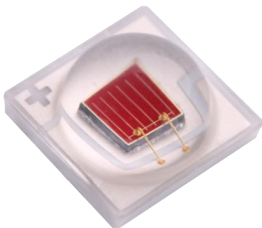


Product Brief



High Power Ceramic 3535 3W Red Series



Description

- This surface-mount LED size is standard package: 3.45x3.45x2.26mm.
- The SP35C series is designed for high flux output applications with high current operation capability.

Features And Benefits

- Designed for high current operation
- Low thermal resistance
- Superior corrosion robustness
- Superior high efficacy at rated current enables outstanding mW/W at system level
- Viewing angle at 50%I_v : 120°
- Lumen Maintenance:Testresults according to IESNA LM-80 available
- RoHS certification

Applications

- Medical treatment
- Plant growth
- Medical tests
- Qualitative spectral analysis
- Landscape lighting
- stage lights

Table 1. Product overview

Parameter	Dominant Wavelength(nm)	Main Radiometric Power Rank (mW)	Luminous Flux Rank (lm)
Model No.	Rank	IF=700mA	IF=700mA
CL-SFV3535USD-B-02	615-635	550-850	110-180

Performance Characteristics

Table 2. Product For Dominant Wavelength 615-635nm Electro Optical Characteristics
) , IF = 700mA ,Ta = 25°C, RH60%

Parameter	Dominant Wavelength (nm)	Voltage Rank(V)	Main Radiometric Power Rank (mW)	Luminous Flux Rank (lm)
Model No.	Rank	IF=700mA	IF=700mA	IF=700mA
CL-SFV3535USD-B-02(615)	615-620	2.0-2.6	550-700	140-170
CL-SFV3535USD-B-02(620)	620-625	2.0-2.6	650-800	140-170
CL-SFV3535USD-B-02(620)	620-625	2.0-2.6	700-850	140-170
CL-SFV3535USD-B-02(620)	620-625	2.0-2.6	650-800	150-180
CL-SFV3535USD-B-02(620)	620-625	2.0-2.6	700-850	140-170
CL-SFV3535USD-B-02(625)	625-630	2.0-2.6	700-850	110-140
CL-SFV3535USD-B-02(630)	630-635	2.0-2.6	700-850	110-140

- Tolerance of measurements of the Radiometric Power is ±7%.
- Tolerance of measurements of the Dominant Wavelength is ±2nm.
- Voltage measurement tolerance is ±0.1V.
- The Radiometric Power was measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.
- The lumen table is only for reference.

CL-SFV3535USD-B-02

Table 5. Electro and Thermal Characteristics , IF = 700mA , Ta = 25°C, RH60%

Item	Symbol	Min	Typ	Max	Unit	Condition
Forward Voltage	VF	2..0	-	2.6	V	IF=700mA
Reverse Current	IR	-	-	10	μA	VR=5V
View Angle	2θ1/2	-	120	-	°	IF=700mA
Thermal Resistance	(R _{th j-sp})	-	10	-	°C/W	IF=700mA
Electrostatic Discharge	ESD	-	2000	-	V	-

- Tolerance : VF :±0.1V.
- 2θ1/2 is the off-axis where the luminous intensity is 1/2 of the peak intensity.
- Thermal resistance : RthJS (Junction / solder) .

Table 6. Absolute Maximum Ratings , Ta = 25°C, RH60%

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	IF	1000	mA
Pulse Forward Current	IFP	1200	mA
Power Dissipation	PD	2.6	W
Reverse Voltage	VR	5	V
Operating Temperature	T _{opr}	-40 ~ +100	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Junction Temperature	T _j	115	°C

- IFP condition with Pulse: Width≤100μs Duty cycle≤1/10.
- LED' s properties might be different from suggested values like above and below tables if operation condition will be exceeded our parameter range. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.

