

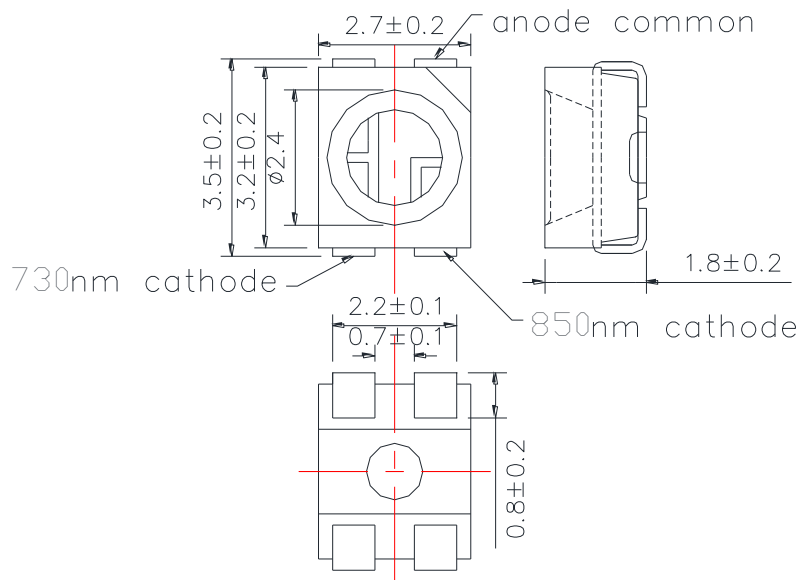
Data Sheet

SMT730D/850D

High Performance Bi-color TOP LED

USHIO

Outline and Internal Circuit



(Unit : mm)

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Features

- Chip Material : AlGaInP / AlGaAs
- Chip Dimension : 350um * 350um / 350um * 350um
- Number of Chips : 2pcs
- Peak Wavelength: 730nm typ. / 850nm typ.
- Lead Frame Die : Silver Plated
- Package Resin : PA6T
- Lens : Silicone or Epoxy Resin

Application

730nm

Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Ratings	Unit
Power Dissipation	PD	240	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 with 5 seconds at 250°C

Optical and Electrical Characteristics (Tc=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	VF		2.0	2.4	V	IF=50mA
	VFP		4.3			IFP=500mA
Total Radiated Power	PO		24		mW	IF=50mA
			230			IFP=500mA
Peak Wavelength	λ_p	720		740	nm	IF=50mA
Half Width	$\Delta\lambda$		21		nm	IF=50mA
Rise Time	tr		90		ns	IF=50mA
Fall Time	tf		50		ns	IF=50mA

‡ Radiated Power is measured by S3584-08.

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

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850nm

Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Rated	Unit
Power Dissipation	PD	200	mW
Forward Current	IF	100	mA
Pulse Forward Current	IFP	1000	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 with 5 seconds at 250°C

Optical and Electrical Characteristics (Tc=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	VF		1.5	2.0	V	IF=50mA
	VFP		3.4			IFP=1A
Total Radiated Power	PO		23		mW	IF=50mA
			360			IFP=1A
Peak Wavelength	λ_p	840		860	nm	IF=50mA
Half Width	$\Delta\lambda$		27		nm	IF=50mA
Rise Time	tr		30		ns	IF=50mA
Fall Time	tf		30		ns	IF=50mA

‡ Radiated Power is measured by S3584-08.

