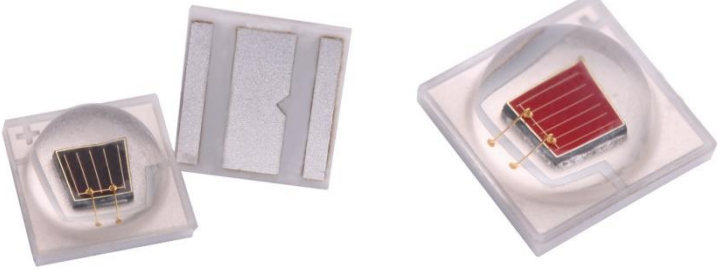
High Power Ceramic 3535 RED Series 3W



RoHS LM-80

Product Brief

Description

. This surface-mount LED size is standard package: 3.45x3.45x2.26 mm . The SP35 series is designed for high flux output applications with high current operation capability.

Features And Benefits

. Designed for high current operation
. Low thermal resistance
. Pb-free reflow soldering application
. RED SERIES

Key Applications

- Architectural lighting
- Industrial lighting
- Portable torch
- Plant Factory
- Flower Production
- Tissue Culture
- Refreshment

Table 1. Product Selection Table

Parameter	Wavelength (5nm/Bin)			PPF (µmol/s@700mA)
	Color	Min.	Max.	Typ.
CL-SFD3535USD-B-02	Red	620	625	3.6
	Red	625	630	3.3
	Red	630	635	-
	Crimson	650	655	4.2
	Crimson	655	665	5.1
	Crimson	655	665	5.3
	Crimson	655	665	PPE:4.0 umol/J@350mA
	Crimson	670	675	4.3
	Crimson	680	685	4.2
	Crimson	700	705	1.9
	Crimson	715	720	0.7
	Crimson	730	735	0.2
	Crimson	735	740	-
	Crimson	740	745	-

Performance

Table 2. Electro Optical Characteristics , IF = 700mA , Ta = 25℃, RH60%

Color	Part Number	Wavelength (nm)	Forward Current	Forward Voltage (V)		Luminous Flux (lm) or Radiometric Power (mW)	
				Min.	Max.	Min.	Max.
Red	SFD3535USD-620-B-02	620-625	700	2.2	2.4	145lm	160lm
Red	SFD3535USD-625-B-02	625-630	700	2.2	2.4	110lm	120lm
Red	SFD3535USD-630-B-02	630-635	700	2.2	2.4	100lm	105lm
Crimson	SFD3535USD-650-B-02	650-655	700	2.2	2.4	750mW	800mW
Crimson	SFD3535USD-655-B-02	655-665	700	2.2	2.4	900mW	950mW
Crimson	SFD3535USD-655-B-02	655-665	700	2.0	2.2	950mW	1000mW
Crimson	SFD3535USD-655-B-02	655-665	700	2.0	2.2	950mW	1000mW
Crimson	SFD3535USD-670-B-02	670-675	700	2.4	2.6	750mW	800mW
Crimson	SFD3535USD-680-B-02	680-685	700	2.4	2.6	750mW	800mW
Crimson	SFD3535USD-700-B-02	700-705	700	2.0	2.2	550mW	600mW
Crimson	SFD3535USD-715-B-02	715-720	700	2.0	2.2	700mW	750mW
Crimson	SFD3535USD-730-B-02	730-735	700	1.8	2.0	750mW	800mW
Crimson	SFD3535USD-735-B-02	735-740	700	2.0	2.2	650mW	700mW
Crimson	SFD3535USD-740-B-02	740-745	700	2.0	2.2	700mW	750mW

Performance

Table 3. Absolute Maximum Ratings , Ta = 25℃, RH60%

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	IF	1000	mA
Power Dissipation	PD	2.6	W
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40～+85	℃
Storage Temperature	Tstg	-40～+100	℃
Junction Temperature	Tj	125	℃
Electrostatic Discharge	ESD	2000	V
Thermal Resistance: C1A	(Rth $_{j\text{-}sp}$)	8	℃/W
Thermal Resistance: C2A	(Rth $_{j\text{-}sp}$)	4.5	℃/W
View Angle	2θ1/2	120	Deg.

