HIRP2013X10-B40

SMD Type 850nm Infrared Emitter

Features

- Small double-end package
- Viewing Angle= $\pm 70^0$
- High reliability
- Good spectral matching to Si photo detector
- RoHS compliance

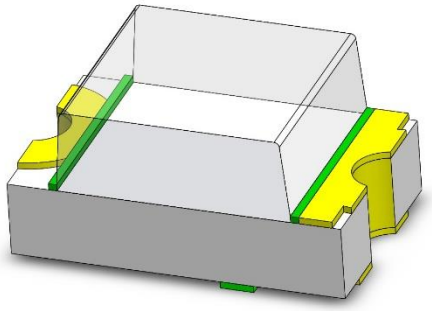
Description

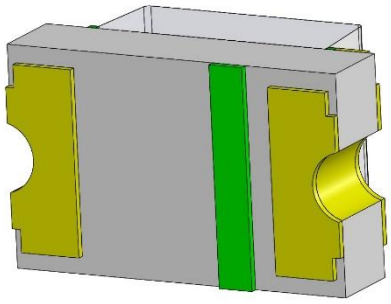
The HIRP2013X10-B40 is a GaAlAs infrared LED housed in a miniature SMD package. The device has a peak wavelength of 850nm LED spectrally matched with phototransistor or photodiode.

Applications

- Infrared sensor

Package Outline

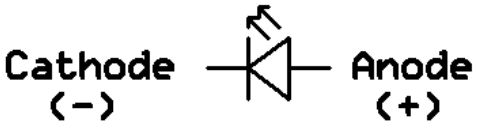




Anode

Cathode

Schematic



Absolute Maximum Rating at 25^{0}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	^{0}C	
T_{stg}	Storage Temperature	-40 ~ +100	^{0}C	
T_{sol}	Soldering Temperature	260	^{0}C	2
P_D	Power Dissipation at(or below) 25℃ 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*
Ie	Radiant Intensity	I_F=20mA	1.60	2.20	3.20	mW/sr	3
		I_F=70mA	-	8.0	-		
λp	Peak Wavelength	I_F=20mA	-	850	-	nm	
Δλ	Spectral Bandwidth	I_F=20mA	-	30	-	nm	
θ1/2	Angle of Half Intensity	I_F=20mA	-	±70	-	deg	

Electrical Characteristics

Symbol	*Parameters*	*Test Conditions*	*Min*	*Typ*	*Max*	*Units*	*Notes*
V_F	Forward Voltage	I_F=20mA	1.2	1.4	1.7	V	
		I_F=70mA	1.3	1.5	2.0		
		I_F=0.5A,Tp=3ms	1.5	2.0	2.4		
		I_F=1A,Tp=3ms	1.8	2.4	3.2		
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. Ie Bin Rank : (Tolerance of Radiant Intensity：±10%)

