IR Emitter

LTE-C249-01

1. Description

The LTE-C249-01 series of flat-top IR emitters are packaged in a highly reflective gold plated bowls filled with high transmitivity silicone, which offer high radiant intensity of 855nm IR light in a top view orientation.

This special package has an opaque base substrate that ensures zero emission from the sides and bottom, eliminating design problem relating to cross-talk.

2. Features

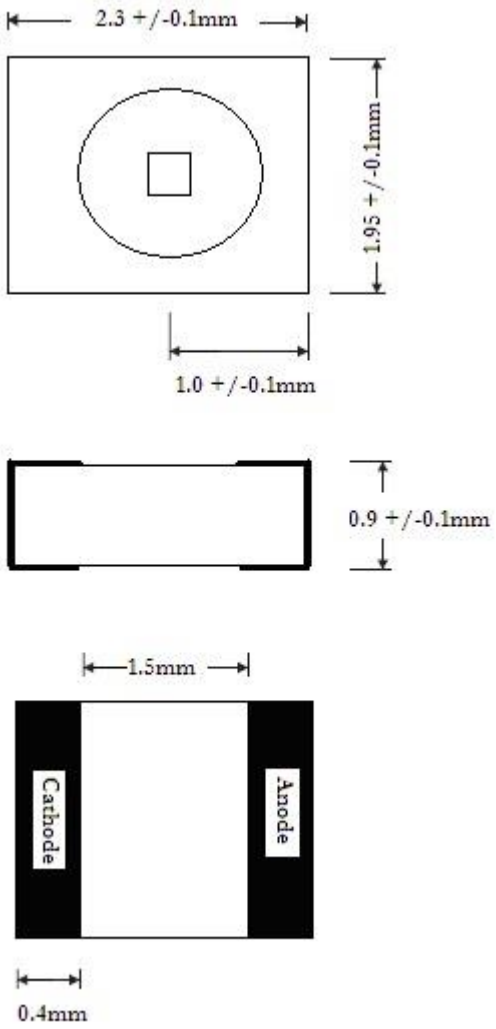
- Low profile SMT
- Size : 2.3 x 1.95 x 0.9mm (H)
- RoHS and Halogen Free compliant
- Peak wavelength – 855nm
- Narrow Viewing Angle : ±15º
- Top View
- Highly reflective gold plated bowls (Bowl profile : patent pending)
- Zero emission from sides and bottom

3. Applications

- Proximity sensing
- Infrared communication links
- IR Remote controllers
- General IR illumination for cameras

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4. Package Dimensions



Notes:

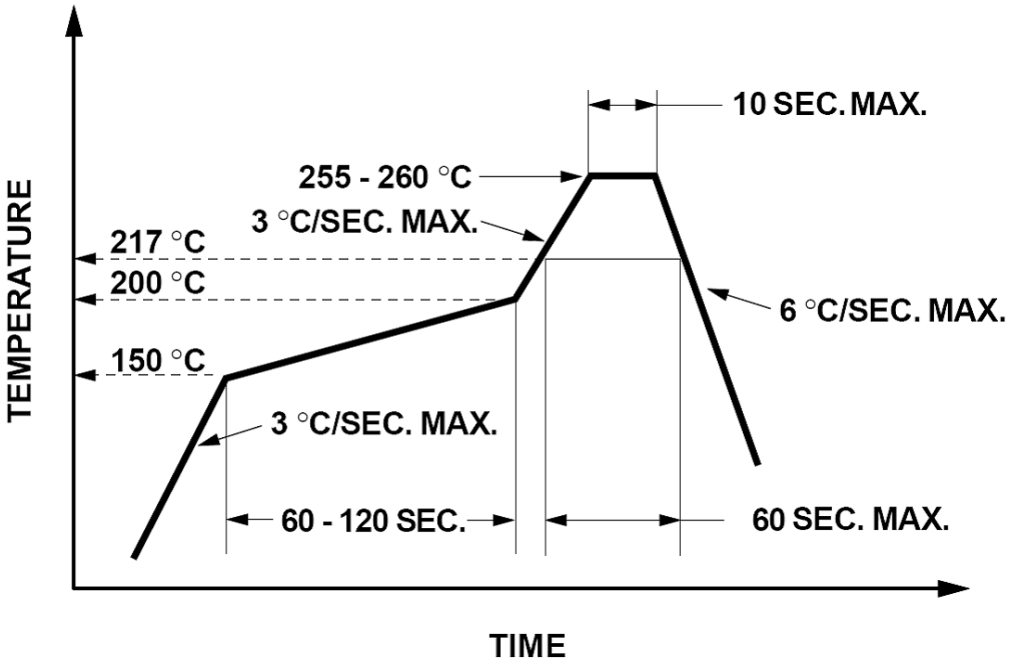
1. All dimensions are in millimeters.
2. Tolerance is ± 0.10 mm unless otherwise noted.
3. Specifications are subject to change without notice.