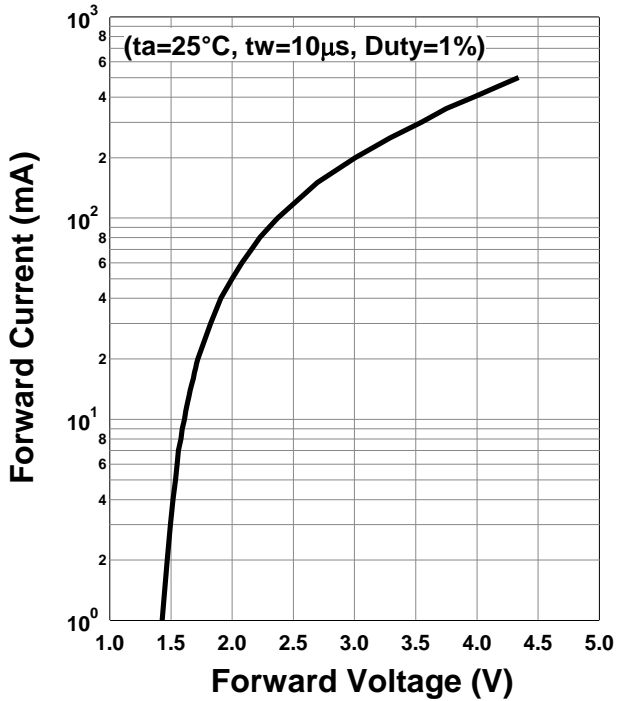
‡ Radiant Intensity is measured by CIE127-2007 Condition B.

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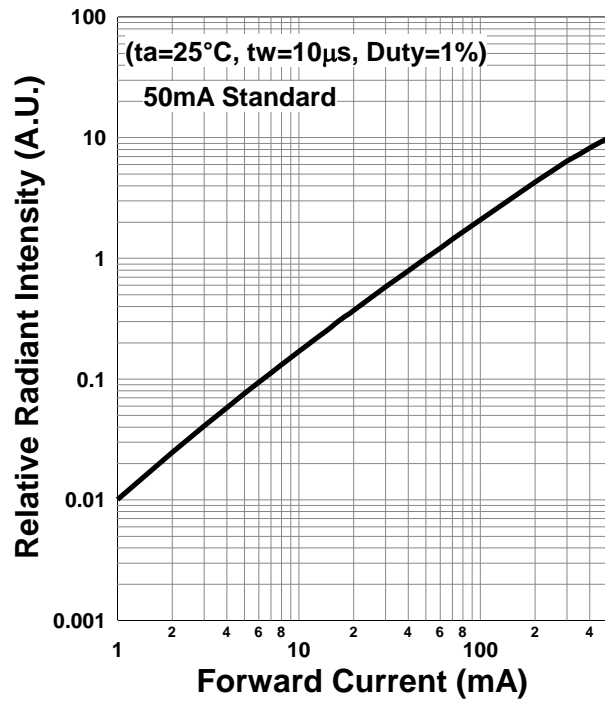
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Typical Characteristic Curves 730nm

