

SMT780D-23 High Performance Infrared TOP LED with lens

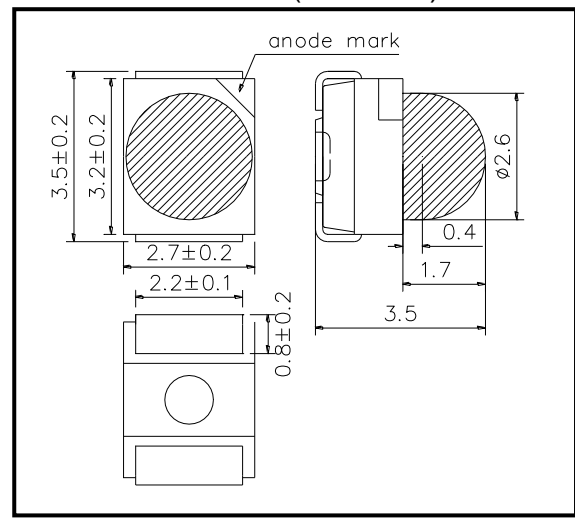
SMT780D-23 consists of an AlGaInP LED mounted on the lead frame as TOP LED package with plastic ball lens and is 410mW/sr of radiant intensity.

It emits a spectral band of radiation at 780nm.

◆ Specifications

- | | |
|---------------------|---------------|
| 1) Product Name | TOP IR LED |
| 2) Type No. | SMT780D-23 |
| 3) Chip | |
| (1) Chip Material | AlGaInP |
| (2) Chip Dimension | 350um*350um |
| (3) Chip Number | 1pcs |
| (4) Peak Wavelength | 780nm typ. |
| 4) Package | |
| (1) Lead Frame Die | Silver Plated |
| (2) Package Resin | PA6T Resin |
| (3) Lens | Epoxy Resin |

◆ Outer dimension (Unit: mm)



◆ Absolute Maximum Ratings [Ta=25°C]

Item	Symbol	Maximum Rated Value	Unit
Power Dissipation	PD	220	mW
Forward Current	IF	100	mA
Pulse Forward Current	IFP	500	mA
Reverse Voltage	VR	5	V
Thermal Resistance	Rthja	80	K/W
Junction Temperature	Tj	120	°C
Operating Temperature	TOPR	-40 ~ +100	°C
Storage Temperature	TSTG	-40 ~ +100	°C
Soldering Temperature	TSOL	250	°C

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

‡Soldering condition: Soldering condition must be completed within 5 seconds at 250°C

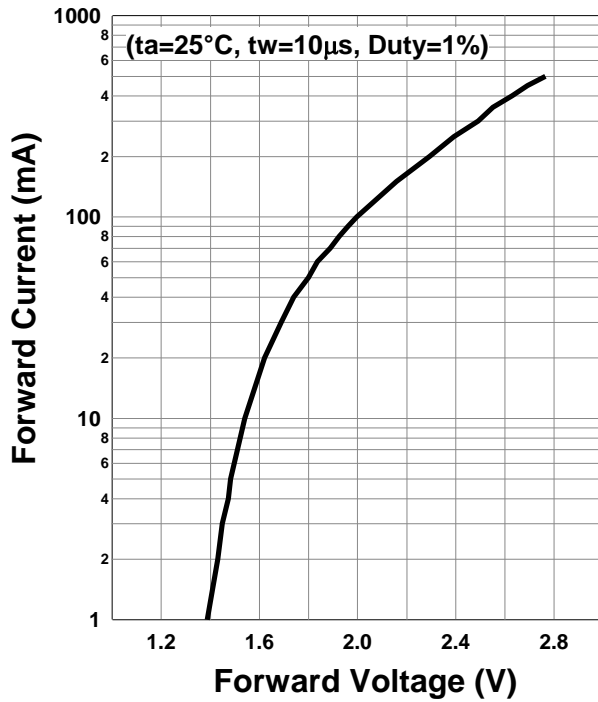
◆ Electro-Optical Characteristics [Ta=25°C typ.]