Product Bin

Table 7. Luminous Flux Ranks, Ta = 25°C, RH60%, IF=700mA

Luminous Flux Ranks(lm)			Luminous Flux Ranks(lm)		
Code	Min	Max	Code	Min	Max
WA1	110	120	WA5	150	160
WA2	120	130	WA6	160	170
WA3	130	140	WA7	170	180
WA4	140	150			

Table 8. Forward Voltage Ranks , Ta = 25°C, RH60%, IF=700mA

Forward Voltage Ranks(V)		
Code	Min	Max
BB0	2.0	2.2
BB2	2.2	2.4
BB4	2.4	2.6

Table 9. Dominant Wavelength Ranks , Ta = 25°C, RH60%, IF=700mA

Dominant Wavelength Ranks (nm)		
Code	Min	Max
61F	615	620
62E	620	625
62F	625	630
63E	630	635

Typical Characteristics Curve

Fig 1. Relative Spectral Radiometric Power Distribution for Dominant Wavelength 615-635nm, IF=700mA, Ta = 25°C, RH60%

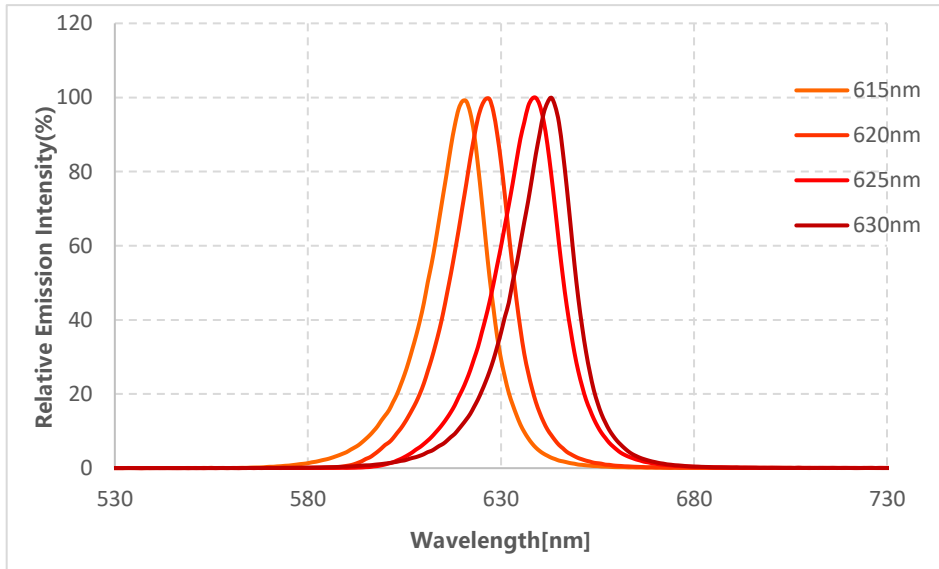


Fig 2. Viewing Angle Distribution , IF=700mA, Ta = 25°C, RH60%

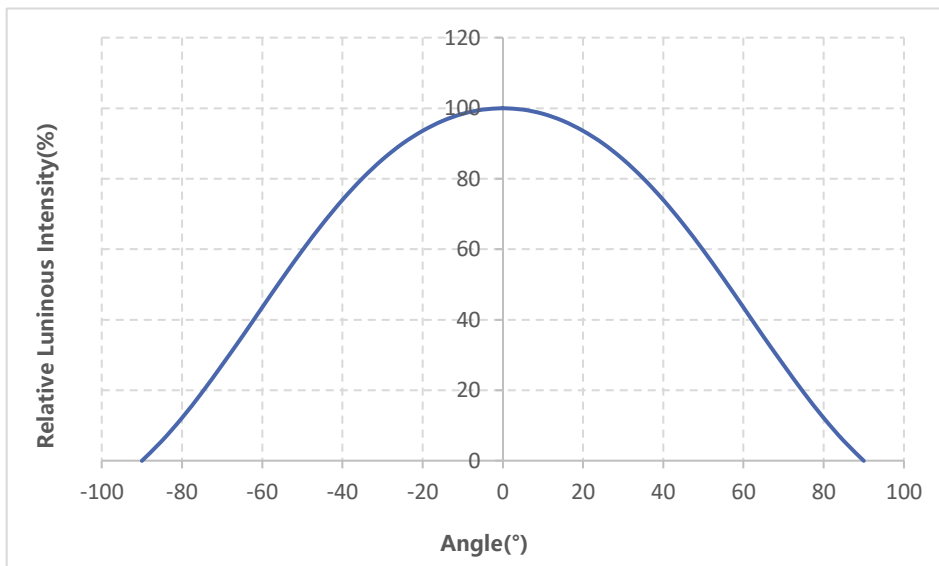


Fig 3. Relative Radiometric Power VS Forward Current, $T_a = 25^{\circ}\text{C}$, RH60%