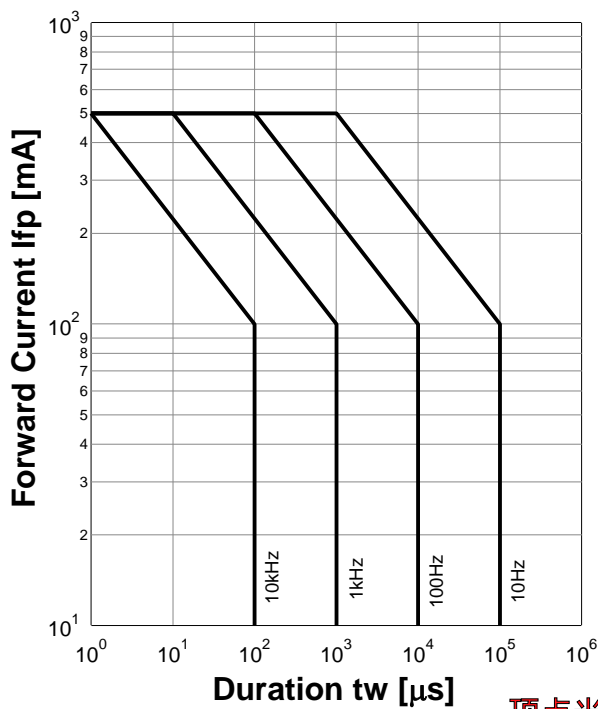
Forward Current - Forward Voltage



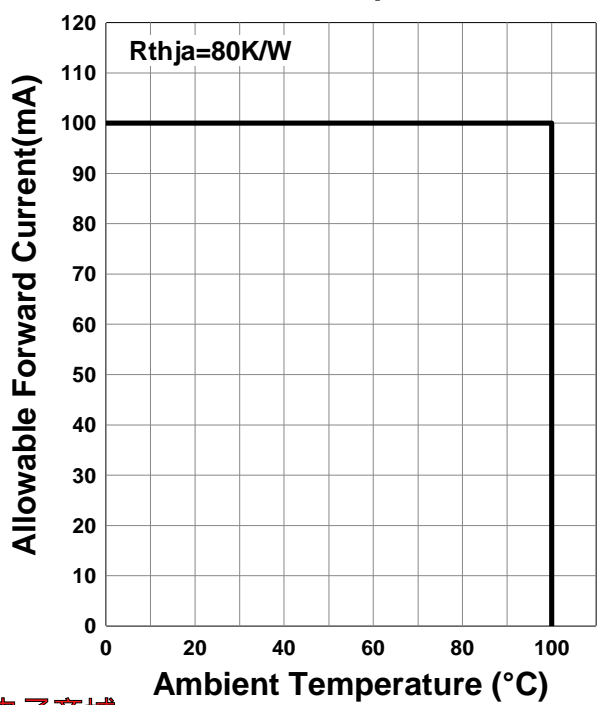
Relative Radiant Intensity - Forward Current



Forward Current - Pulse Duration



Allowable Forward Current - Ambient Temperature

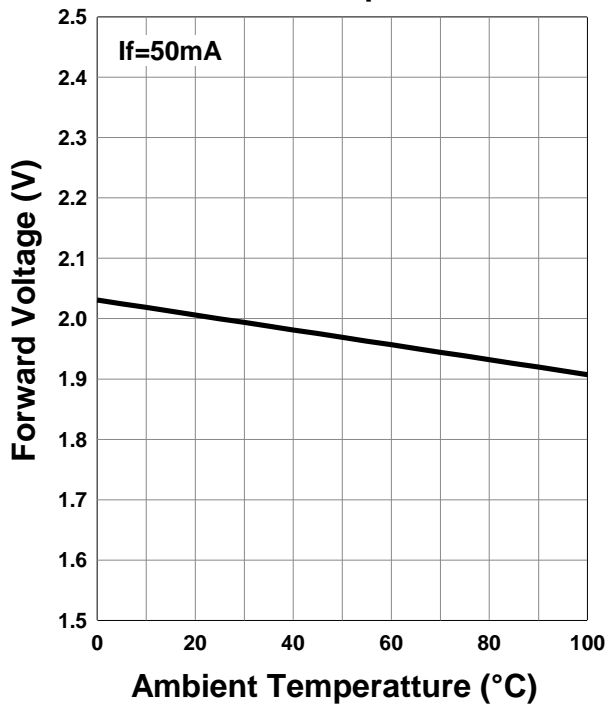


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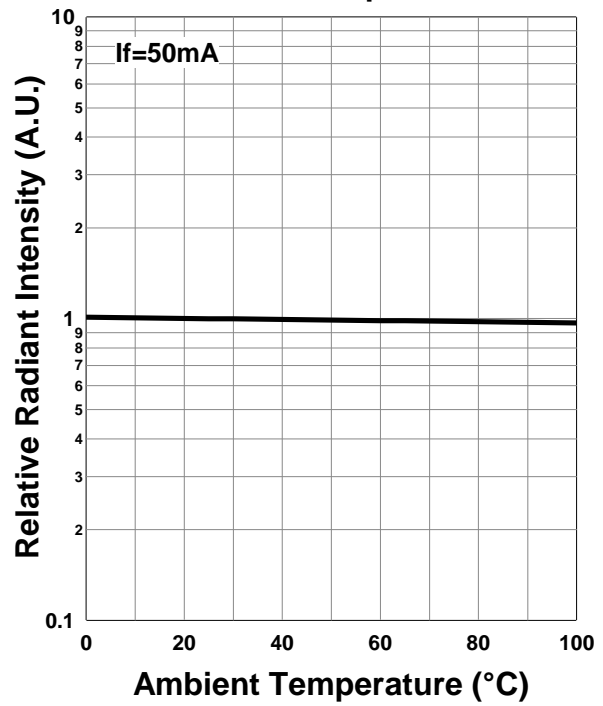
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730nm