Bin Code	AB	CD
Min	1.60	2.40
Max	2.40	3.20

Typical Characteristic Curves

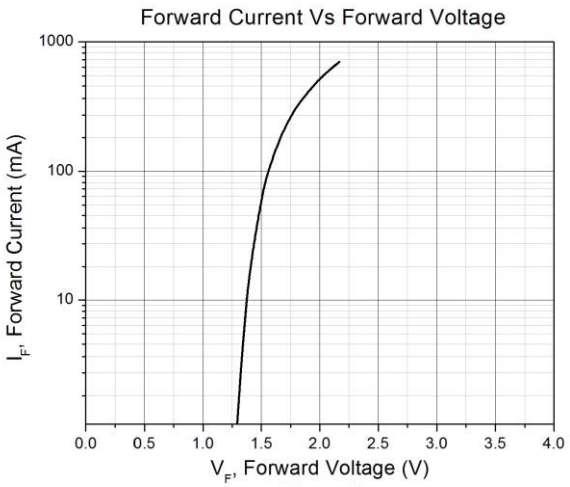


Figure 1

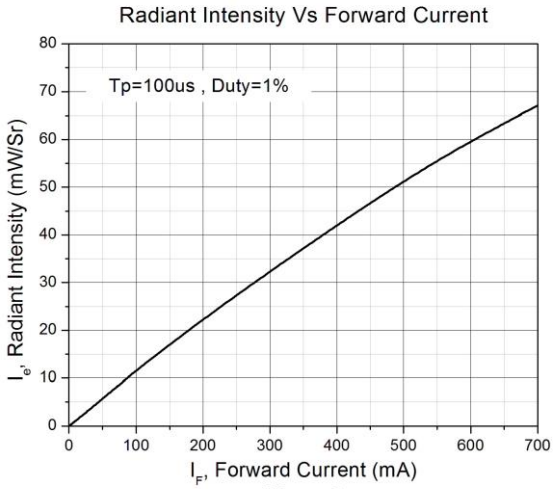


Figure 2

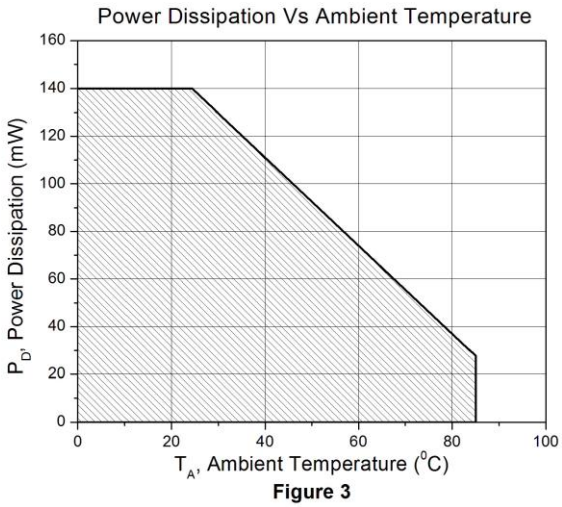


Figure 3

