

# SMT780-25

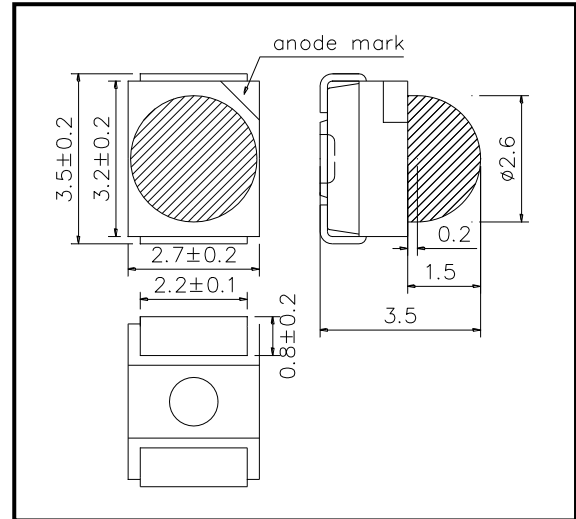
High Performance Infrared TOP IR LED with Lens

SMT780-25 consists of an AlGaAs LED mounted on the lead frame as TOP LED package and is 200mW typical of output power at  $I_F=500\text{mA}$ . It emits a spectral band of radiation at 780nm.

### ◆ Specifications

1) Product Name	TOP IR LED
2) Type No.	SMT780-25
3) Chip	
(1) Chip Material	AlGaAs
(2) Chip Dimension	400um*400um
(3) Chip Number	1pce
(4) Peak Wavelength	780nm typ.
4) Package	
(1) Lead Frame Die	Silver Plated
(2) Package Resin	PA6T
(3) Lens	Silicone or Epoxy Resin

### ◆ Outer dimension (Unit: mm)



### ◆ Absolute Maximum Ratings [ $T_a=25^\circ\text{C}$ ]

Item	Symbol	Maximum Rated Value	Unit
Power Dissipation	PD	200	mW
Forward Current	$I_F$	100	mA
Pulse Forward Current	$I_{FP}$	500	mA
Reverse Voltage	$V_R$	5	V
Thermal Resistance	$R_{thja}$	80	K/W
Junction Temperature	$T_j$	120	$^\circ\text{C}$
Operating Temperature	$T_{OPR}$	-40 ~ +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +100	$^\circ\text{C}$
Soldering Temperature	$T_{SOL}$	250	$^\circ\text{C}$

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

‡Soldering condition: Soldering condition must be completed within 5 seconds at  $250^\circ\text{C}$

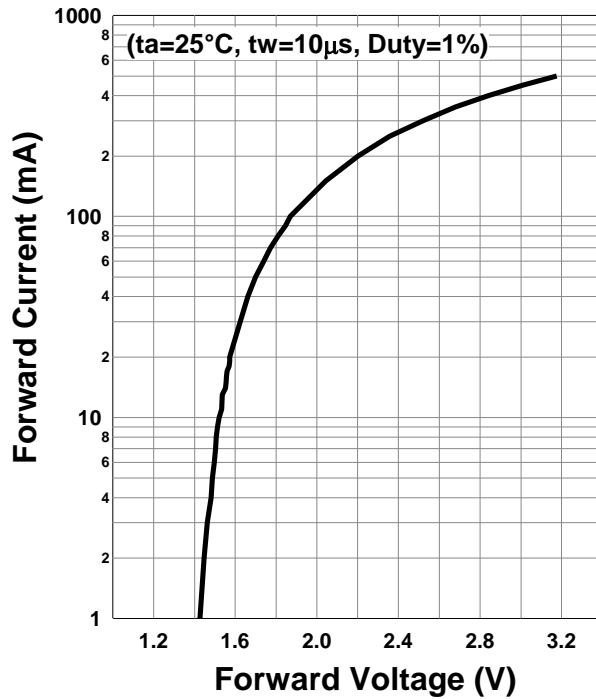
## ◆ Electro-Optical Characteristics [Ta=25°C typ.]