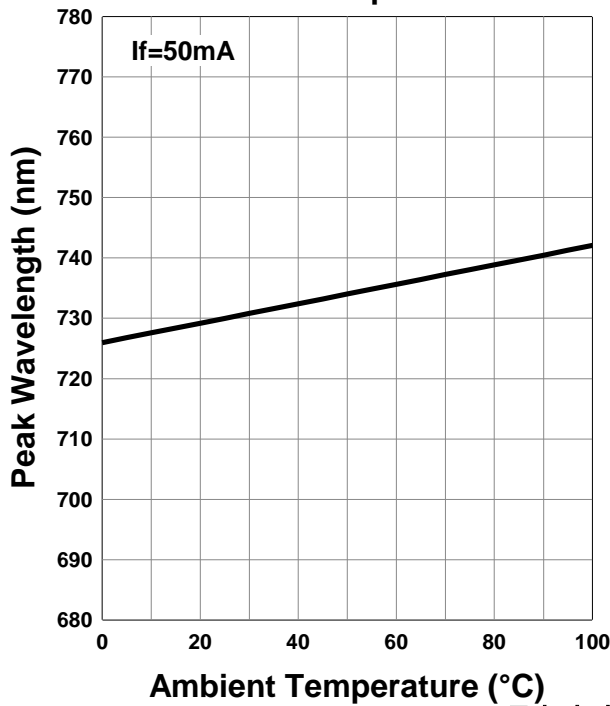
Forward Voltage - Ambient Temperature



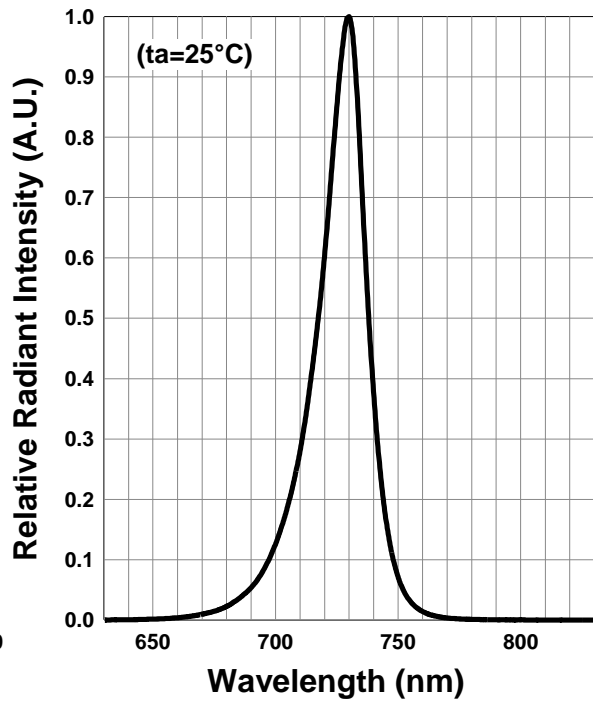
Relative Radiant Intensity - Ambient Temperature