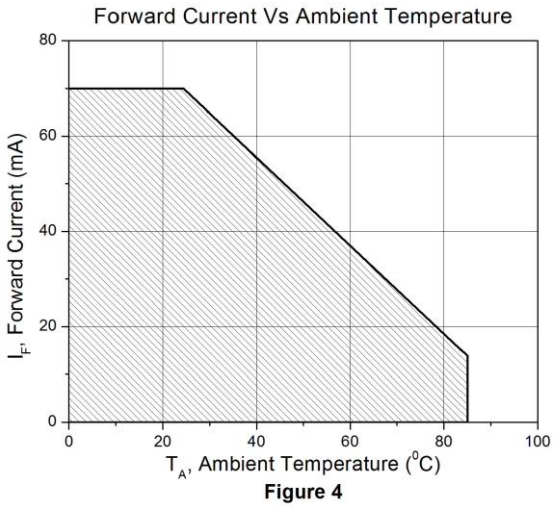


Figure 4

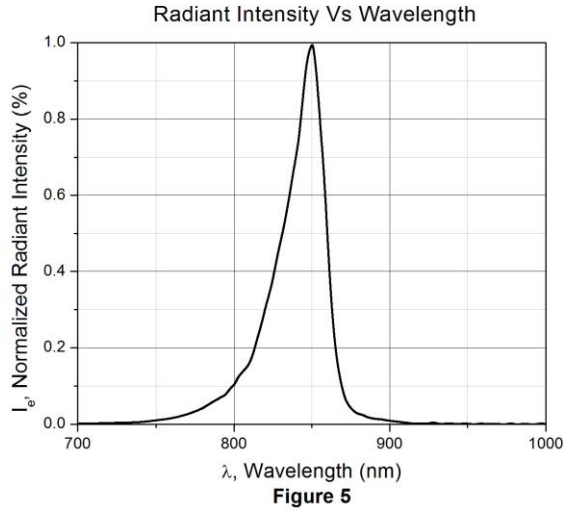


Figure 5

Typical Characteristic Curves

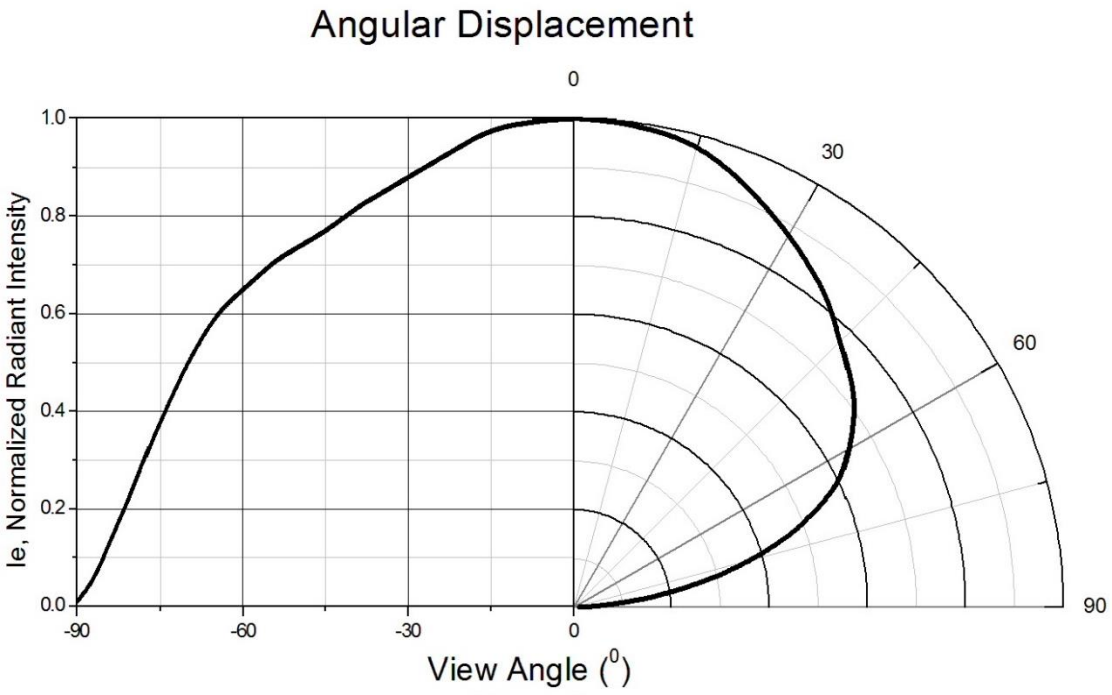
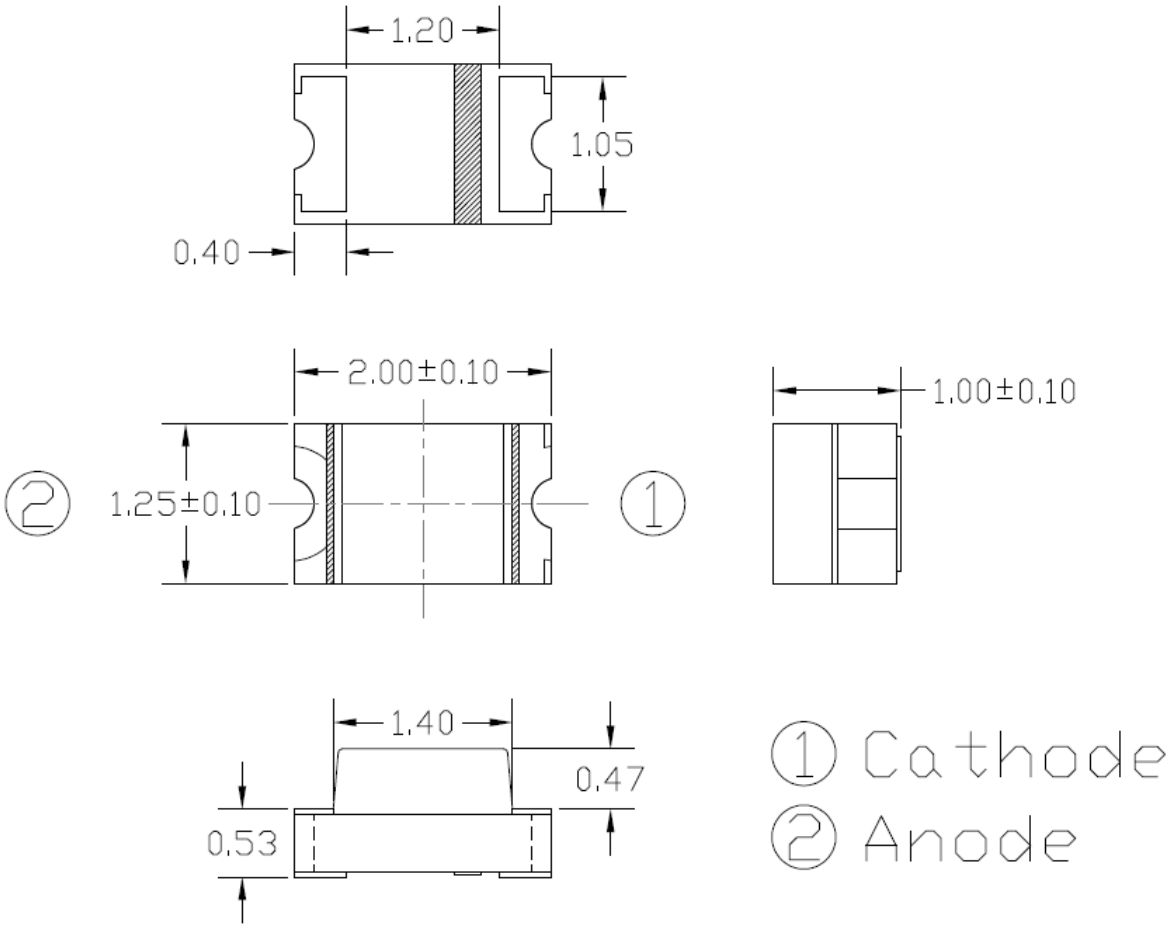
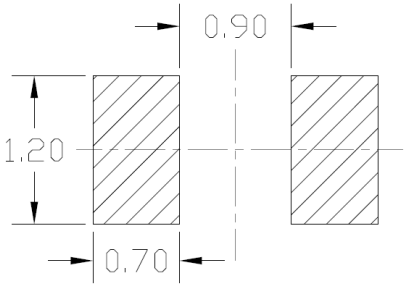