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Forward Voltage	VF	IF=50mA		1.8	2.2	V
	VFP	I _{FP} =500mA		2.8		
Radiated Power	PO	IF=50mA	16	24		mW
		I _{FP} =500mA		200		
Radiant Intensity	IE	IF=50mA	33	50		mW/sr
		I _{FP} =500mA		410		
Peak Wavelength	λ_P	IF=50mA	770	780	790	nm
Half Width	$\Delta\lambda$	IF=50mA		26		nm
Viewing Half Angle	$\theta_{1/2}$	IF=50mA		±17		deg.
Rise Time	tr	IF=50mA		60		ns
Fall Time	tf	IF=50mA		60		ns

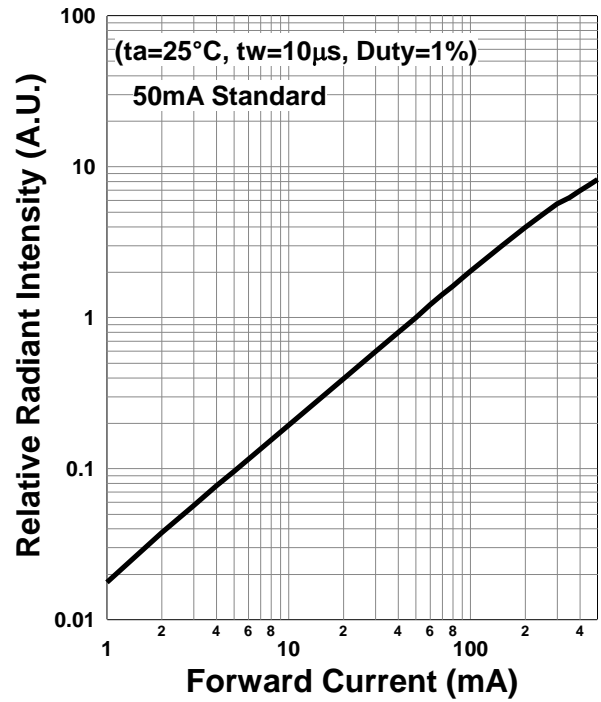
‡Radiated Power is measured by S3584-08.

‡Radiant Intensity is measured by CIE127-2007 Condition B.

