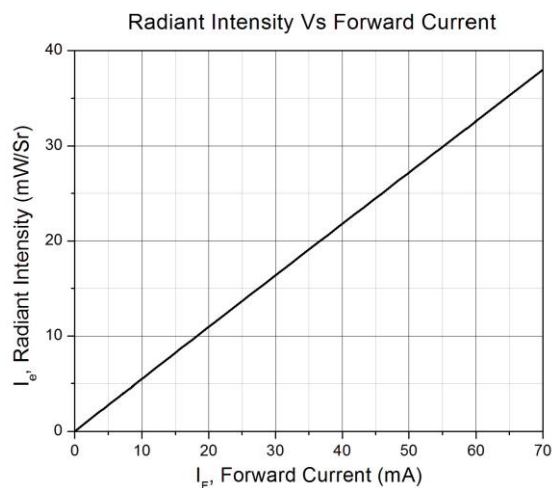


Figure 2

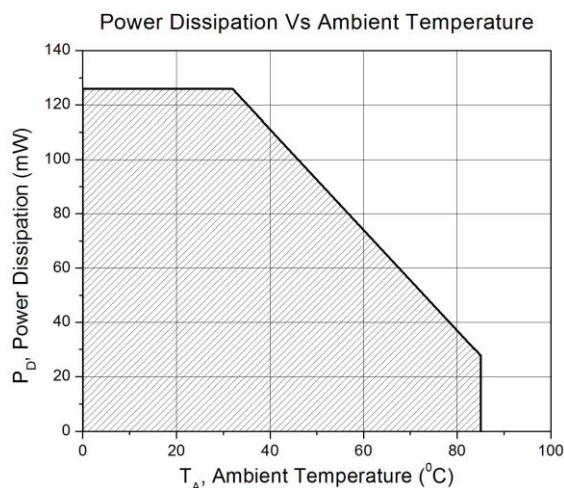


Figure 3

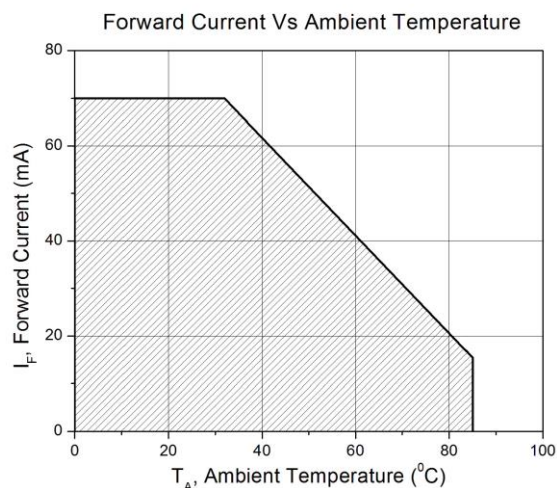


Figure 4