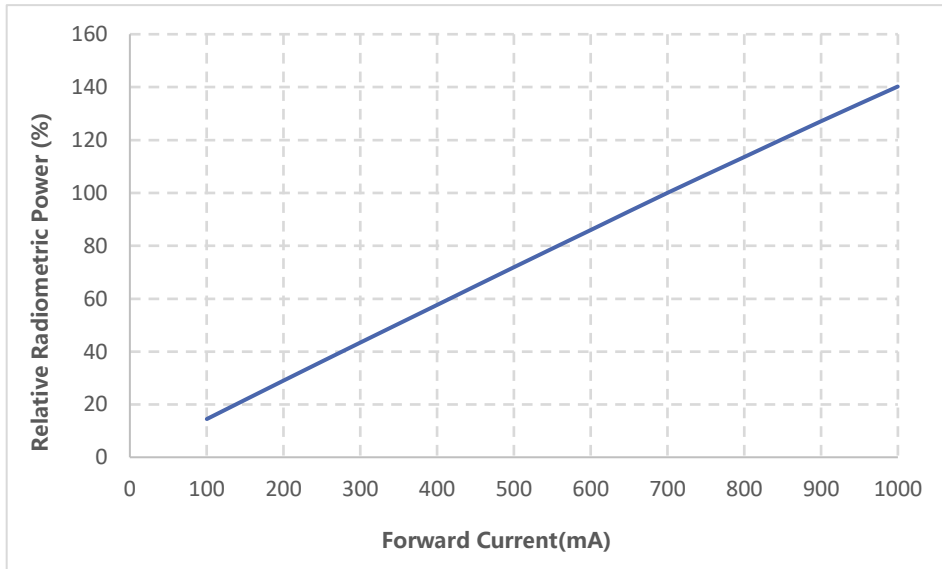


Fig 4. Forward Voltage VS. Forward Current $T_a = 25^{\circ}\text{C}$, RH60%

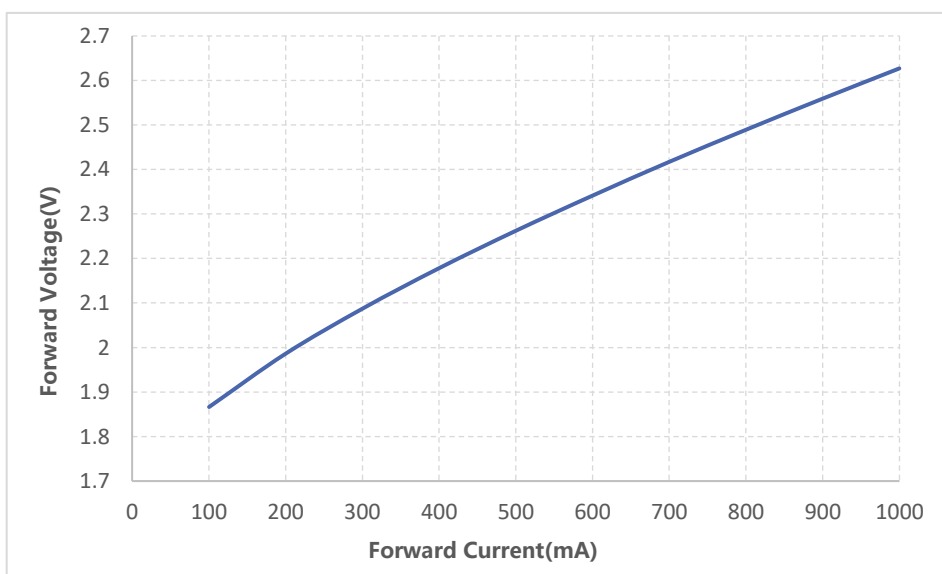
