

# SMT870N

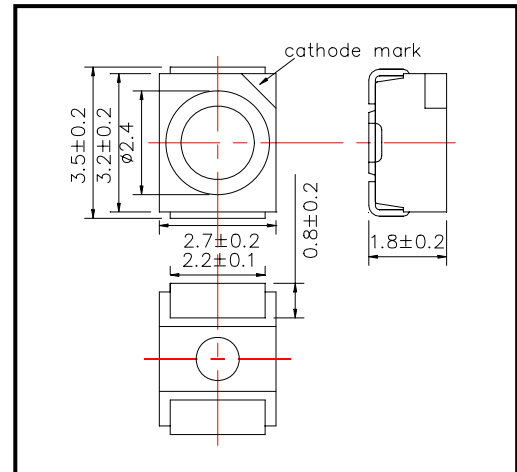
## High Performance Infrared TOP IR LED

SMT870N consists of an AlGaAs LED mounted on the lead frame as TOP LED package and is 40mW typical of output power.  
It emits a spectral band of radiation at 870nm.

◆ Outer dimension (Unit: mm)

◆ Specifications

1) Product Name	TOP IR LED
2) Type No.	SMT870N
3) Chip	
(1) Chip Material	AlGaAs
(2) Chip Dimension	0.4mm*0.4mm
(3) Peak Wavelength	870nm typ.
4) Package	
(1) Lead Frame Die	Silver Plated
(2) Package Resin	PPA Resin
(3) Lens	Epoxy Resin



◆ Electro-Optical Characteristics [Ta=25°C]

Item	Symbol	Maximum Rated Value	Unit	Ambient Temperature
Power Dissipation	P <sub>D</sub>	160	mW	Ta=25°C
Forward Current	I <sub>F</sub>	100	mA	Ta=25°C
Pulse Forward Current	I <sub>FP</sub>	1,000	mA	Ta=25°C
Reverse Voltage	V <sub>R</sub>	5	V	Ta=25°C
Junction Temperature	T <sub>J</sub>	100	°C	
Thermal Resistance	R <sub>thja</sub>	190	K/W	
Operating Temperature	T <sub>OPR</sub>	-20 ~ +80	°C	
Storage Temperature	T <sub>STG</sub>	-30 ~ +80	°C	
Soldering Temperature	T <sub>SOL</sub>	255	°C	

‡ Pulse Forward Current condition: Duty=1% and Pulse Width=10us.

‡ Soldering condition: Soldering condition must be completed within 10 seconds at 255°C

◆ Electro-Optical Characteristics [Ta=25°C]

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =50mA DC		1.45	1.60	V
		I <sub>F</sub> =100mA, tp=20ms		1.50	1.8	
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V			10	uA
Total Radiated Power	P <sub>O</sub>	I <sub>F</sub> =50mA DC	15.0	20.0		mW
		I <sub>F</sub> =100mA, tp=20ms		40.0		
Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> =50mA DC		10		mW/sr
		I <sub>F</sub> =100mA, tp=20ms		20		
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =50mA DC	860	870	880	nm
Half Width	Δλ	I <sub>F</sub> =50mA DC		40		nm
Viewing Half Angle	θ <sub>1/2</sub>	I <sub>F</sub> =50mA DC		±63		deg.
Rise Time	t <sub>r</sub>	I <sub>F</sub> =50mA DC		15		ns
Fall Time	t <sub>f</sub>	I <sub>F</sub> =50mA DC		10		ns

‡ Total Radiated Power is measured by Photodyne #500

‡ Radiant Intensity is measured by Tektronix J-6512.

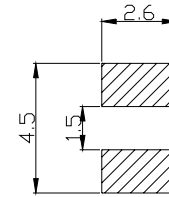
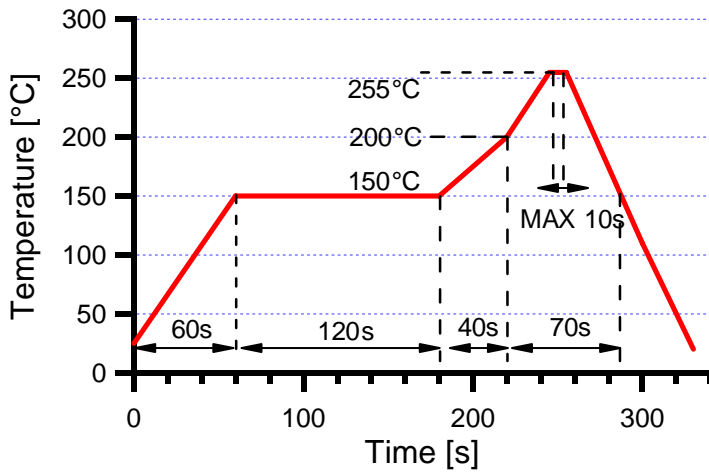
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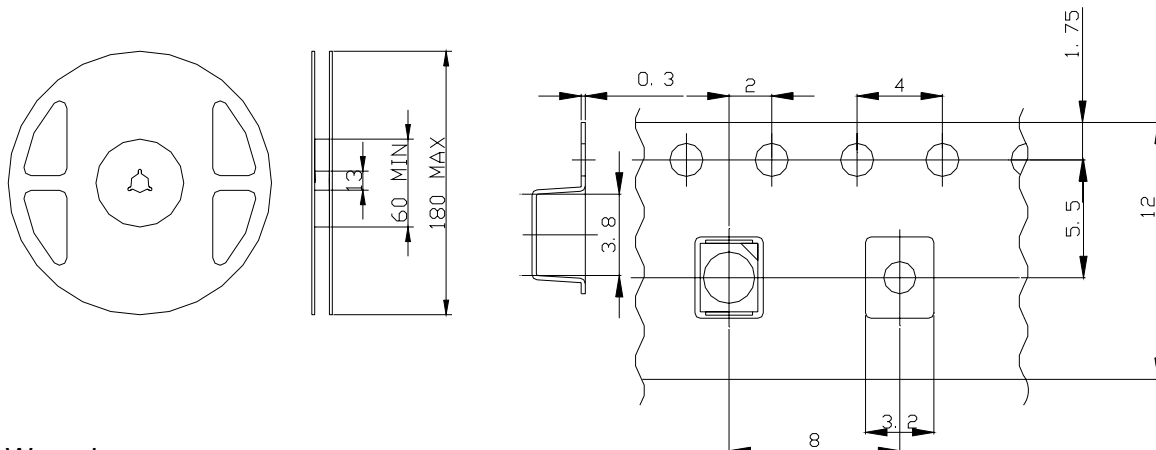
◆ SMD Application  
Recommended reflow soldering profile

Recommended Land Layout (Unit: mm)



Don't put stress on SMD and a circuit board after soldering.

◆ SMD Packing  
Tape and Reel Dimensions (Unit: mm)



◆ Wrapping

Moisture barrier bag aluminum laminated film with a desiccant to keep out the moisture absorption during the transportation and storage.