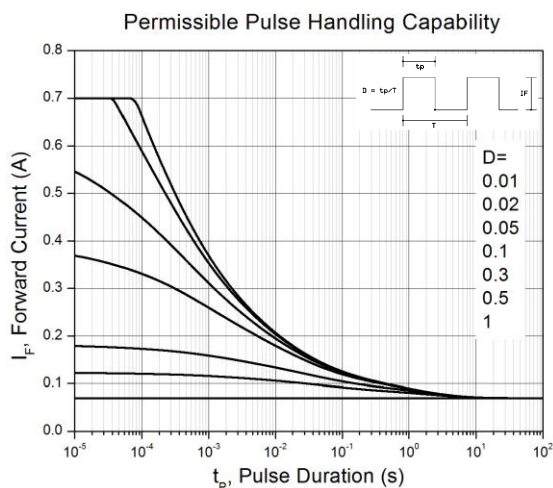


Figure 5

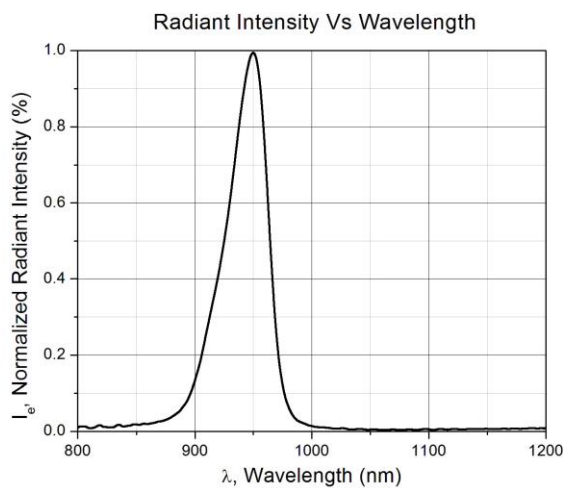


Figure 6



Typical Characteristic Curves

Angular Displacement at X axis