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5. Absolute Maximum Ratings at TA=25ºC

Parameter	Maximum Rating	Unit
Power Dissipation	190	mW
Peak Forward Current (1% Duty Cycle, 4us pulse)	800	mA
Continuous Forward Current	100	mA
Reverse Voltage	5	V
Operating Temperature Range	-40ºC to +85ºC	
Storage Temperature Range	-55ºC to +100ºC	
Infrared Soldering Condition	260ºC for 10 seconds Max 3 times IR reflow (including rework)	

Suggested IR reflow profile for Pb Free process



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6. Electrical Optical Characteristics at TA = 25°C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Radiant Intensity (tp=10us, duty cycle = 1%)	I_E	14	35	80	mW/sr	I_F = 70mA
		20	50	114		I_F = 100mA
Peak Emission Wavelength	λ_{Peak}	-	855	-	nm	I_F = 100mA
Spectral Line Half-Width	$\Delta\lambda$	-	30	-	nm	I_F = 100mA
Forward Voltage	V_F	-	1.6	2.0	V	I_F = 100mA
Reverse Current	I_R	-	-	10	uA	V_R = 5V
Rise/Fall Time	Tr/Tf	-	13	-	ns	I_F = 100mA R_{Load} = 50ohm 10% ~90%
Viewing Angle	$2\theta_{1/2}$	-	30	-	deg	X-direction
			24			Y-direction

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7. Typical Electrical/Optical Characteristics Curves

(25C° Ambient Temperature Unless Otherwise Noted)