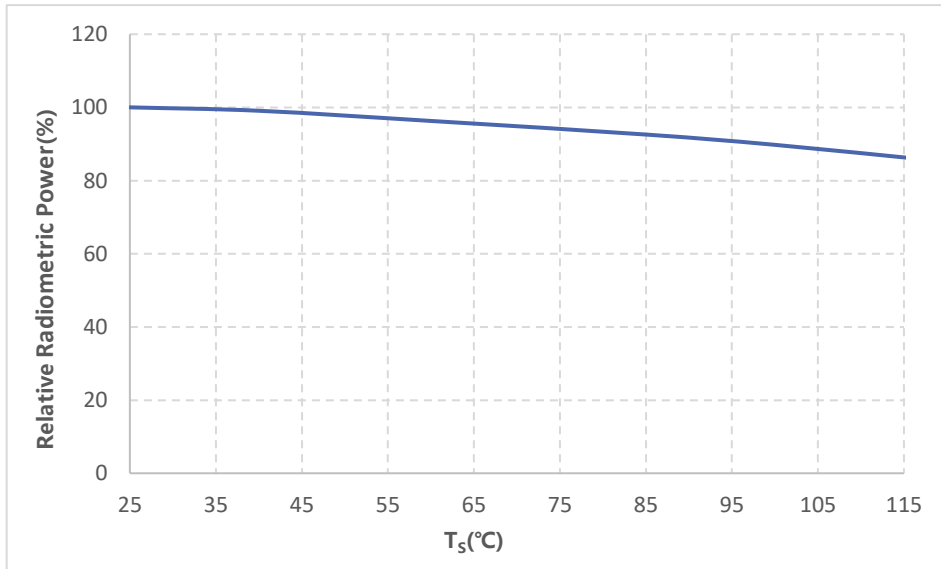
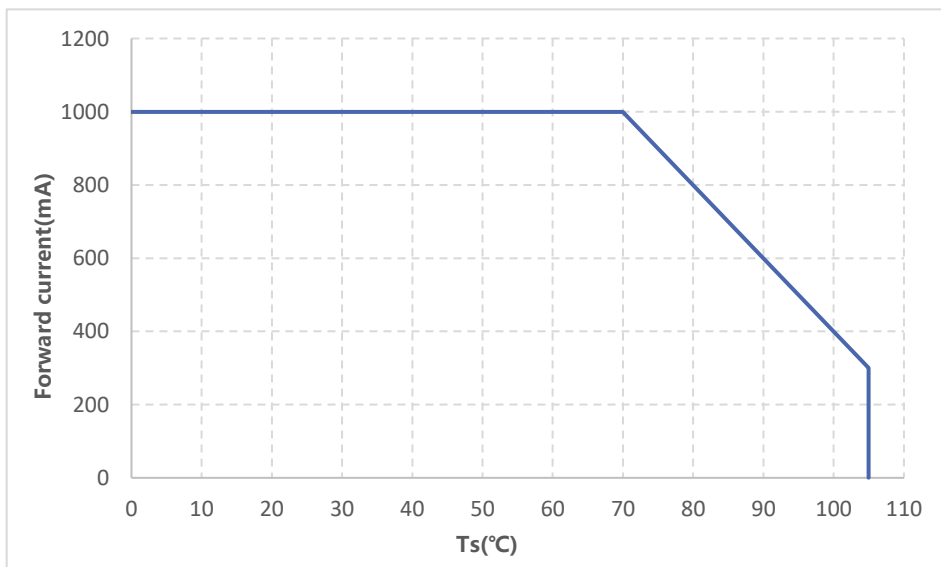


Fig 5. Relative Radiometric Power VS. Solder Temperature , IF=700mA**Fig 6. Forward Current VS Solder Temperature**