- Tolerance of measurement of Luminous Flux or Radiometric Power: ±10%
- Tolerance of measurement of wavelength: ±2nm
- Tolerance of measurement of Forward Voltage: ±0.05V
- All the data are just for reference, specific parameters refer to the label

Relative Spectral Distribution

Fig 1. Color Spectrum , Ta = 25℃, RH60%

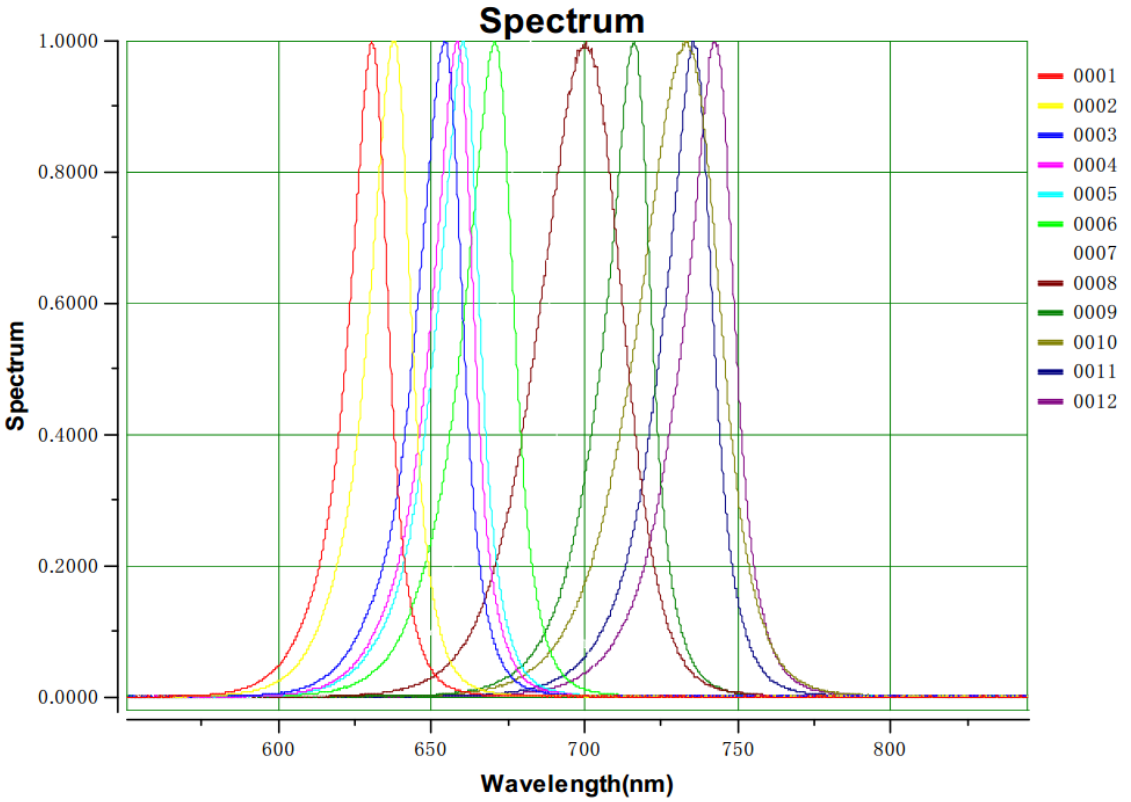
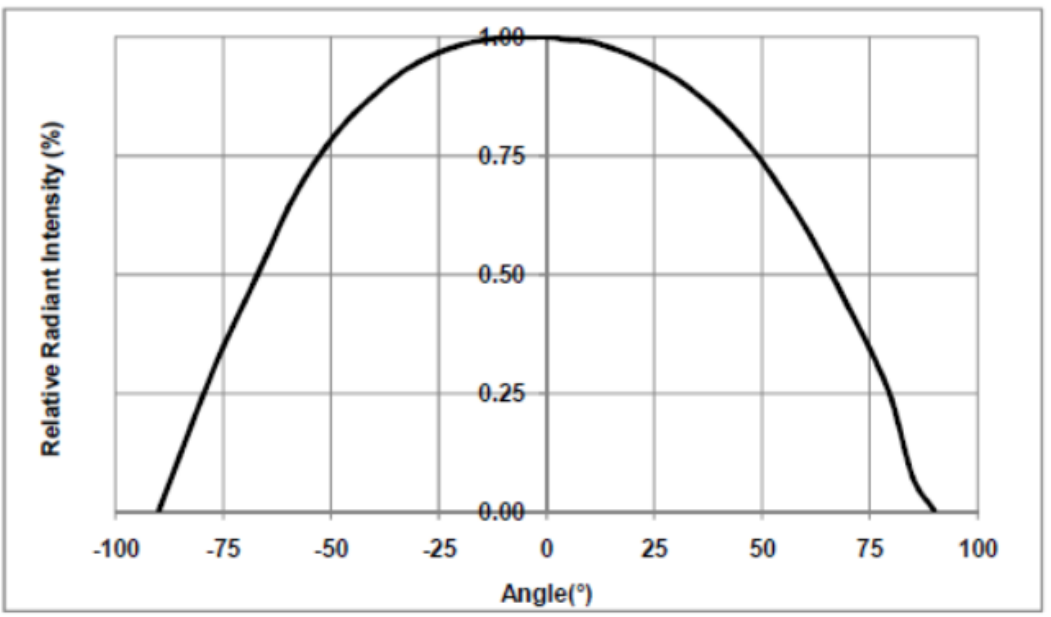
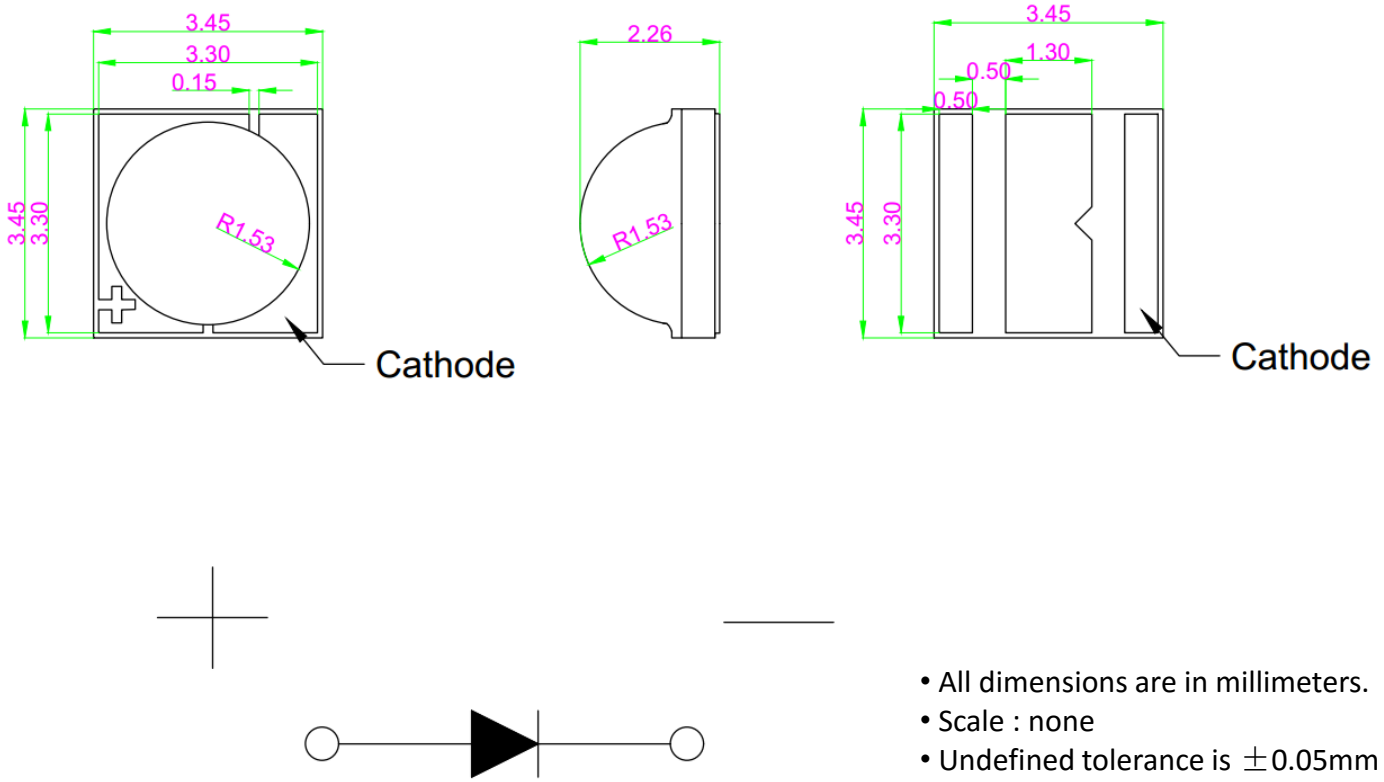