Peak Wavelength - Ambient Temperature



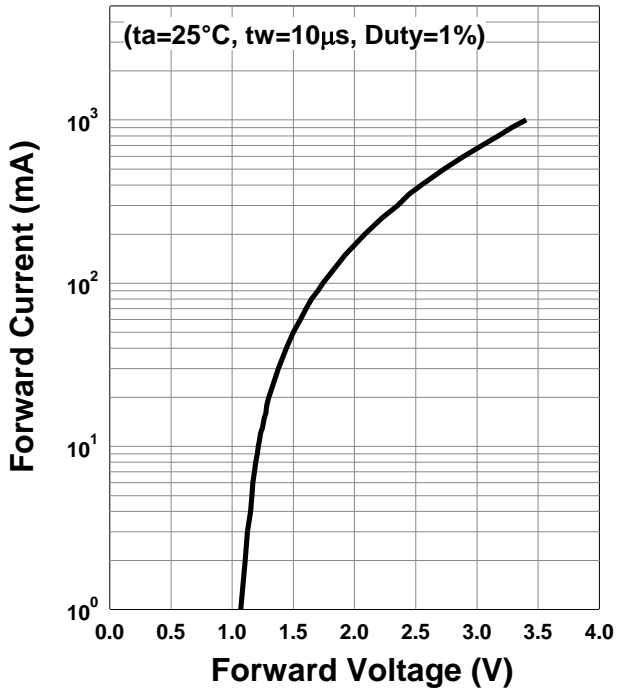
Relative Spectral Emission



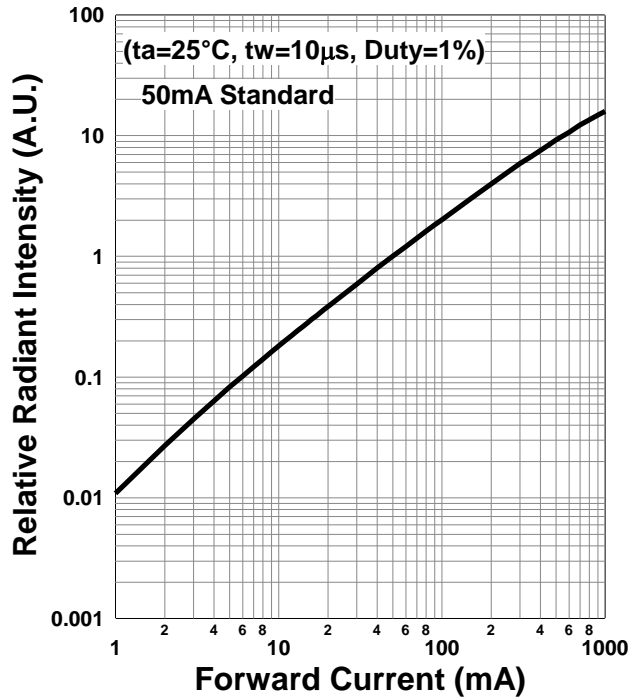
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Typical Characteristic Curves 850nm