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =50mA		1.7	2.0	V
	V <sub>FP</sub>	I <sub>FP</sub> =500mA		3.2		
Total Radiated Power	P <sub>O</sub>	I <sub>F</sub> =50mA		20		mW
		I <sub>FP</sub> =500mA		200		
Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> =50mA		26		mW/sr
		I <sub>FP</sub> =500mA		260		
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =50mA	770	780	790	nm
Half Width	Δλ	I <sub>F</sub> =50mA		27		nm
Viewing Half Angle	θ <sub>1/2</sub>	I <sub>F</sub> =50mA		±20		deg.
Rise Time	t <sub>r</sub>	I <sub>F</sub> =50mA		40		ns
Fall Time	t <sub>f</sub>	I <sub>F</sub> =50mA		40		ns

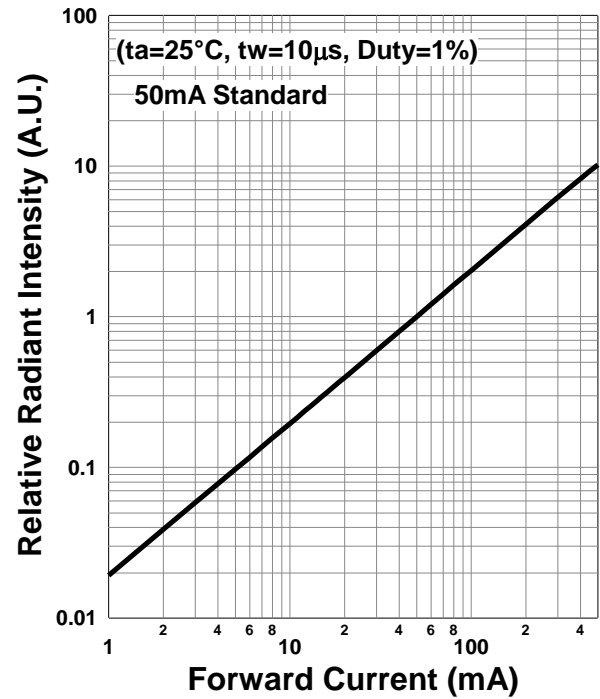
‡Radiated Power is measured by S3584-08.

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

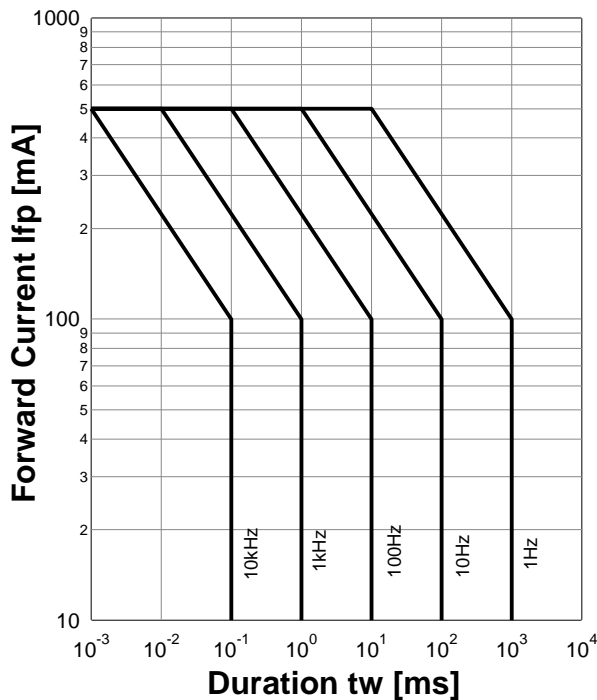
**Forward Current - Forward Voltage**



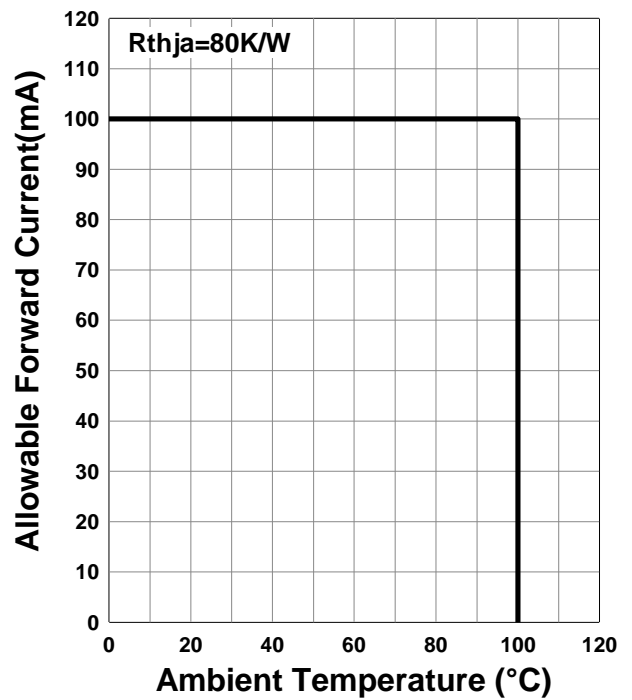
**Relative Radiant Intensity - Forward Current**