Fig 2. Radiation Diagram , Ta = 25℃, RH60%



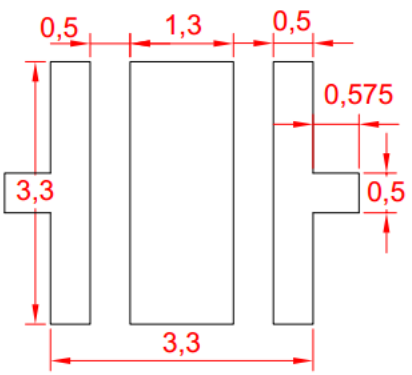
Outline Vs. Recommended Solder Pad

Fig 3. Mechanical Dimensions

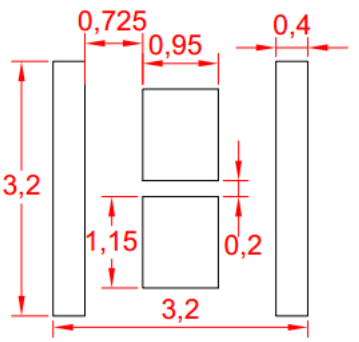


- All dimensions are in millimeters.
- Scale : none
- Undefined tolerance is ±0.05mm

Fig 4. Recommended Solder Pad



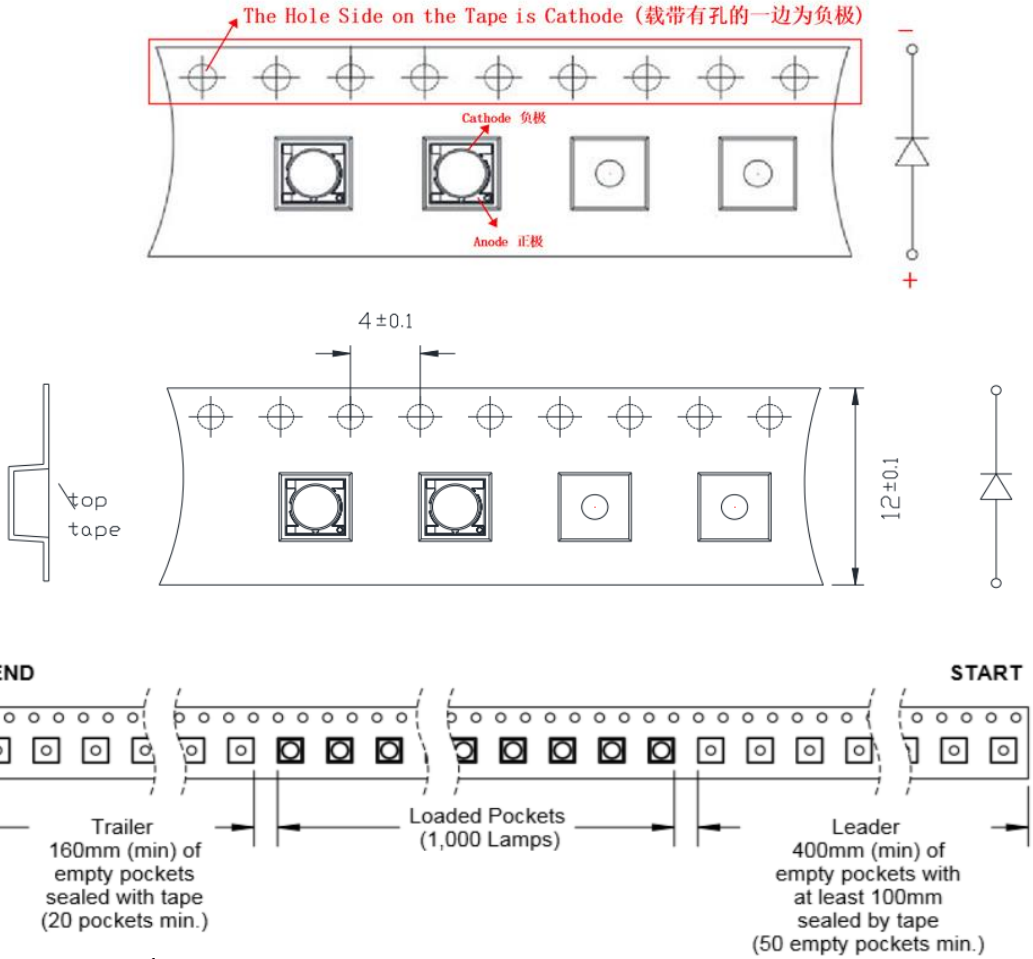
Recommended PCB Solder Pad



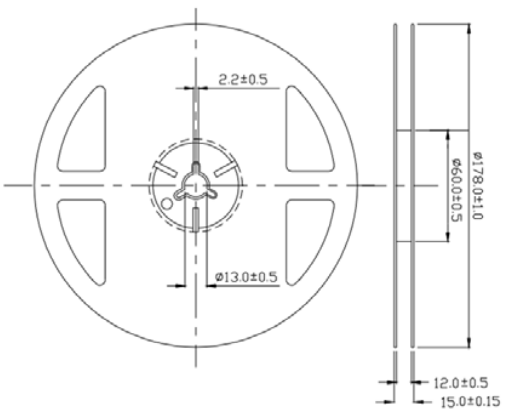
Stencil: 0.12mm
Recommended Stencil Pattern

