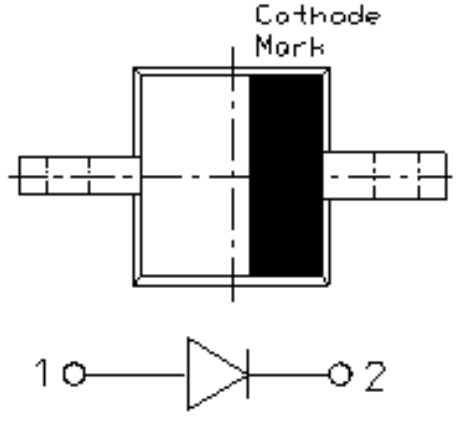
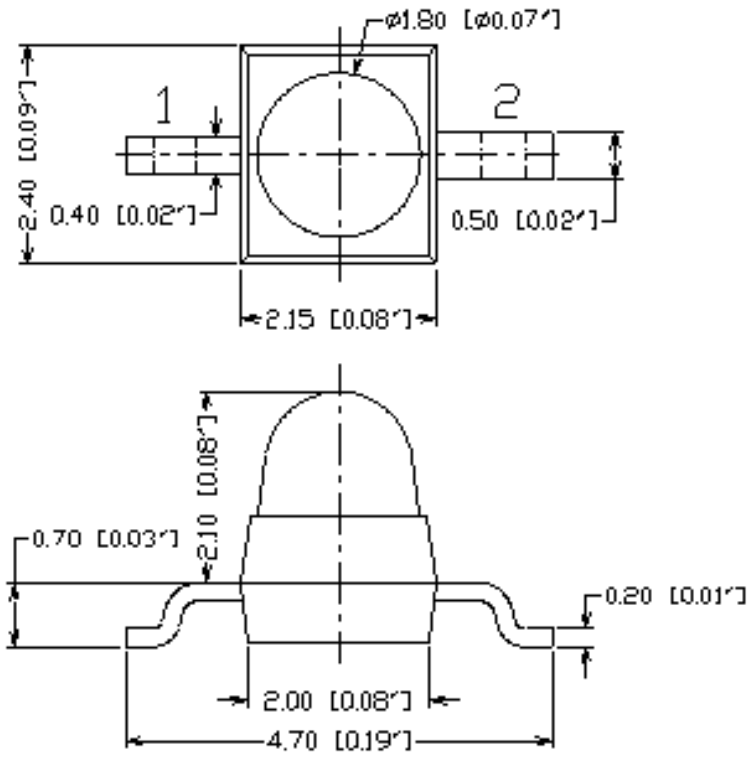
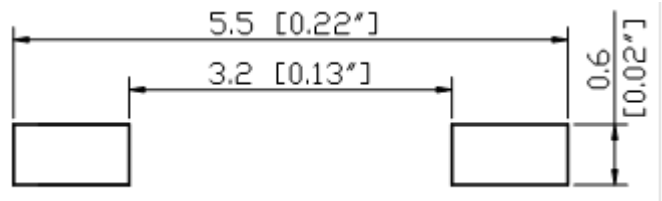


**SPECIFICATION** **CSM28R2CG**
**PACKAGE OUTLINES**

**RECOMMENDED PAD LAYOUT**


- Notes:
1. All dimensions are in millimeters (inches).
  2. Tolerance is  $\pm 0.25\text{mm}$  ( $0.01''$ ) unless otherwise noted.
  3. Specifications are subject to change without notice.

Part Number	Chip Material	Color of Emission	Lens Type	Viewing Angle
CSM28R2CG	InGaAlP	Red	Water Clear	20°



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**ABSOLUTE MAXIMUM RATINGS**
**(TA=25°C)**

Parameter	Symbol	Max Rating	Unit
Forward Current	IF	30	mA
Reverse Current @ 5V	IR	10	μA
Power Dissipation	Pd	75	mW
Operating Temperature Range	TOP	-40~+80	°C
Storage Temperature Range	TSTG	-40~+85	°C
Peak Pulsing Current (1/10 duty f = 10KHz)	IFP	125	mA
Soldering Temperature	TSOL	Max 260°C for 5 sec Max	

**OPTICAL-ELECTRICAL CHARACTERISTICS**
**(TA=25°C)**

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ	Max	
Luminous Intensity	Iv	IF = 20mA	1600	2900	-	mcd
Forward Voltage	VF	IF = 20mA	-	2.0	2.5	V
Reverse Leakage Current	IR	VR = 5V	-	-	10	μA
Viewing Angle at 50% Iv	2θ1/2	IF = 10mA	-	20	-	Deg
Peak Wavelength	λP	IF = 20mA	-	630	-	nm
Dominant Wavelength	λD	IF = 20mA	620	625	630	nm