Figure 1. Spectral Distribution

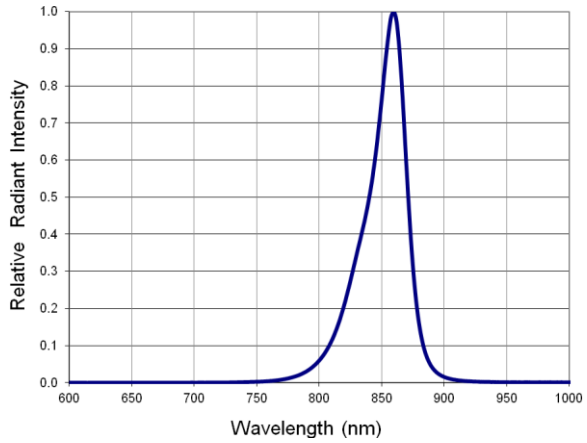


Figure 2. Temperature Derating

Max Tj=115°C, Tja=450K/W

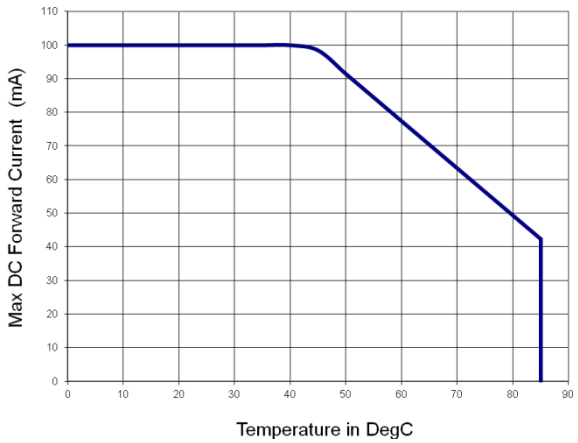


Figure 3. Forward Voltage vs Forward Current

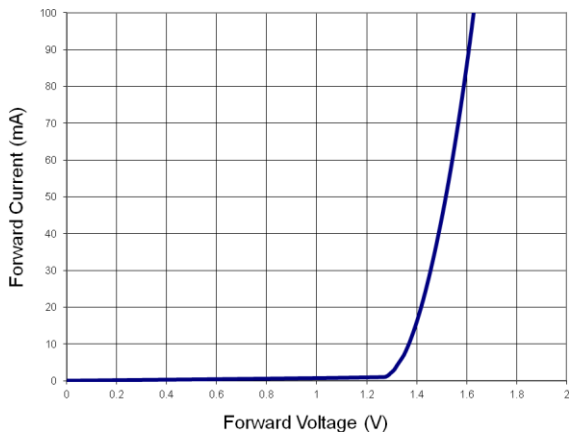
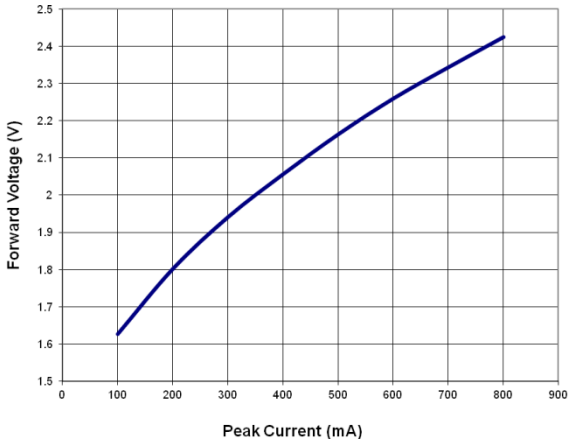


Figure 4. Forward Voltage vs Peak Current

20us Pulse Width, 10% Duty Cycle



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Figure 5. Intensity variation with Forward Current

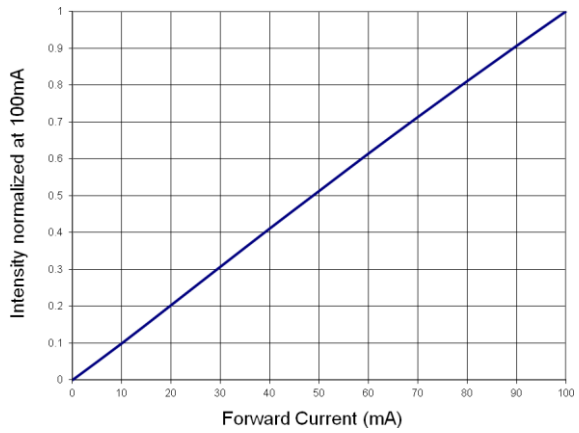


Figure 6. Intensity variation with Peak Current

20us Pulse Width, 10% Duty Cycle

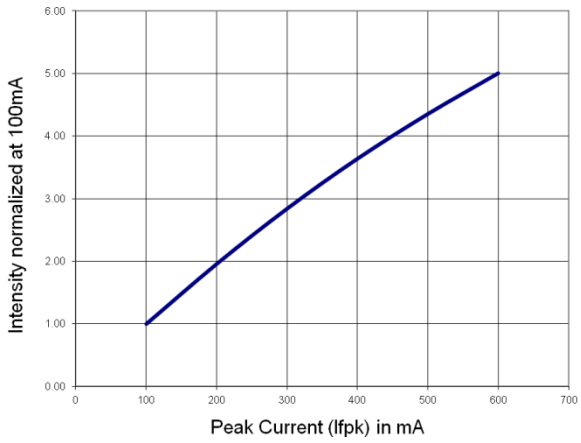


Figure 7. Forward Voltage vs Temperature

(If=100mA)