Outline Vs. Recommended Solder Pad

Fig 7. Mechanical Dimensions

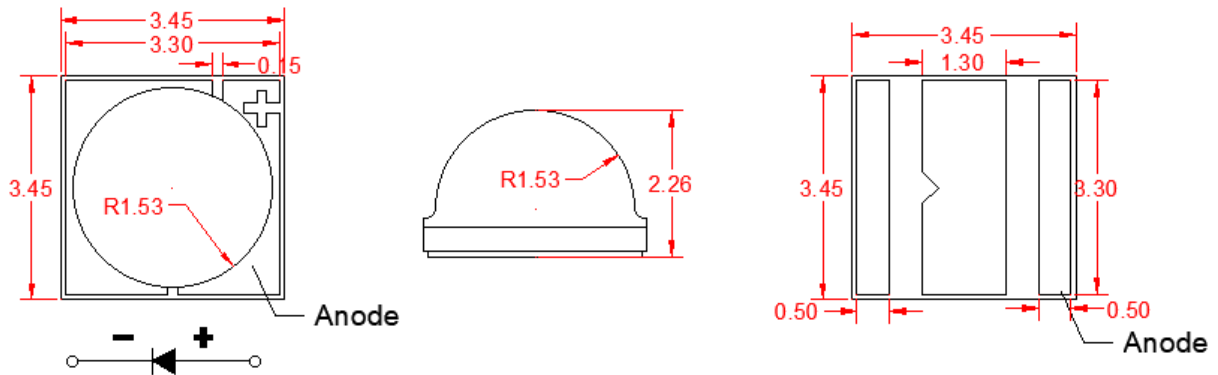
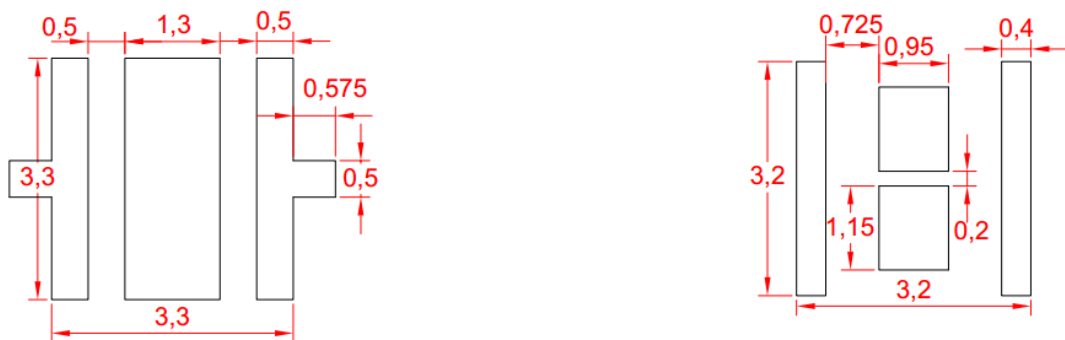