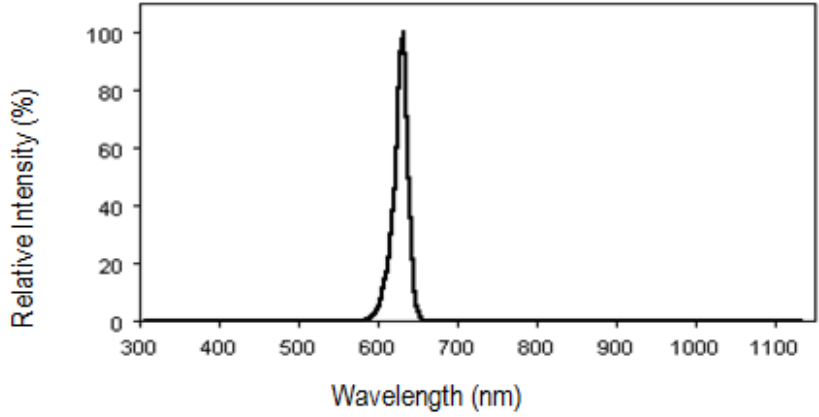
\*Tolerance of viewing angle: -10 / +5 deg.



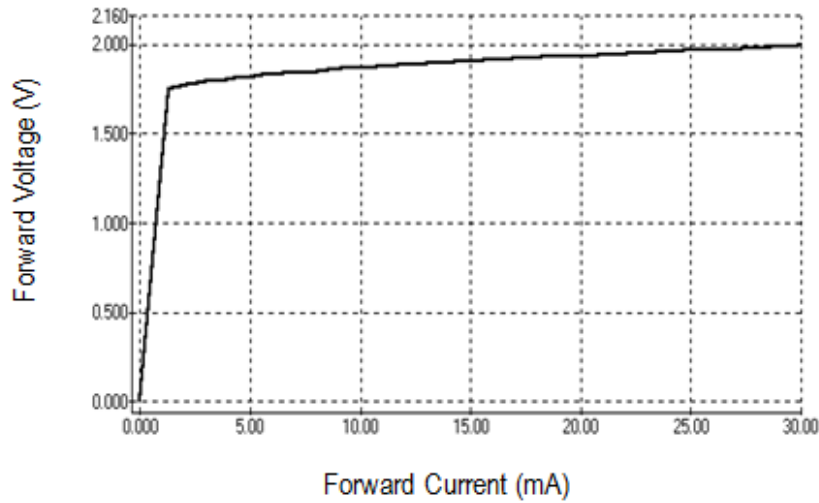
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**OPTICAL CHARACTERISTIC CURVES**

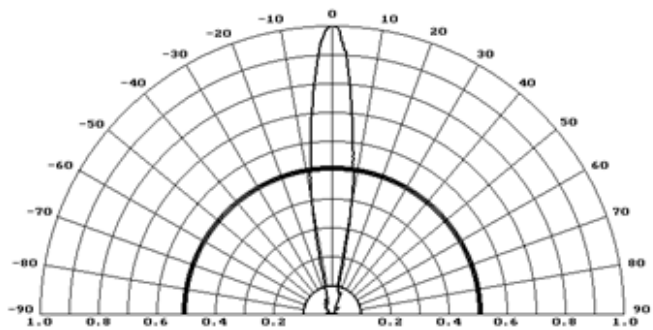
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage



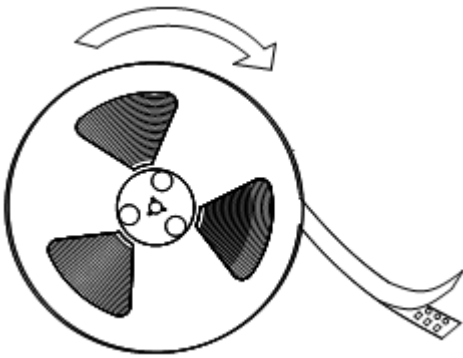
Directive Characteristics



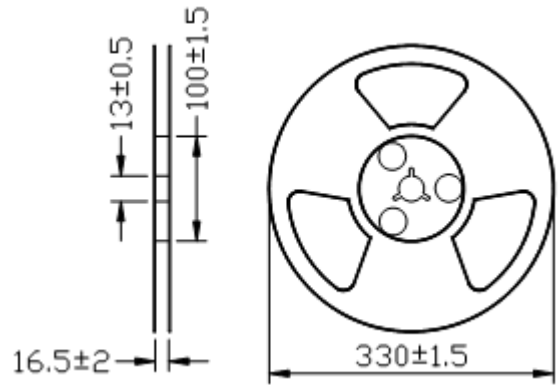
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## PACKAGING SPECIFICATION