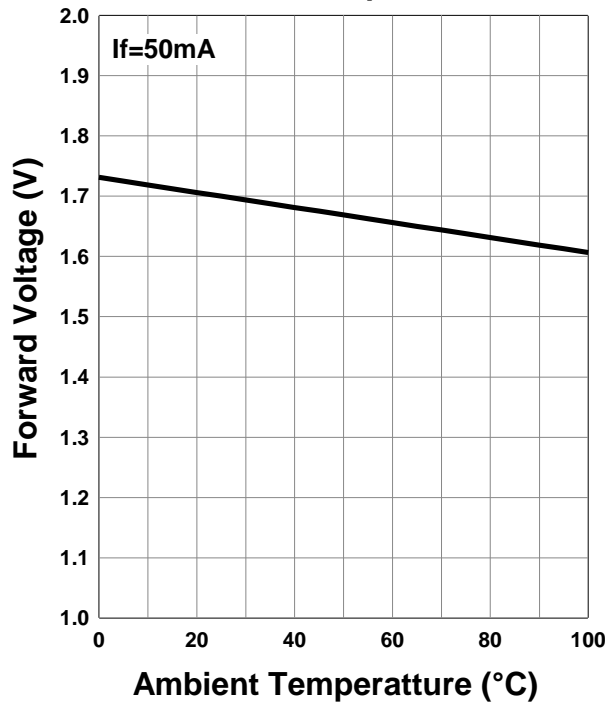
**Forward Current - Pulse Duration**



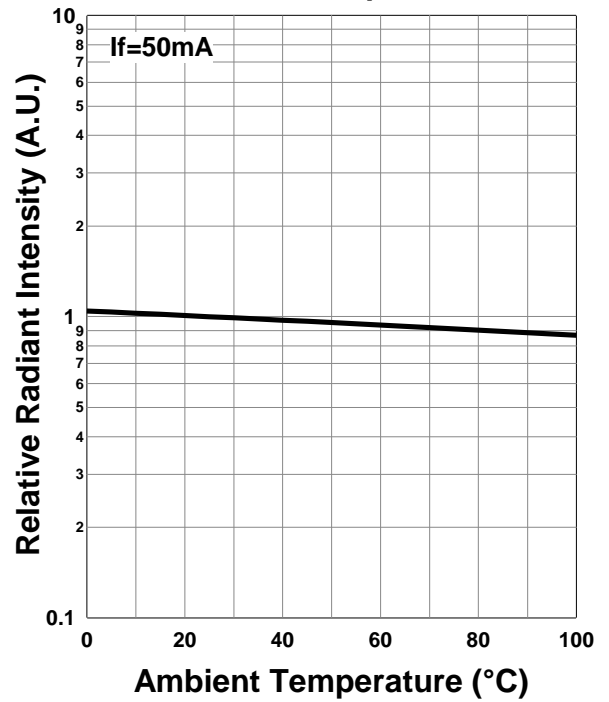
**Allowable Forward Current - Ambient Temperature**



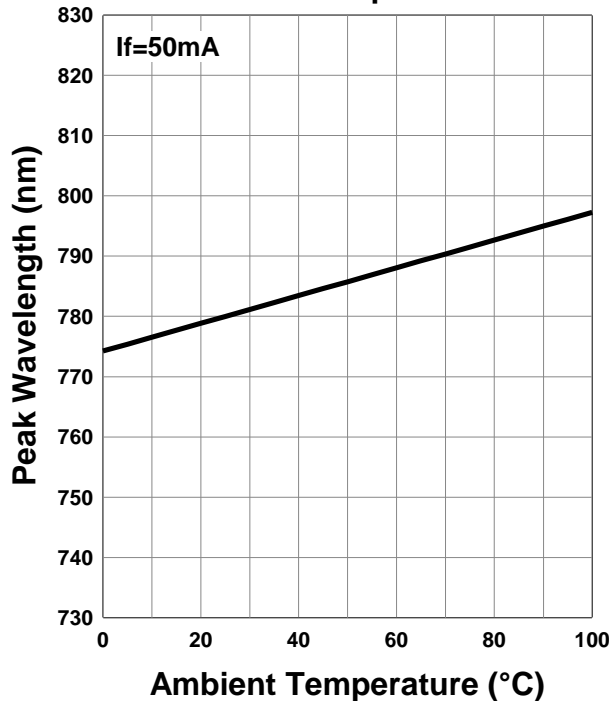
**Forward Voltage - Ambient Temperature**