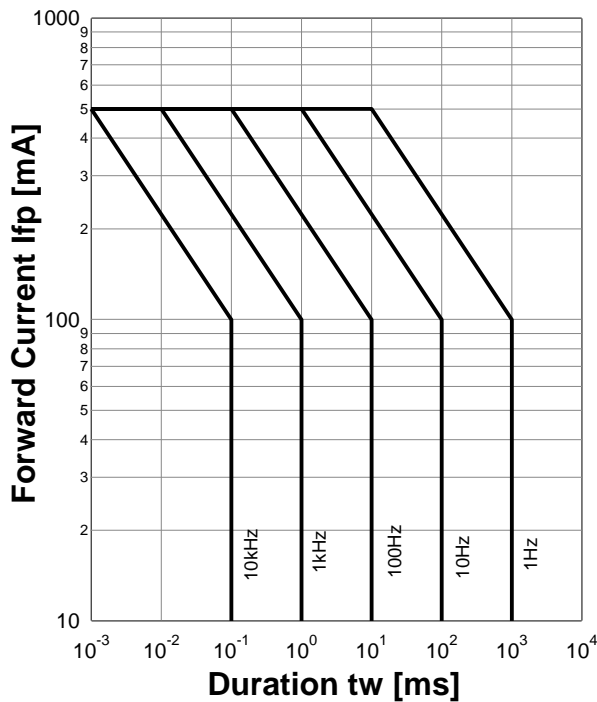
Forward Current - Forward Voltage



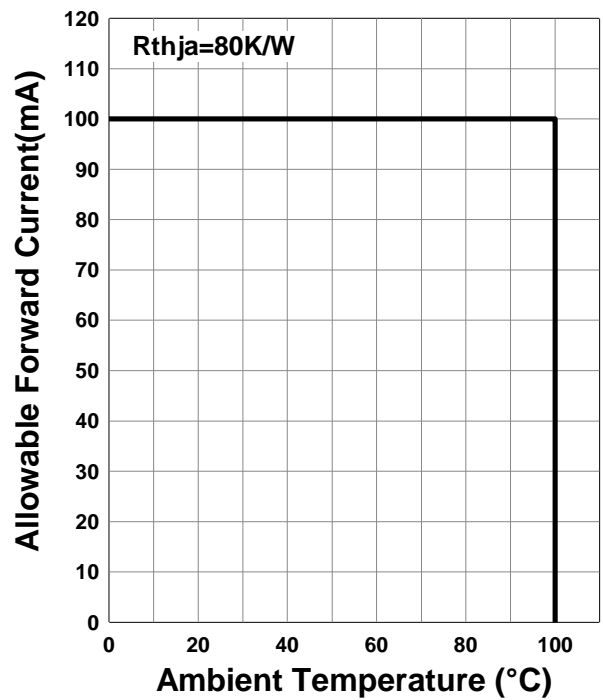
Relative Radiant Intensity - Forward Current



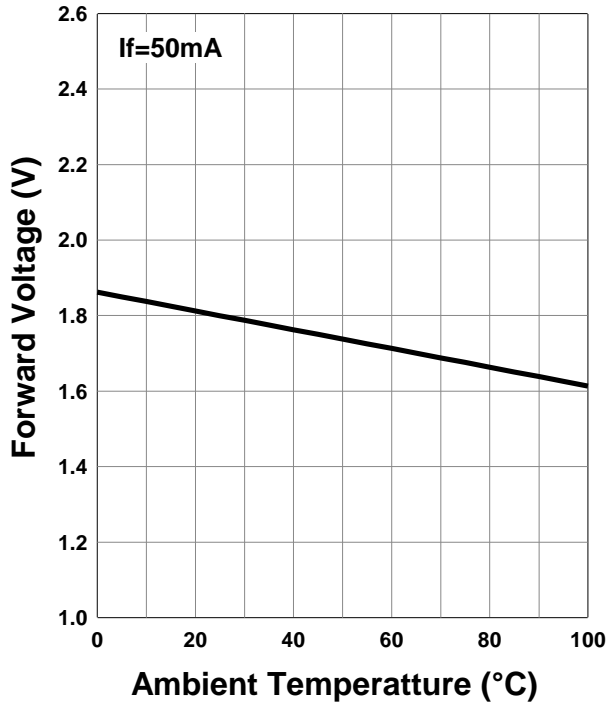
Forward Current - Pulse Duration



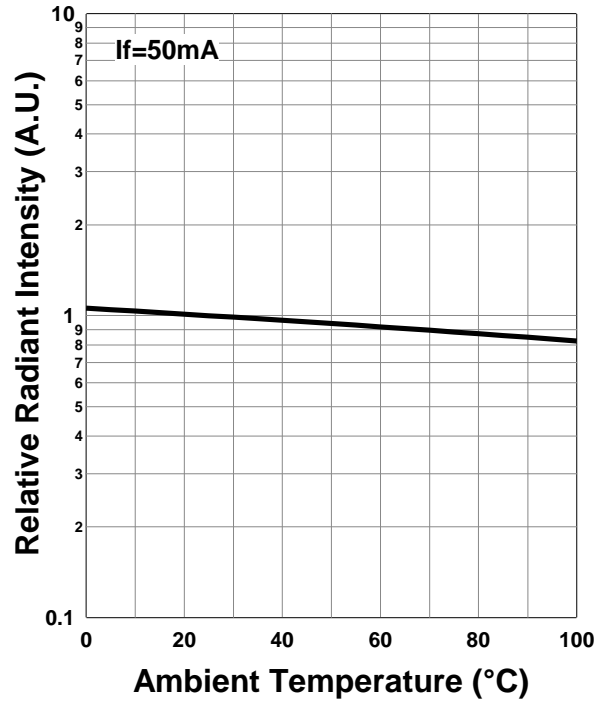
Allowable Forward Current - Ambient Temperature