Fig 8. Recommended Solder Pad



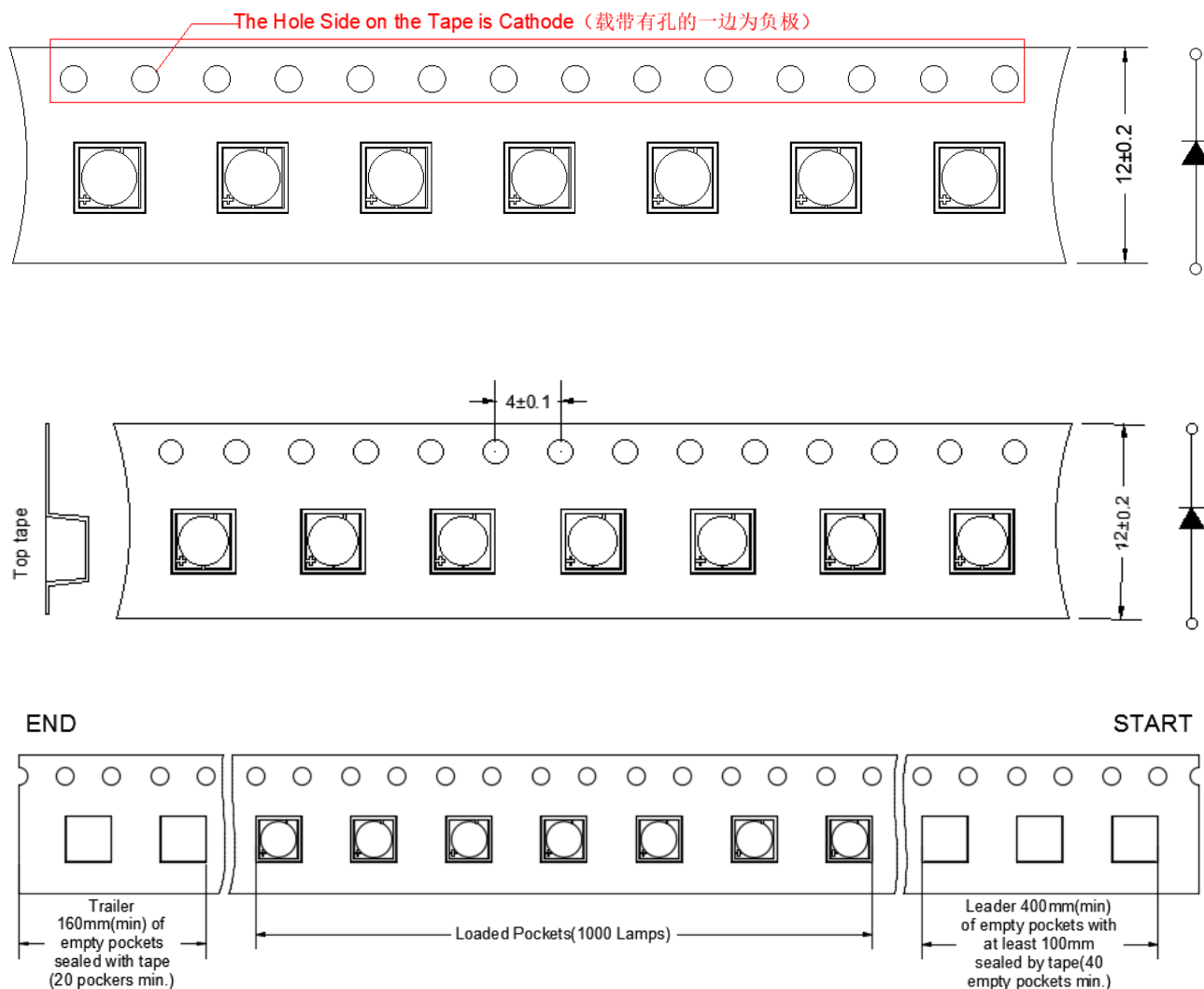
Recommended PCB Solder Pad

Recommended Stencil Pattern Stencil:0.12mm

- All dimensions are in millimeters.
- Scale: none.
- Undefined tolerance is $\pm 0.1\text{mm}$.

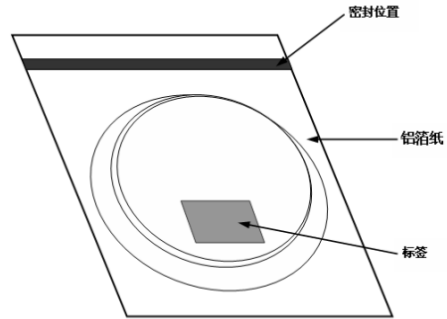
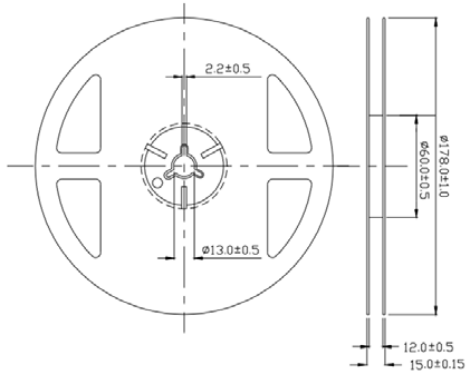
Packaging Information

Fig 9. Reel Packaging 1000pcs/Reel

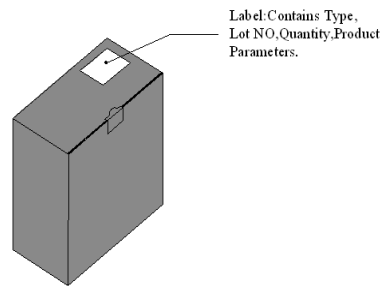
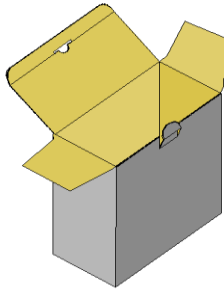


- Quantity : Max 1000pcs/Reel
- Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.25\text{mm}$
- Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10° to the carrier tape.
- Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.