Figure 6

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



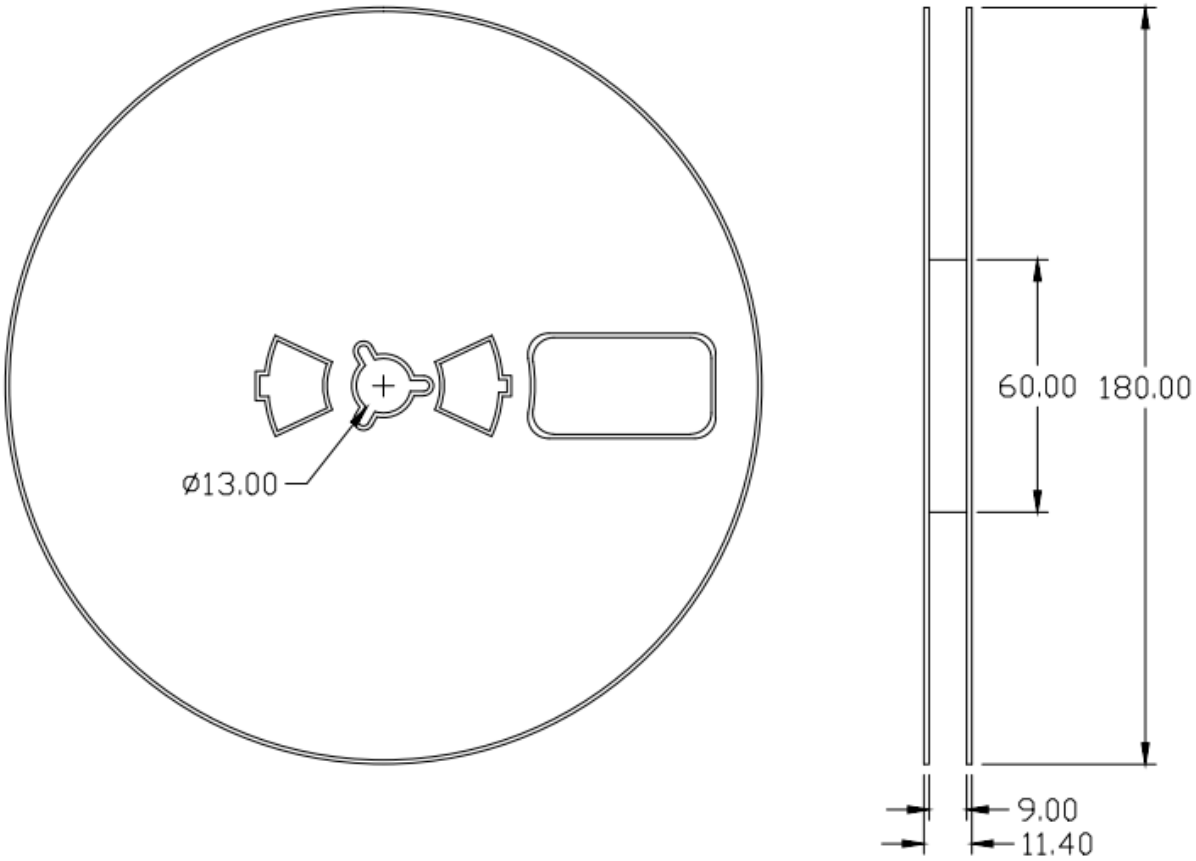
Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*