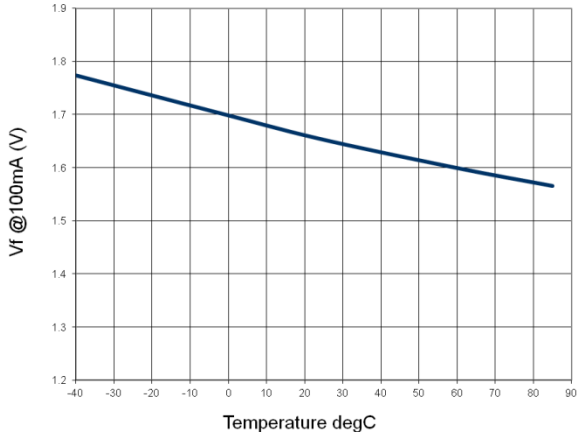
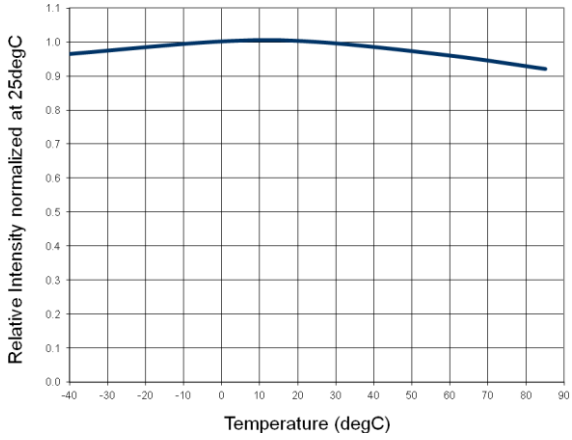


Figure 8. Relative Intensity vs Temperature

(If=100mA)



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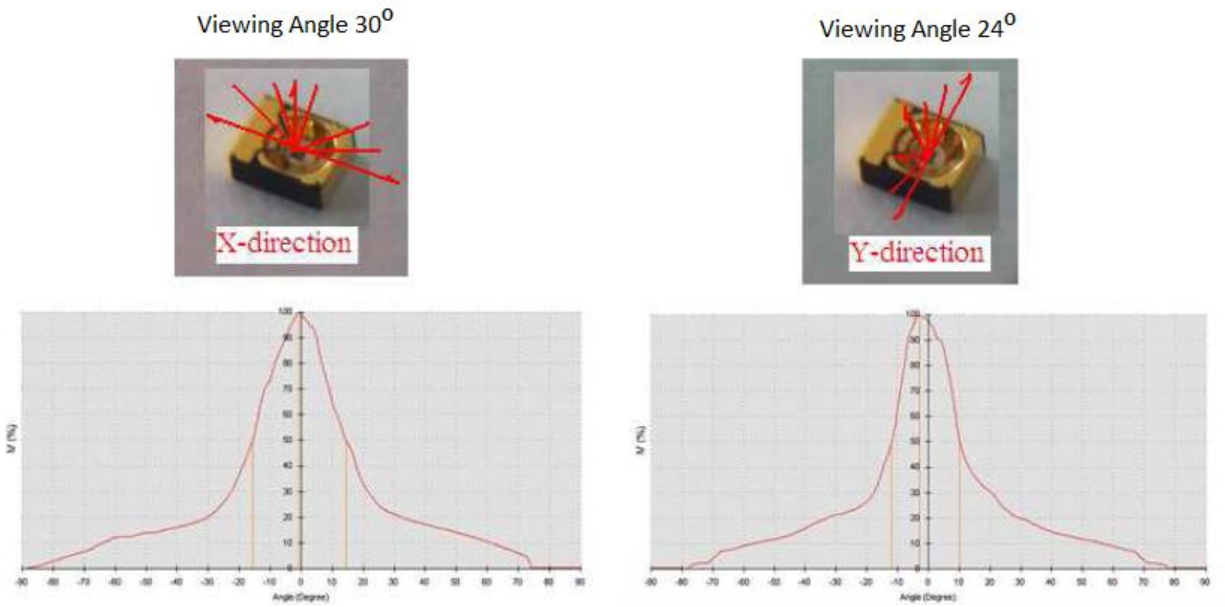
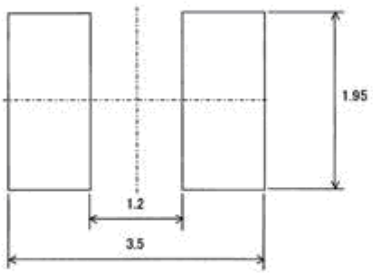
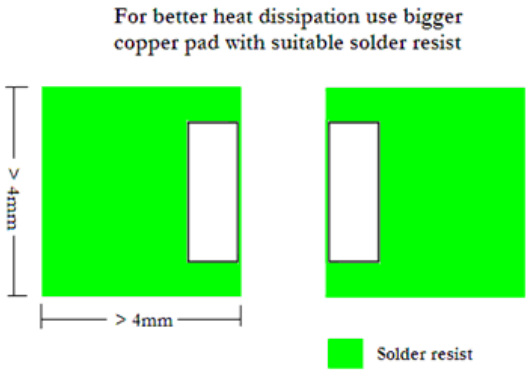