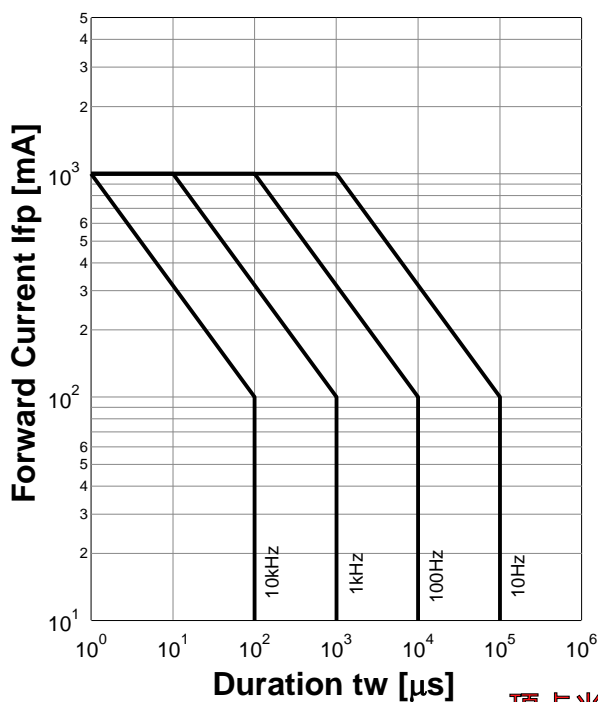
Forward Current - Forward Voltage



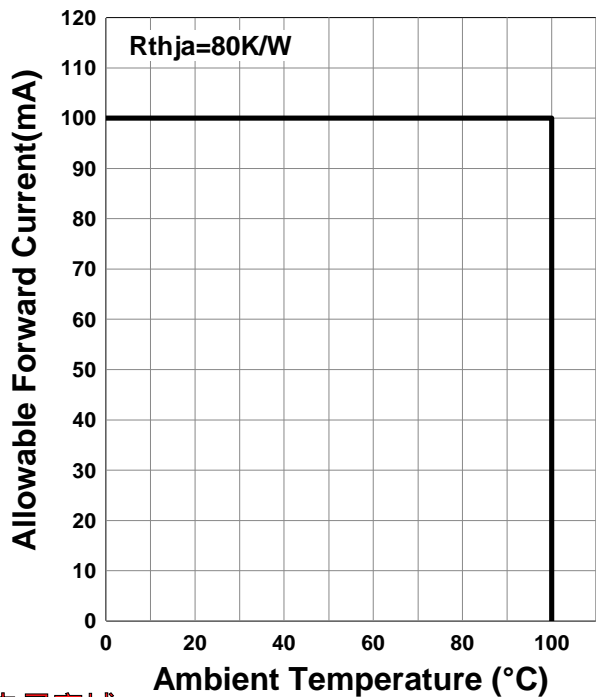
Relative Radiant Intensity - Forward Current