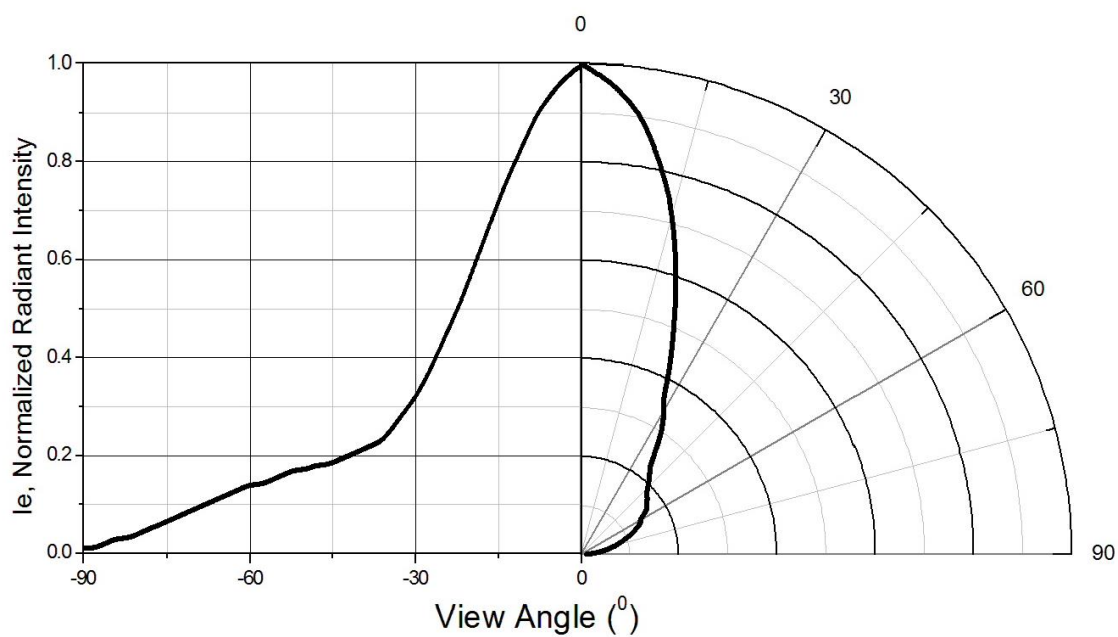


Figure 7

Angular Displacement at Y axis

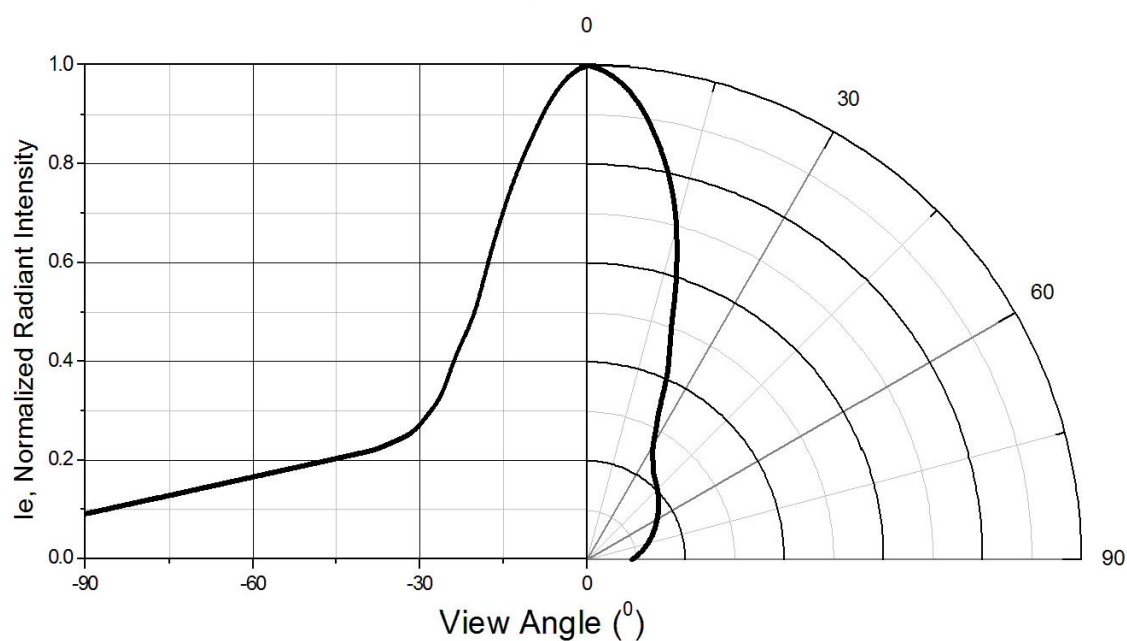
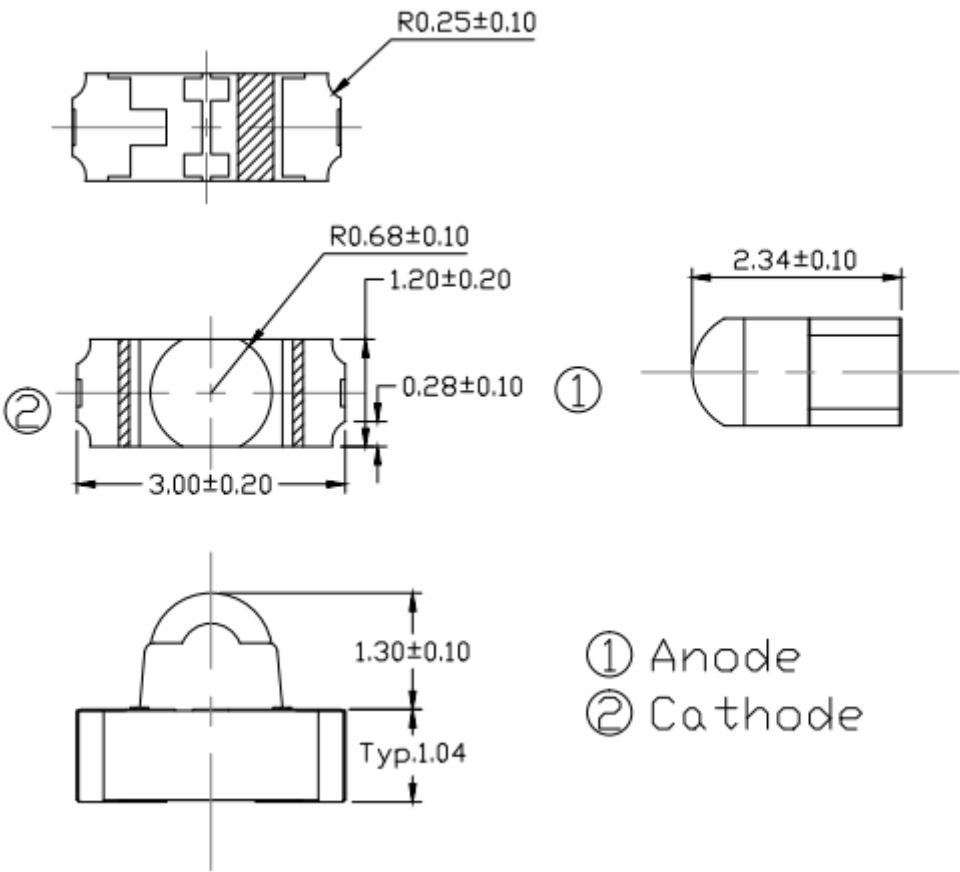