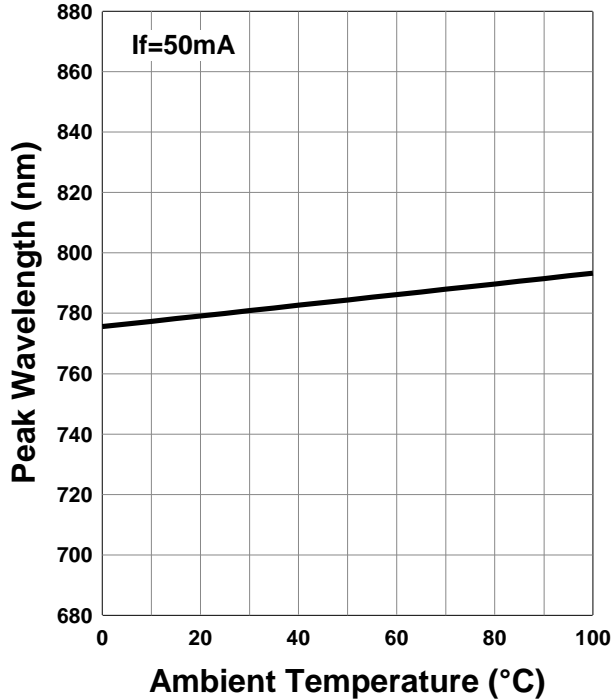
Forward Voltage - Ambient Temperature



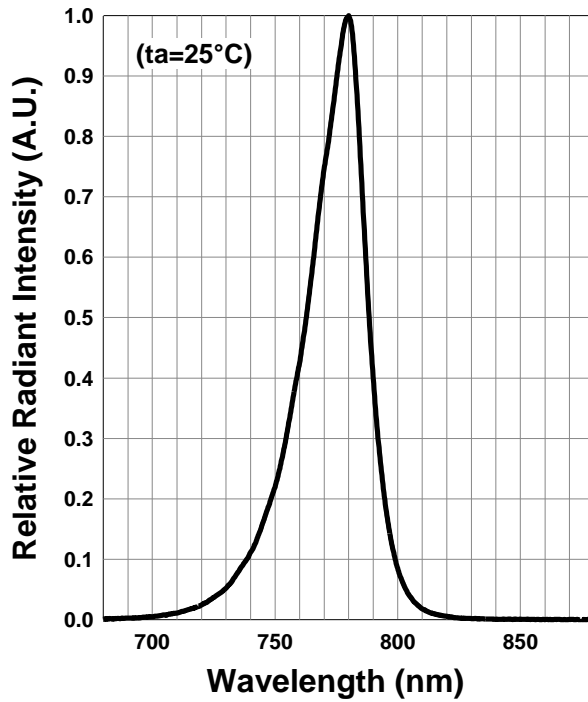
Relative Radiant Intensity - Ambient Temperature