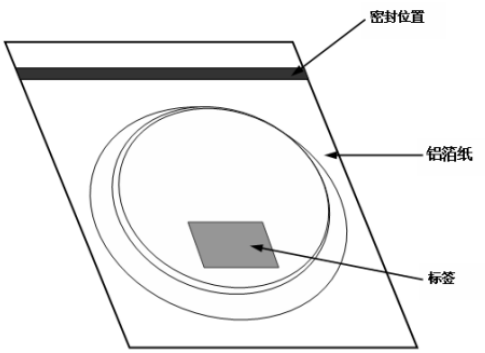
Packaging Information

Fig 5. Reel Packaging 1000pcs/Reel



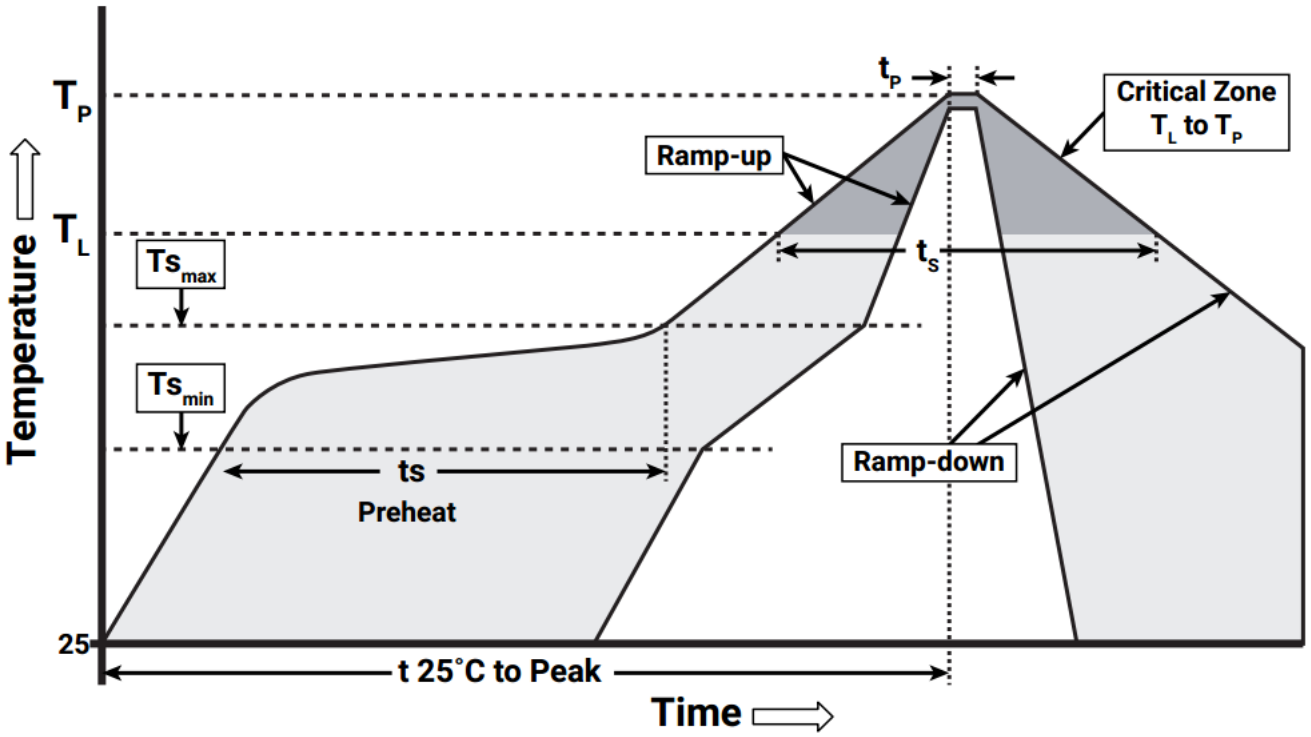
- Quantity : Max 1000pcs/Reel
- Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.25mm
- Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10˚ to the carrier tape.
- Package : P/N, Manufacturing data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





Reflow Soldering

Recommended Mid-Temperature Solder Paste



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

Pre-caution

Caution

1. Reflow soldering is recommended not to be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged.
2. Repairs should not be done after the LEDs have been soldered. When repair is unavoidable, suitable tools must be used.
3. Die slug is to be soldered.
4. When soldering, do not put stress on the LEDs during heating.
5. After soldering, do not warp the circuit board.

Notes on LumiSee Series soldering:

1. Recommend to use reflow machine.
2. Recommend to use heating plate soldering.
3. Manual soldering is not recommended.

Notes on reflow process:

1. To confirm whether the actual temperature curve in the reflow soldering conditions comply with recommended conditions. LEDs are guaranteed for one time reflow.
2. During reflow process do not apply force on LED active area.
3. After reflow process, PCB board should be cooled down before packing or storage.