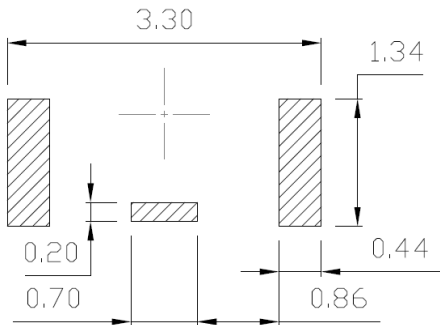
Figure 8



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

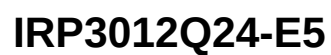


Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*



Ordering Information

Part Number	Description	Quantity
IRP3012Q24-E5	Tape & Reel	2000 pcs

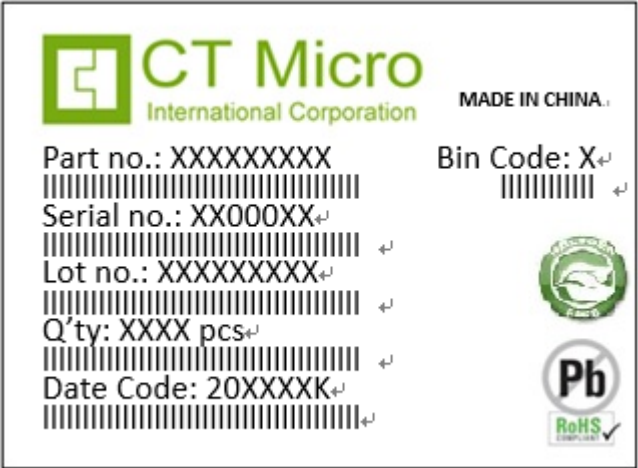


Reel Dimension *All dimensions are in mm, unless otherwise stated*





Label Form Specification



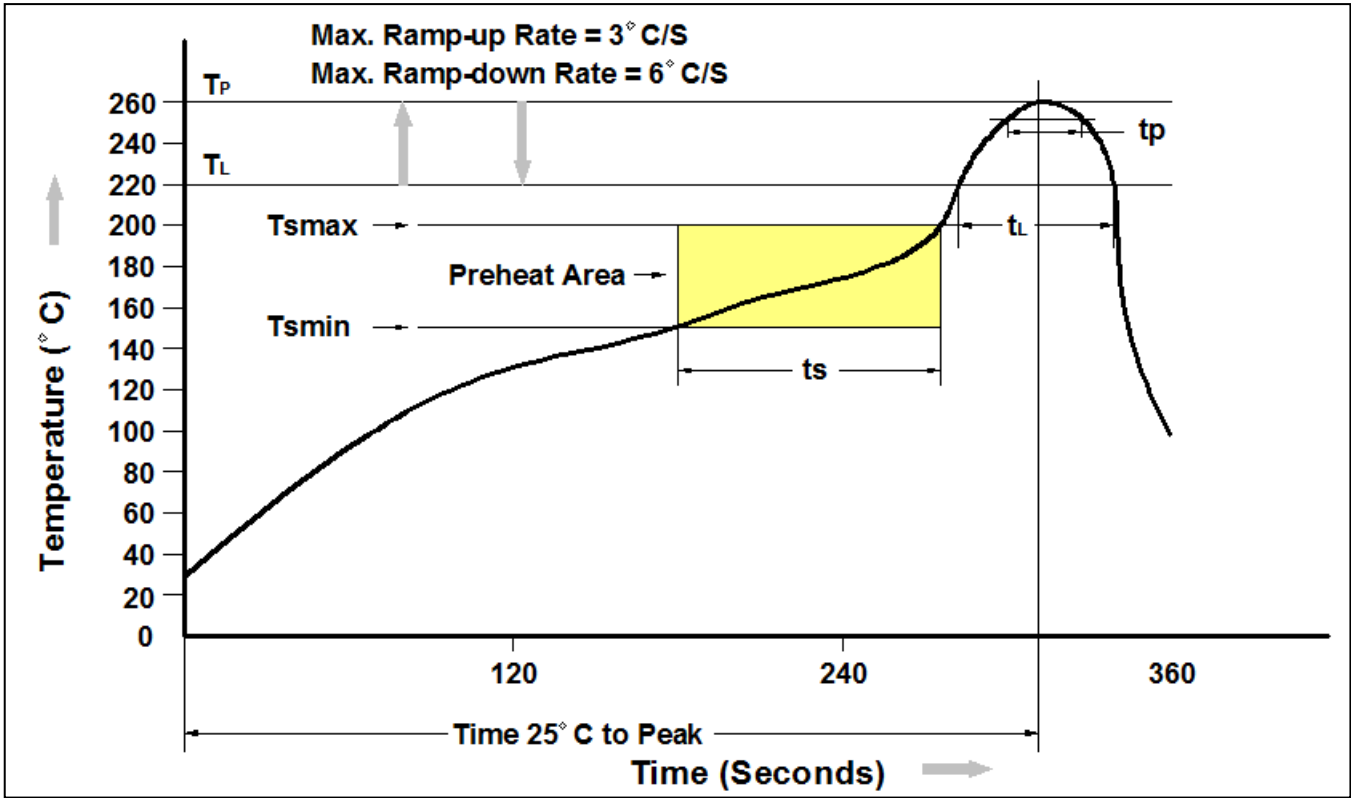
Part no: CTM Production Number
Serial no: Production Number
Lot no: Lot number
Q'ty: Packing Quantity
Date Code: Manufacture Date
Bin Code: 1e Ranks
MADE IN CHINA: Production Place

Storage Condition

- 1. Do not open moisture proof bag before the products are ready to use.
- 2. The moisture barrier bag should be stored at 30°C and 90%R.H. max. before opening.
Shelf life of non-opened bag is 12 months after the bag sealing date.
- 3. After opening the moisture barrier bag floor life is 168h at 30°C/60%RH. max. Unused LEDs should be resealed into moisture barrier bag. (Refer to J-STD-020 Standard)
- 4. If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the J-STD-033 Standard conditions.



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 (tL to tp)	3°C/second max.
Liquidous Temperature (Tl)	217°C
Time (tL) Maintained Above (Tl)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (tp) within 5°C of 260°C	30 seconds
Ramp-down Rate (Tp to Tl)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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