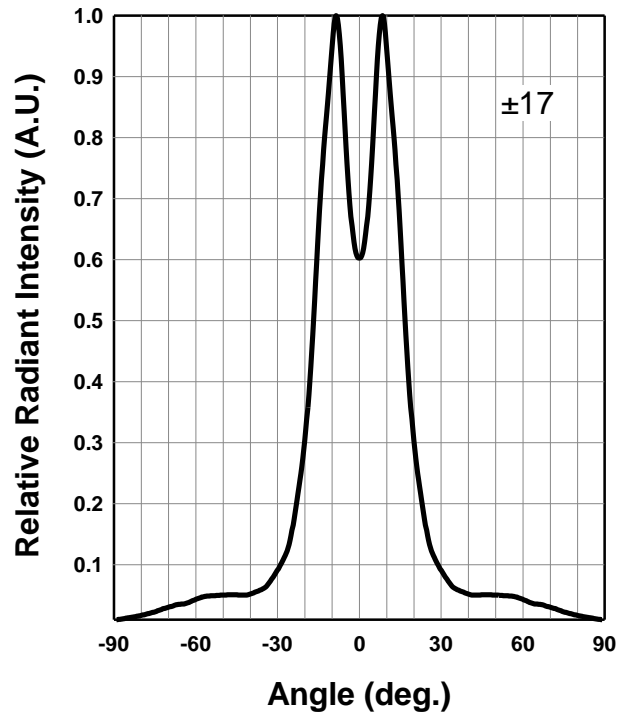
Peak Wavelength - Ambient Temperature



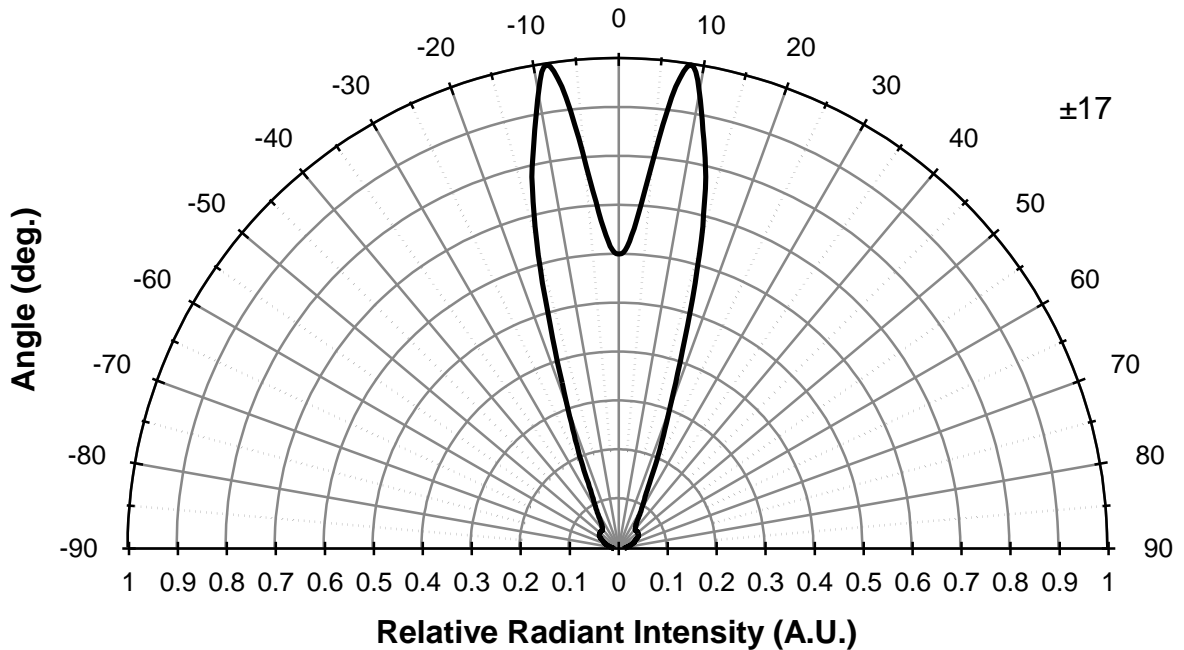
Relative Spectral Emission



Radiation Characteristics



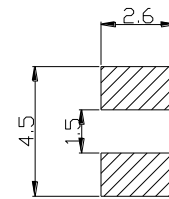
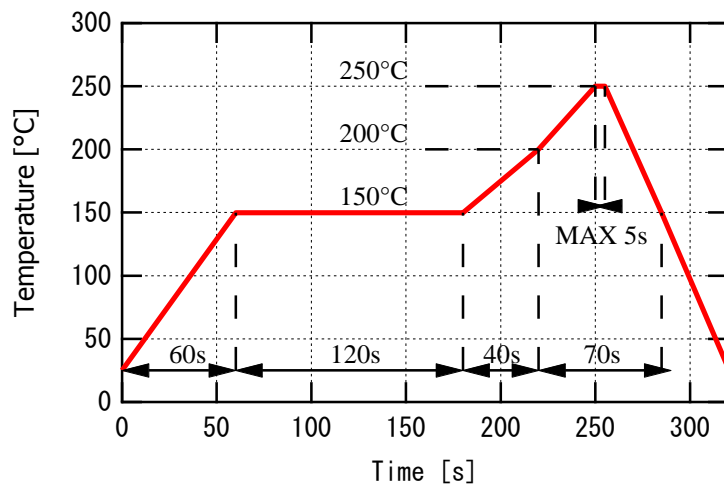
Radiation Characteristics