Reels

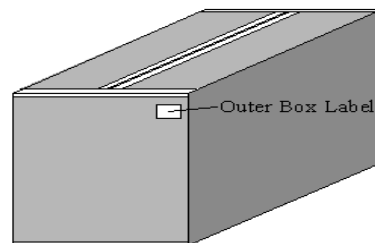
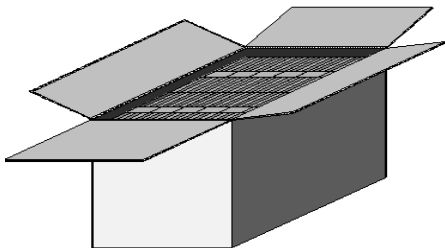


Inner Box



•Capacity 5 or 10 reels per box

Outer Box



Reflow Soldering

Recommended Mid-Temperature Solder Paste

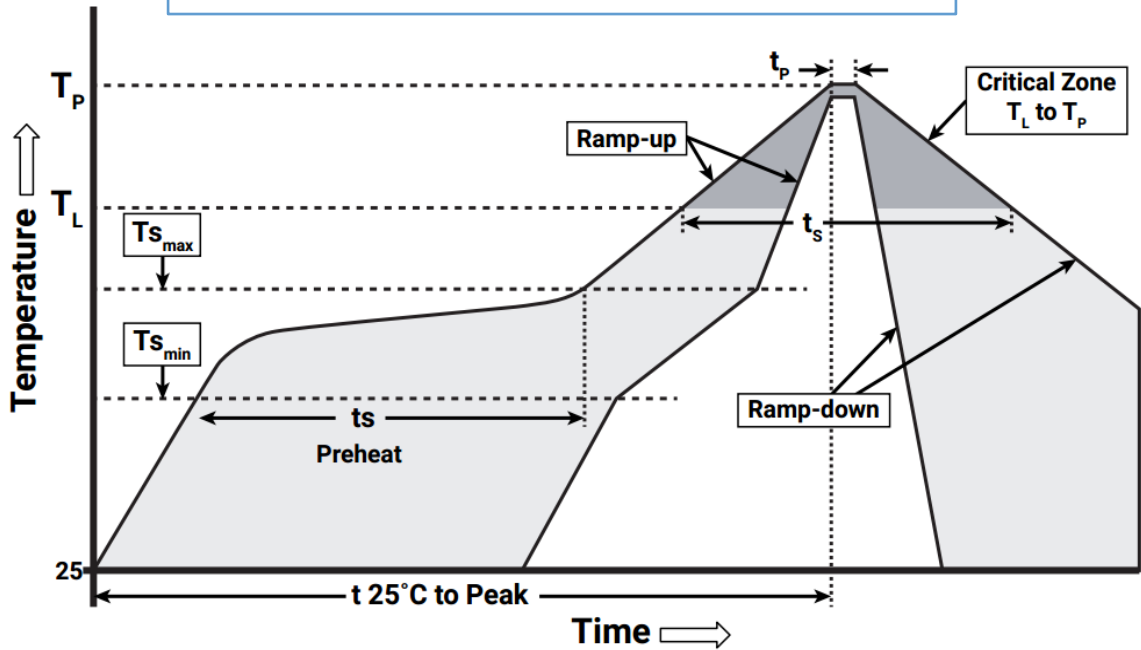


Table 11. Reflow profile characteristics

Profile Feature	Lead-Free Solder
Average Ramp-Up Rate($T_{s_{max}}$ to T_P)	1.2°C/second
Preheat:Temperature Min($T_{s_{min}}$)	120°C
Preheat:Temperature Max($T_{s_{max}}$)	170°C
Preheat:Time Max($t_{s_{min}}$ to $t_{s_{max}}$)	65-150 seconds
Time Maintained Above:Temperature(T_L)	217°C
Time Maintained Above:Time(t_s)	45-90 seconds
Peak/Classification Temperature(T_P)	235-245°C
Time Within 5°C of Actual Peak Temperature(t_p)	20-40 seconds
Ramp-Down Rate	1-6°C/ seconds
Time 25°C to Peak Temperature	4 minutes max