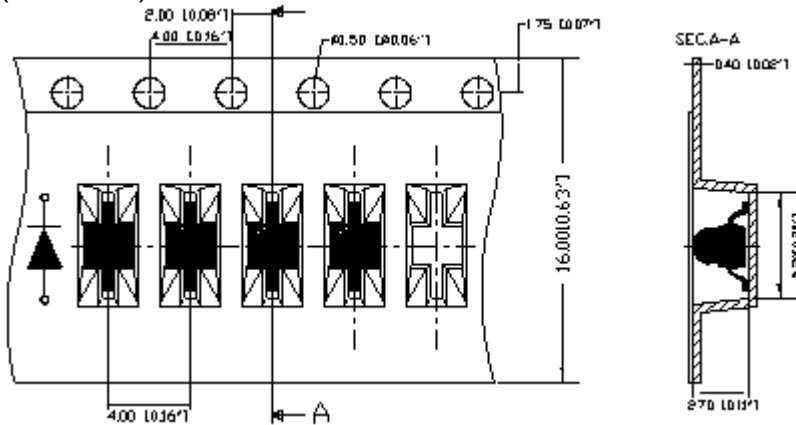
Feeding Direction



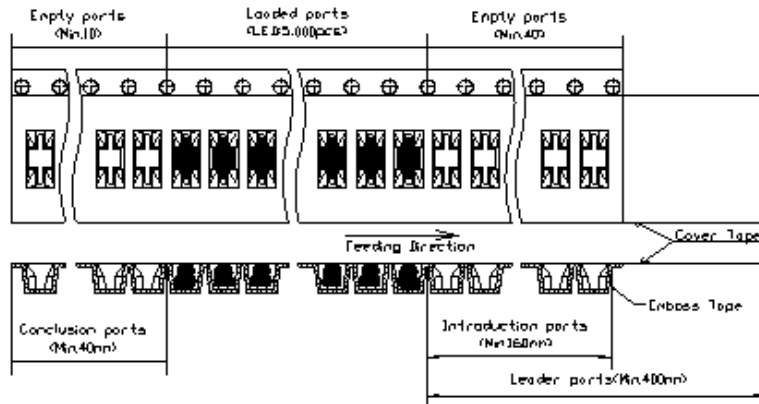
Dimensions of Reel (Unit: mm)



Dimensions of Tape (Unit: mm)



Arrangement of Tape



Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamp is two;
3. The cathode is oriented towards the tape sprocket hole;
4. 1,000 pcs/Reel

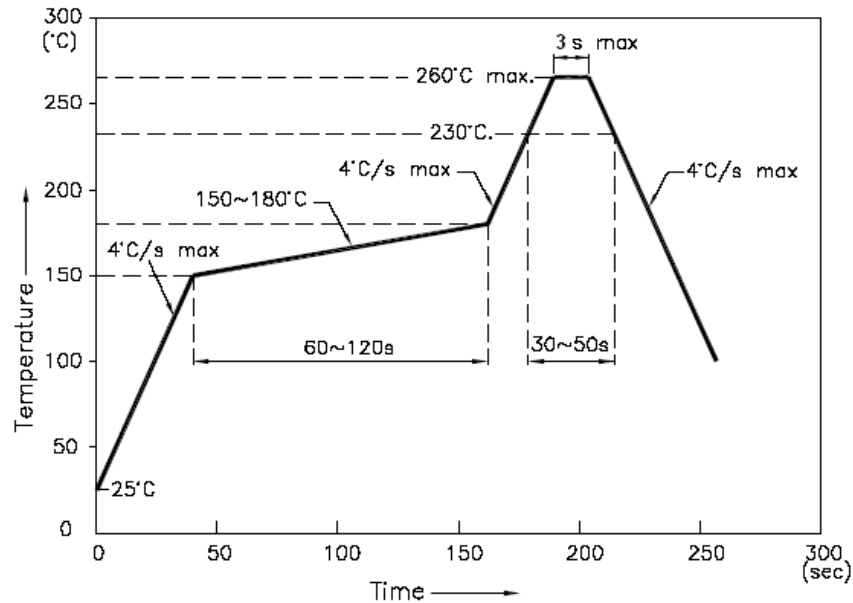


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## SOLDERING CONDITIONS

### REFLOW PROFILE

- Reflow Temp/Time



Notes:

- We recommend the reflow temperature 245°C ( $\pm 5^\circ\text{C}$ ). The maximum soldering temperature should be limited to 260°C.
- Don't cause stress to the epoxy resin while it is exposed to high temperature.
- Number of reflow process should be 2 times or less.

- Soldering Iron

Basic spec is  $\leq 5$  sec when 260°C. If temperature is higher, time should be shorter ( $\pm 10^\circ\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of iron should be smaller than 20W and temperature should be controllable. Surface temperature of the device should be under 230°C.



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