◆ SMD Application

IR-Reflow Soldering Profile for lead free soldering

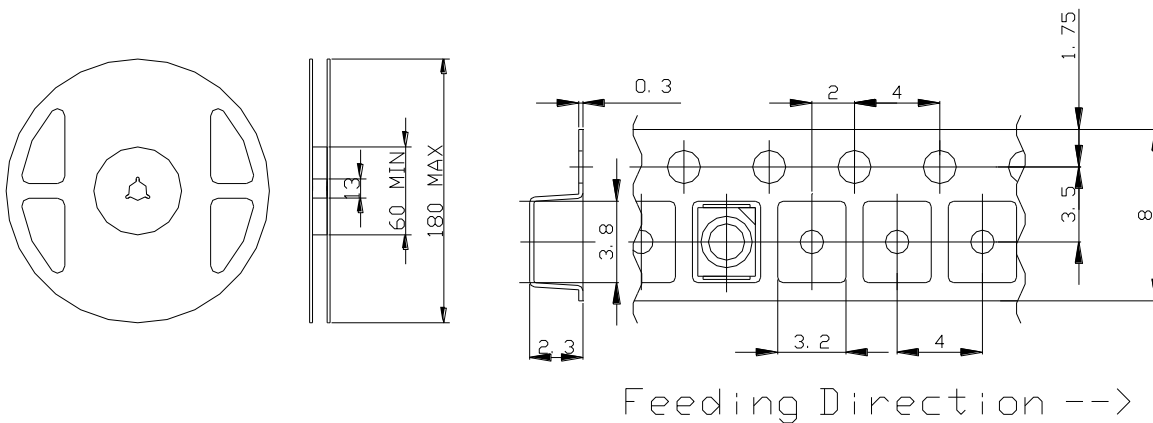
◆ recommended Land Layout (Unit: mm)



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.

SMD LED STORAGE AND HANDLING PRECAUTIONS**< Storage Conditions before Opening a Moisture-Barrier Aluminum Bag >**

- Before opening a moisture-barrier aluminum bag, please store it at <30°C, <60%RH. Please note that the maximum shelf life is 12 months under these conditions.

< Storage Conditions after Opening a Moisture-Barrier Aluminum Bag >

- After opening a moisture-barrier aluminum bag, store the aluminum bag and silica gel in a desiccator.
- After opening the bag, please solder the LEDs within 168 hours in a room with 5 - 30°C, <60%RH.
- Please put any unused, remaining LEDs and silica gel back in the same aluminum bag and then vacuum-seal the bag.
- It is recommended to keep the re-sealed bag in a desiccator at <30%RH.

< Notes about Re-sealing a Moisture-Barrier Aluminum Bag >

- When vacuum-sealing an opened aluminum bag, if you find the moisture-indicator of the silica gel has changed to pink from blue (indicating a relative humidity of 30 % or more), please do not use the unused LEDs, the aluminum bag, or the silica gel.

< Notes about Opening a Re-sealed Moisture-Barrier Aluminum Bag >

- When opening a vacuumed and re-sealed aluminum bag in order to use the remaining LEDs stored in the bag, if you find that the moisture-indicator of the silica has changed to pink, please do not use the LEDs.

※The 168-hour-long floor life does not include the time while LEDs are stored in the moisture-barrier aluminum bag.

However, we strongly recommend to solder the LEDs as soon as possible after opening the aluminum bag.

Disclaimer

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Product data and parameters in this catalog are typical values based on reasonably up-to-date measurements. Product data and parameters may vary by user application and over time.

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