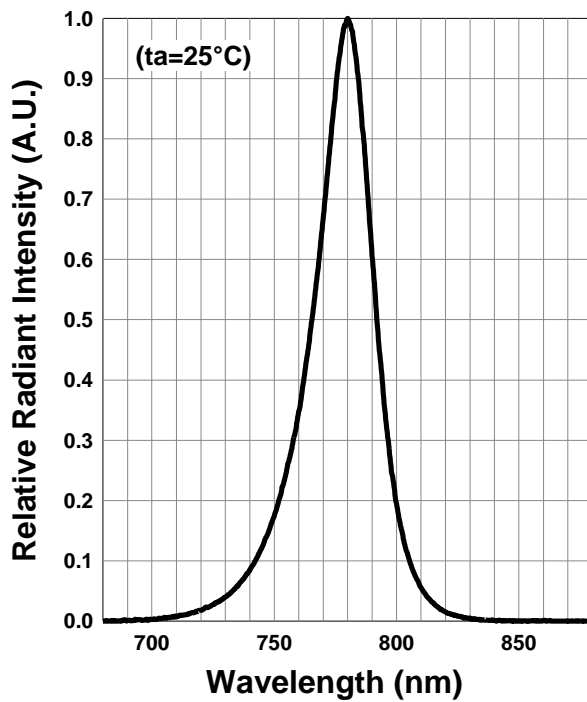
**Relative Radiant Intensity - Ambient Temperature**



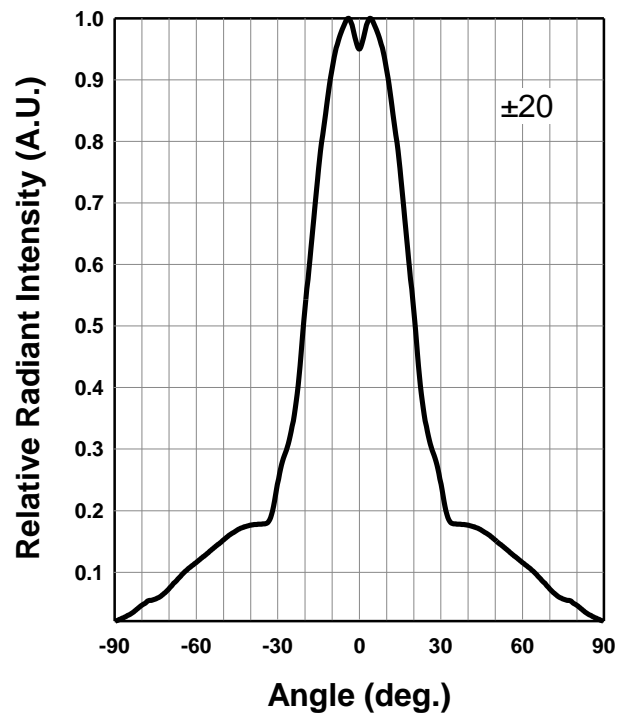
**Peak Wavelength - Ambient Temperature**