Figure 9. Viewing angle: 30º in the X-direction and 24º in the Y-direction

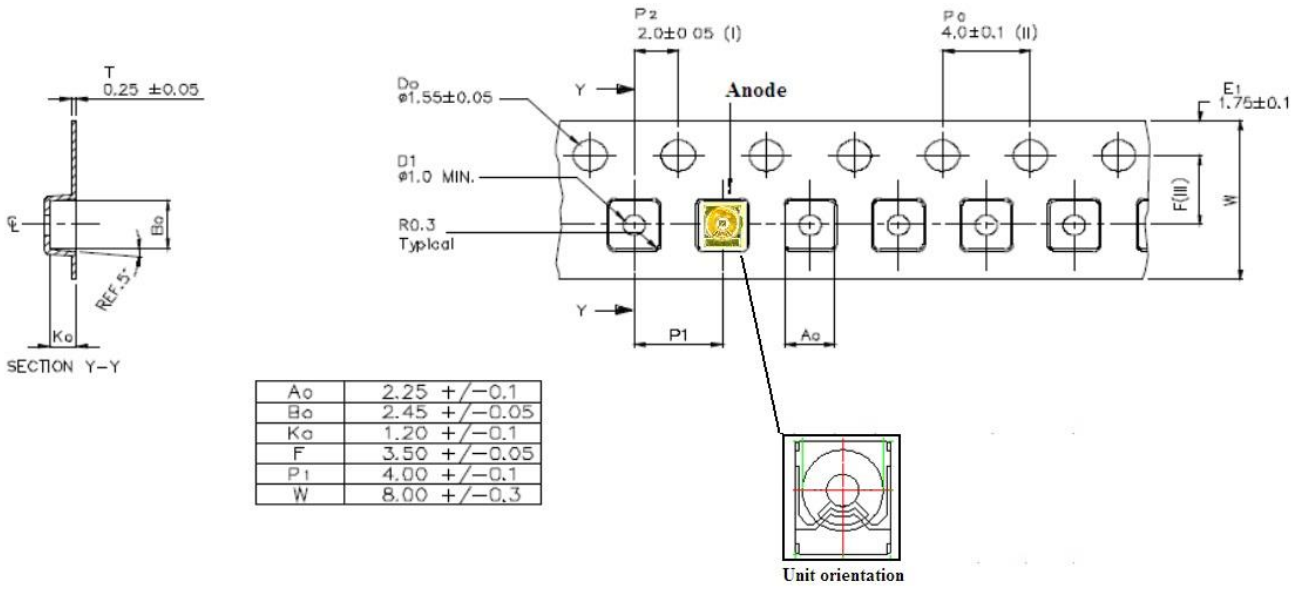
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8. Suggest Soldering Pad Dimensions