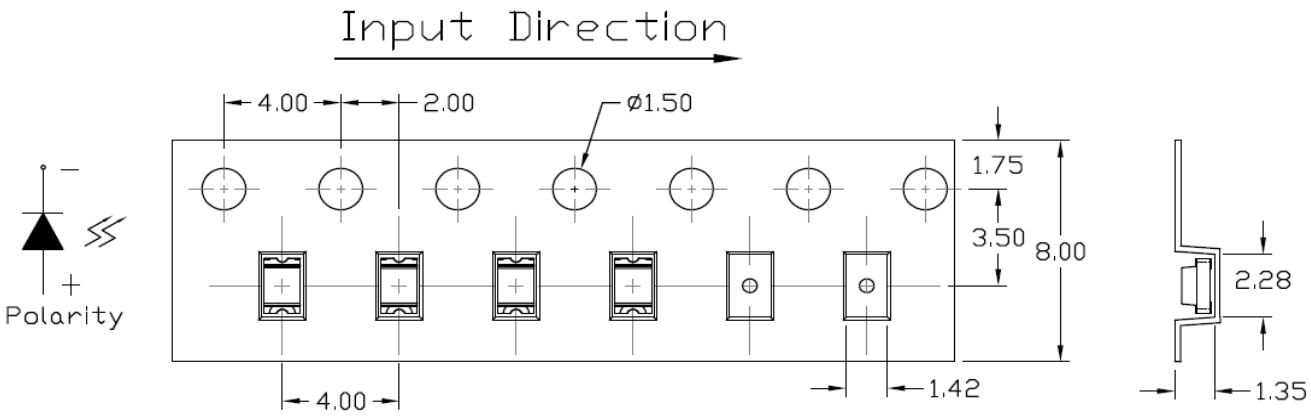
Ordering Information

Part Number	*Description*	*Quantity*
HIRP2013X10-B40	Tape & Reel	3000 Pcs

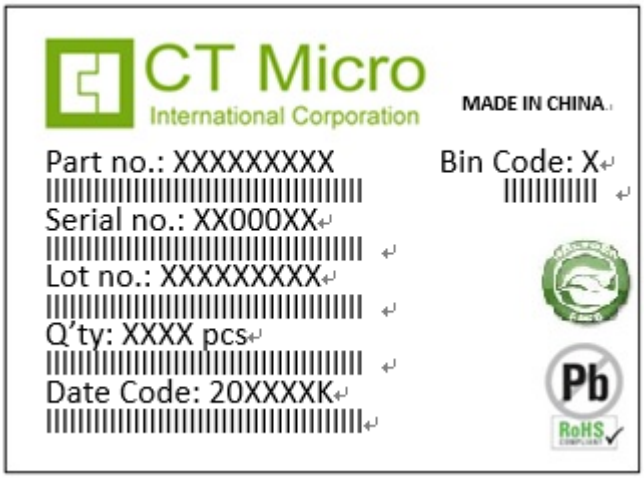
Reel Dimension *All dimensions are in mm, unless otherwise stated*



