

SMTQ870

High Performance Infrared TOP IR LED

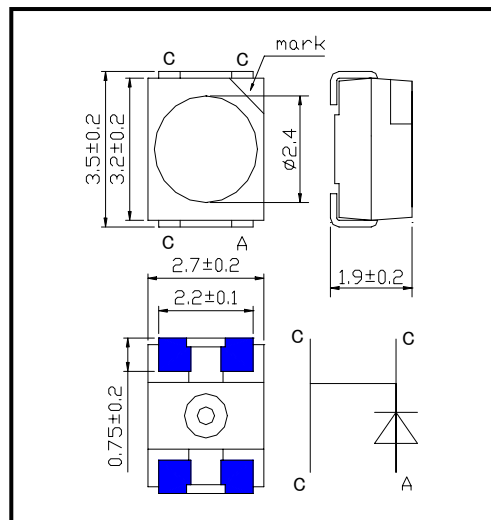
SMTQ870 consists of an AlGaAs LED mounted on the lead frame as TOP LED PLCC4 package and is 40mW typical of output power and 40mW/sr of radiant intensity. It emits a spectral band of radiation at 870nm.

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◆ Outer dimension (Unit: mm)

◆ Specifications

- | | |
|---------------------|---------------|
| 1) Product Name | TOP IR LED |
| 2) Type No. | SMTQ870 |
| 3) Chip | |
| (1) Chip Material | AlGaAs |
| (2) Chip Dimension | 0.4mm*0.4mm |
| (3) Peak Wavelength | 870nm typ. |
| 4) Package | PLCC4 |
| (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 _D | 160 | mW | Ta=25°C |
| Forward Current | I _F | 100 | mA | Ta=25°C |
| Pulse Forward Current | I _{FP} | 1,000 | mA | Ta=25°C |
| Reverse Voltage | V _R | 5 | V | Ta=25°C |
| Junction Temperature | T _J | 100 | °C | |
| Thermal Resistance | R _{thja} | 200 | K/W | |
| Operating Temperature | T _{OPR} | -20 ~ +80 | °C | |
| Storage Temperature | T _{STG} | -30 ~ +80 | °C | |
| Soldering Temperature | T _{SOL} | 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 _F | I _F =50mA DC | | 1.45 | 1.60 | V |
| | | I _F =100mA, tp=20ms | | 1.50 | 1.8 | |
| Reverse Current | I _R | V _R =5V | | | 10 | uA |
| Total Radiated Power | P _O | I _F =50mA DC | 15.0 | 20.0 | | mW |
| | | I _F =100mA, tp=20ms | | 40.0 | | |
| Radiant Intensity | I _E | I _F =50mA DC | | 10 | | mW/sr |
| | | I _F =100mA, tp=20ms | | 20 | | |
| Peak Wavelength | λ _P | I _F =50mA DC | 860 | 870 | 880 | nm |
| Half Width | Δλ | I _F =50mA DC | | 40 | | nm |
| Viewing Half Angle | θ _{1/2} | I _F =50mA DC | | ±63 | | deg. |
| Rise Time | t _r | I _F =50mA DC | | 15 | | ns |
| Fall Time | t _f | I _F =50mA DC | | 10 | | ns |

‡Total Radiated Power is measured by Photodyne #500

‡Radiant Intensity is measured by Tektronix J-6512.

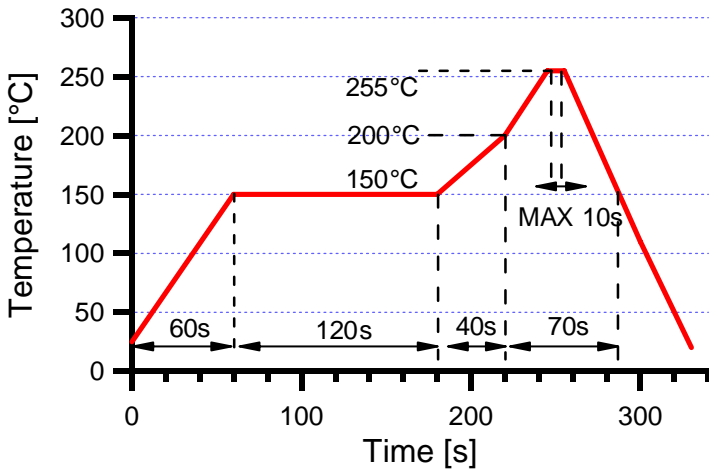
USHIO EUROPE B.V. (www.ushio.eu)

Sky Park, Breguetlaan 16-18, 1438 BC, Oude Meer, The Netherlands

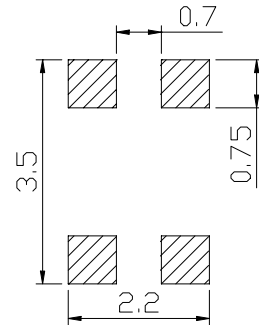
Tel: +31-20-4469-333 Fax: +31-20-4469-360 E-mail: led@ushio-europe.nl

◆ SMD Application

Recommended reflow soldering profile



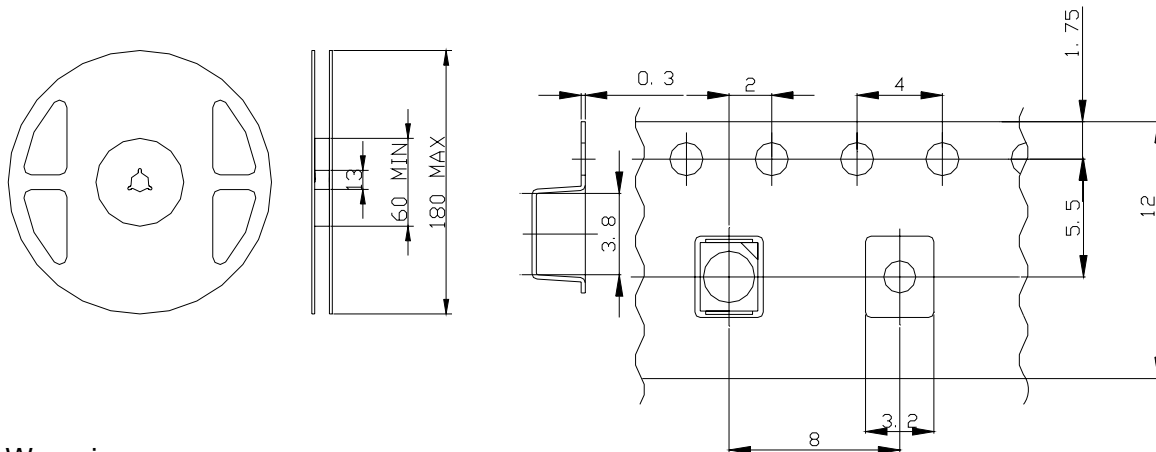
Recommended Land Layout (Unit: mm)



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.