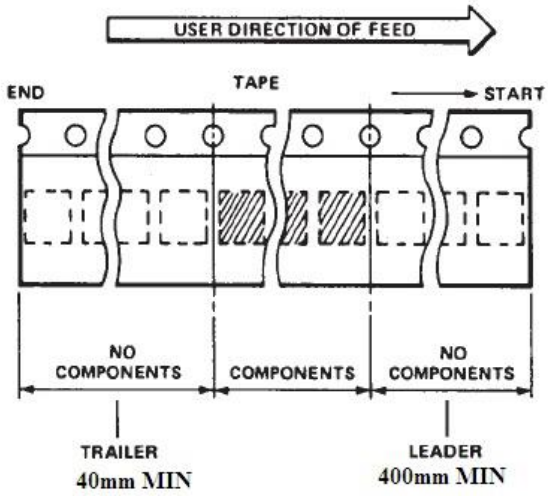


9. Tape and Reel Dimensions



Ao	2.25 +/−0.1
Bo	2.45 +/−0.05
Ko	1.20 +/−0.1
F	3.50 +/−0.05
P1	4.00 +/−0.1
W	8.00 +/−0.3

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Notes:

1. All dimensions are in millimeters.
2. Empty component pockets sealed with top cover tape.
3. 7 inch reel-2000 pieces per reel.

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CAUTIONS

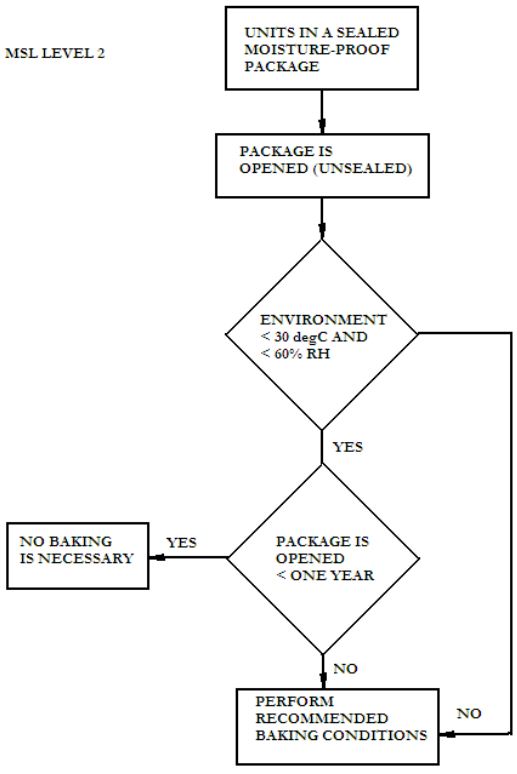
1. Applications

The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications).Consult Liteon's Sales in advance for information on applications in which exceptional reliability is required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health (such as in aviation, transportation, traffic control equipment, medical and life support systems and safety devices).

2. Cleaning

Do not use unspecified chemical liquid to clean the LED as it could harm the package. The LED die is protected with silicone compound that filled up the bowl cavity. Take special care not to apply too much mechanical stress to the silicone compound.

3. Moisture Proof Packaging



All LEDs are shipped in moisture proof package. Once opened, moisture absorption begins.

Baking conditions

If the parts are not stored in dry conditions, they must be baked before reflow to prevent damage to the parts.

Package	Temp	Time
In reels	60 degC	> 48 hrs
In bulk	100 degC	> 4 hrs

Baking should only be done once.

Time from Unsealing to Soldering

After removal from the bag, the parts should be soldered within a year if stored at the recommended storage conditions. If times longer than a year are needed, the parts must be stored in a dry box.

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Revision Table:

Version	Update	Page	Date
1.0	Datasheet Created	Total 11	18-Jul-19

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