Forward Current - Pulse Duration



Allowable Forward Current - Ambient Temperature

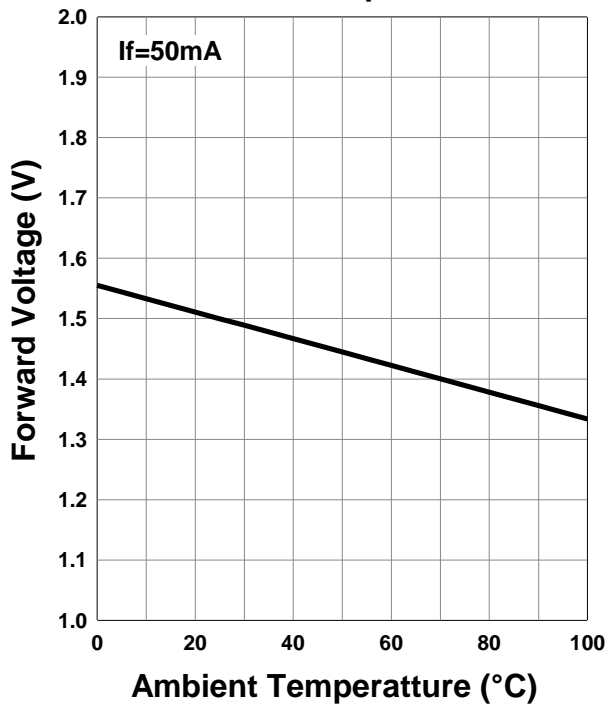


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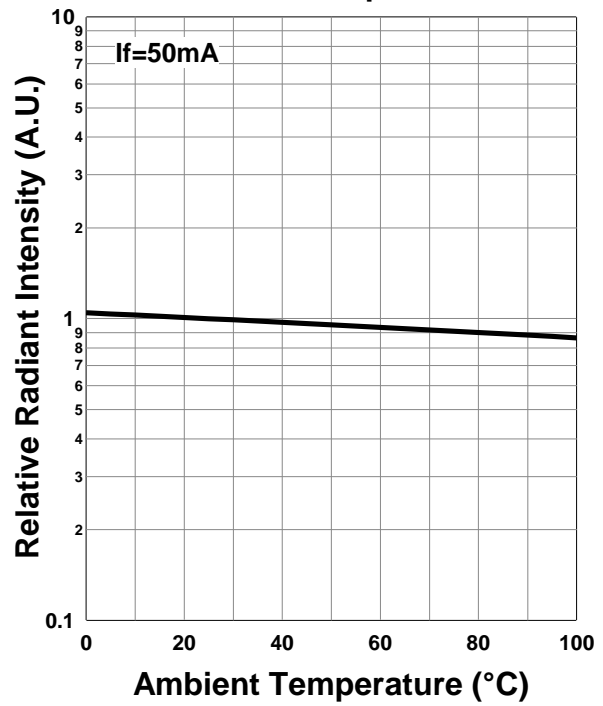
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850nm

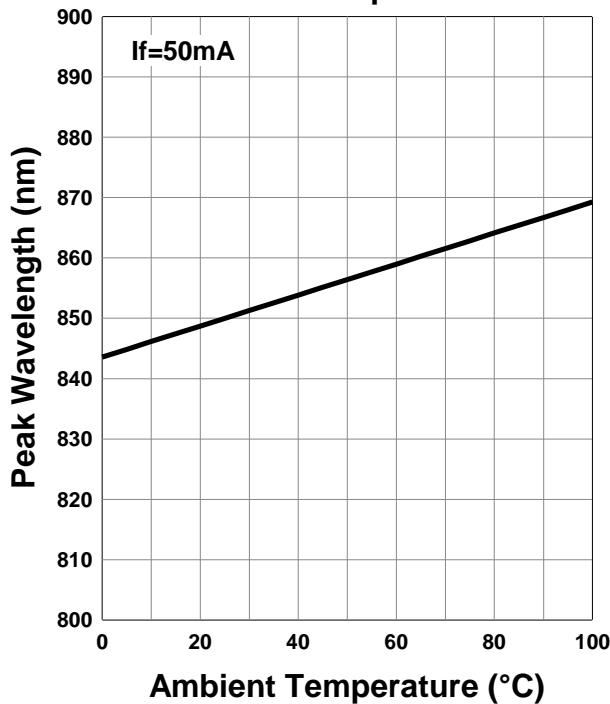
Forward Voltage - Ambient Temperature



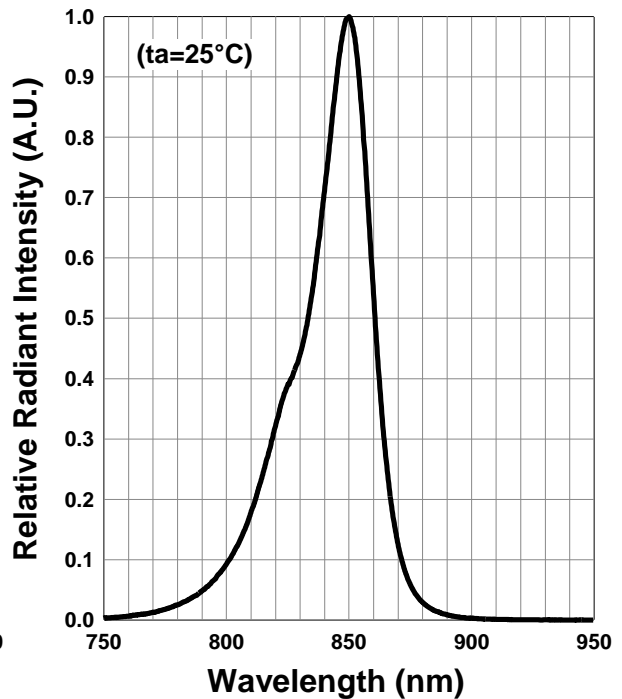
Relative Radiant Intensity - Ambient Temperature