Tape 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

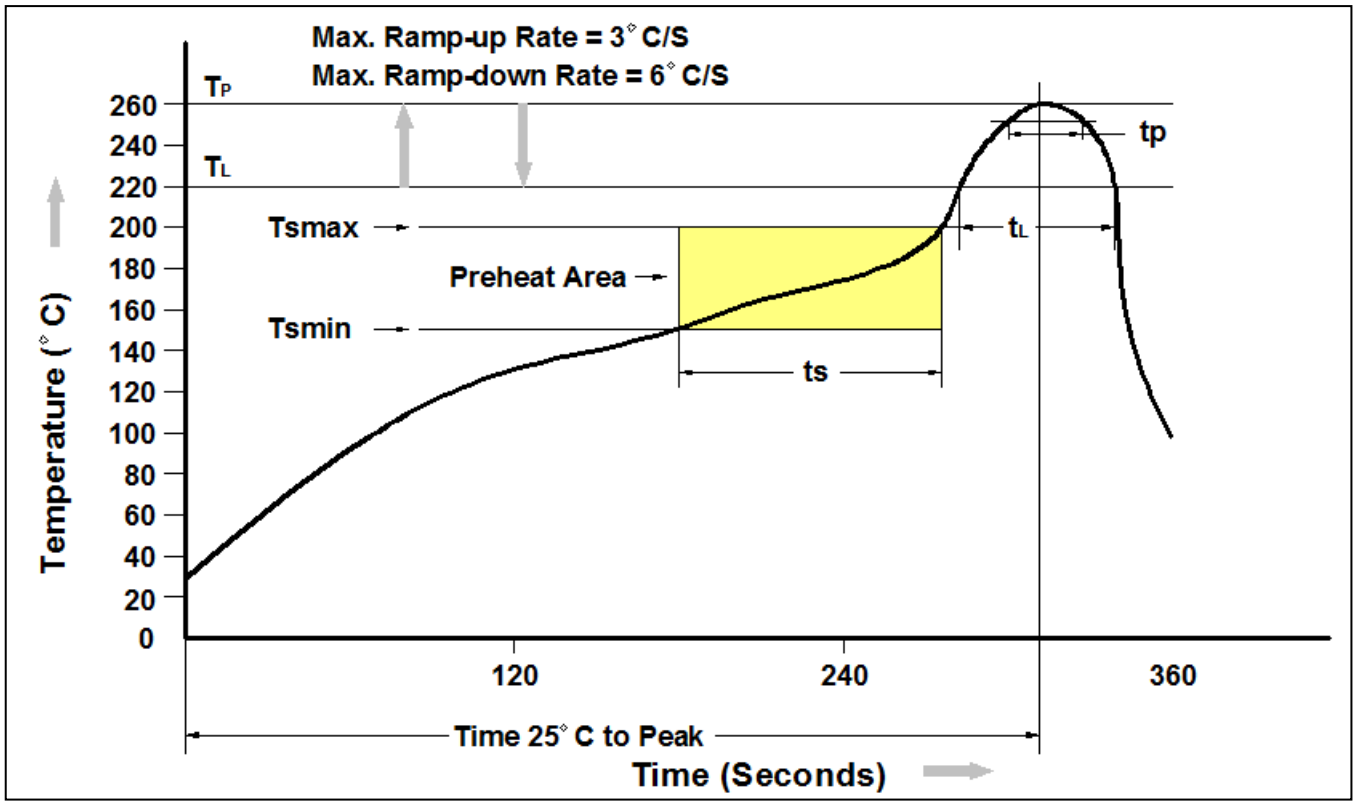
Bin Code: Ie Ranks

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 (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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