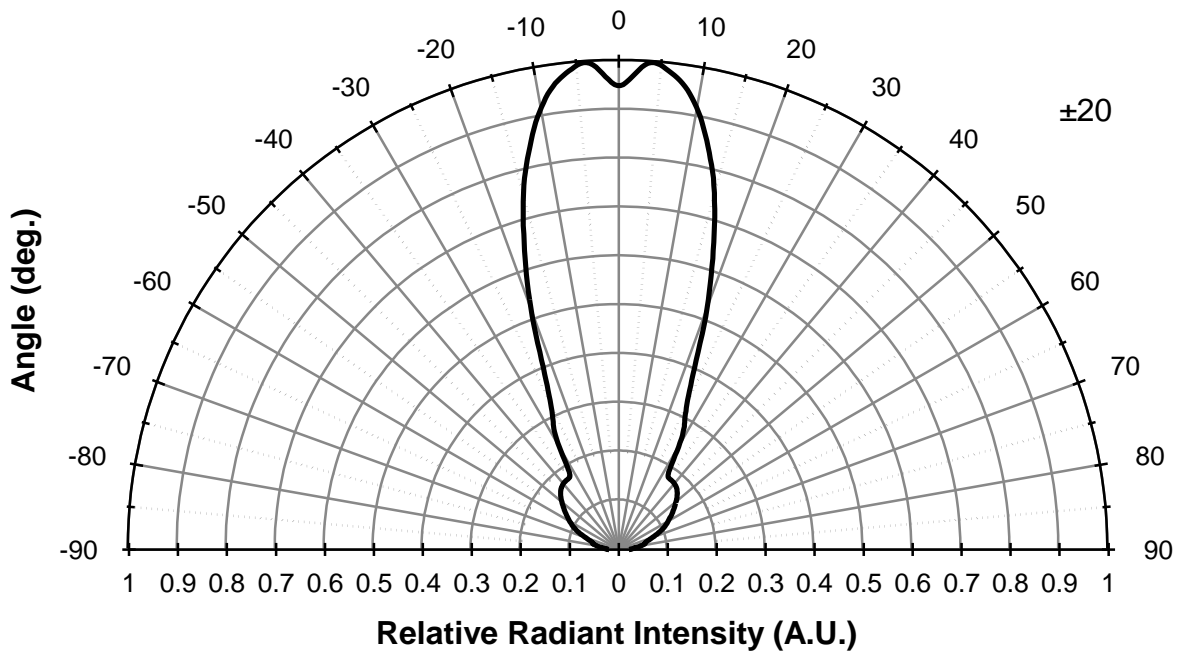
Relative Spectral Emission



Radiation Characteristics



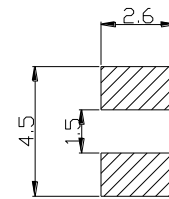
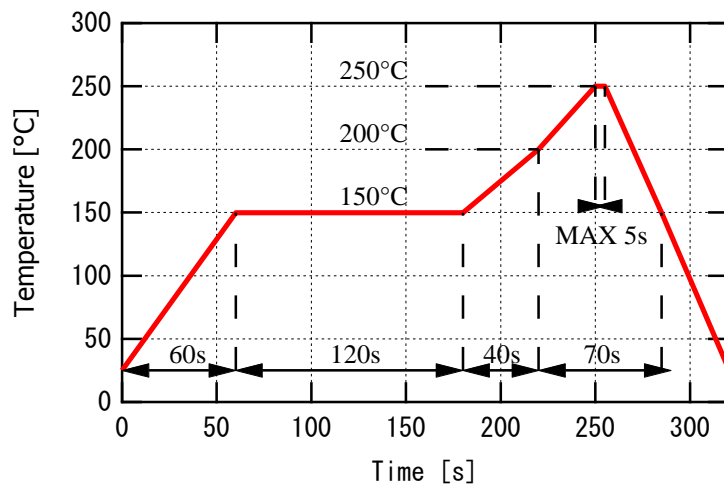
Radiation Characteristics



◆ SMD Application

IR-Reflow Soldering Profile for lead free soldering

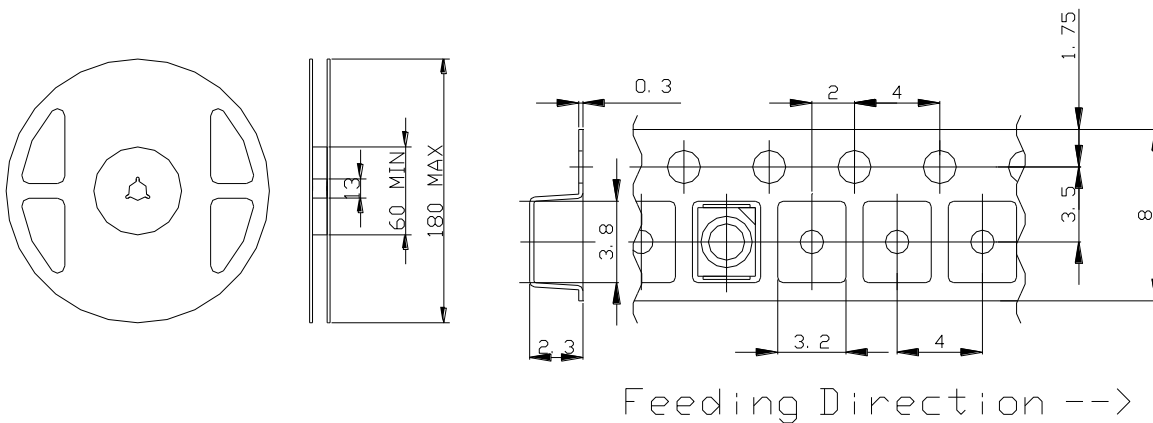
◆ recommended Land Layout (Unit: mm)



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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