Peak Wavelength - Ambient Temperature



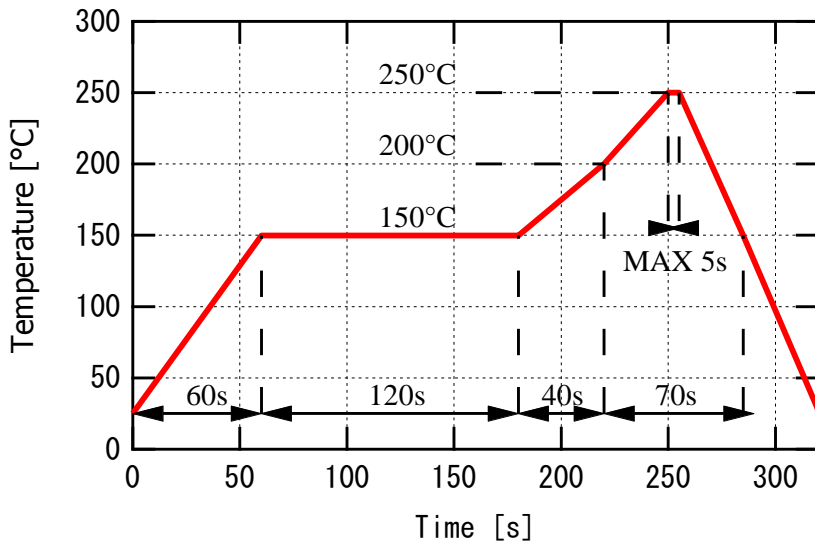
Relative Spectral Emission



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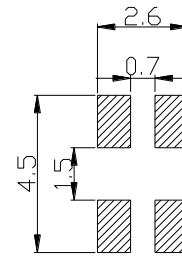
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Recommended reflow soldering profile



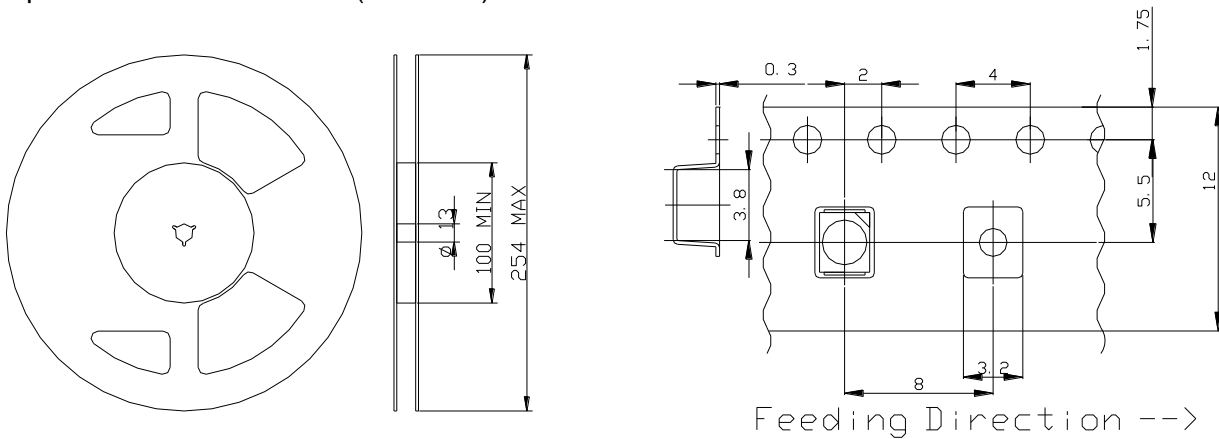
Don't put stress on SMD and a circuit board after soldering

Recommended Land Layout (Unit: mm)



SMD Packing

Tape and Reel Dimensions (Unit: mm)



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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 72 hours in a room with 5 - 30°C, <50%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.
- The 72-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

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.

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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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*Effective June 2015, Epitex Inc. is now Ushio Epitex Inc.