ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44 OFFICE@ROITHNER-LASER.COM

PRELIMINARY

Rev. A2

LED450-03

- Blue LED
- 450 nm, 24 mW
- Chip: InGaN, 350 x 350 µm, 1 pc.
- 5 mm Clear Molding, Epoxy Resin
- Viewing Angle: 18°

RoHS COMPLIANT Pb-Free

Description

LED450-03 contains one InGaN LED chip die with a typical peak wavelength of **450 nm** and radiation power of **24 mW**. It comes in Ø5 mm clear molding package with soldered lead frame (lead free) and lens molded with epoxy resin.

Maximum Ratings (T_{CASE}=25°C)

Parameter	Symbol	Values Min.	Values Max.	Unit
Power Dissipation	P_D		200	mW
Forward Current	I_F		50	mA
Pulse Forward Current *1	I_{FP}		100	mA
Reverse Voltage	V_F		5	V
Thermal Resistance	R_{THJA}		220	K/W
Junction Temperature	T_J		120	°C
Operating Temperature	T_{CASE}	- 40	+ 100	°C
Storage Temperature	T_{STG}	- 40	+ 100	°C
Lead Solder Temperature *2	T_{SLD}		+ 265	°C

*1 *duty=1%, pulse width = 10 µs*
*2 *must be completed within 5 seconds*

Electro-Optical Characteristics (T_{CASE}=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_P	I_F=20mA	440		460	nm
Dominant Wavelength	λ_D	I_F=20mA		455		nm
Half Width	$\Delta\lambda$	I_F=20mA		19		nm
Forward Voltage	V_F V_{FP}	I_F=20mA I_{FP}=100mA		3.0 3.7	4.0	V
Radiated Power *1	P_O	I_F=20mA I_{FP}=100mA	16	24 92		mW
Radiant Intensity *2	I_E	I_F=20mA I_{FP}=100mA		160 610		mW/sr
Luminous Flux	Φ_V	I_F=20mA		850		mlm
Viewing Angle	$2\theta_{1/2}$	I_F=20mA		18		deg.
Rise Time	t_r	I_F=20mA		30		ns
Fall Time	t_f	I_F=20mA		30		ns

*1 *measured by S3584-08*
*2 *measured by CIE127-2007 Condition B*

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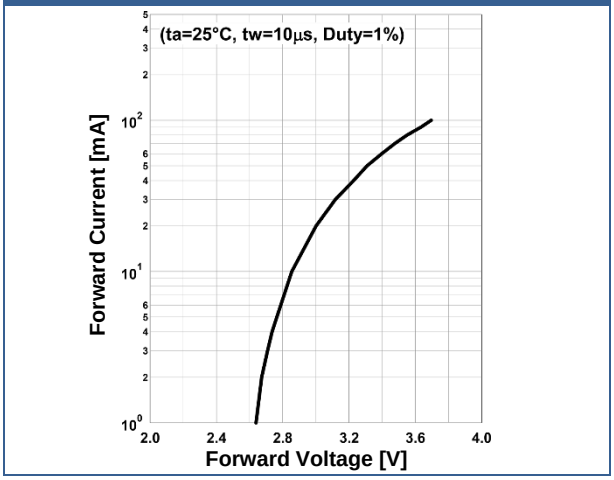
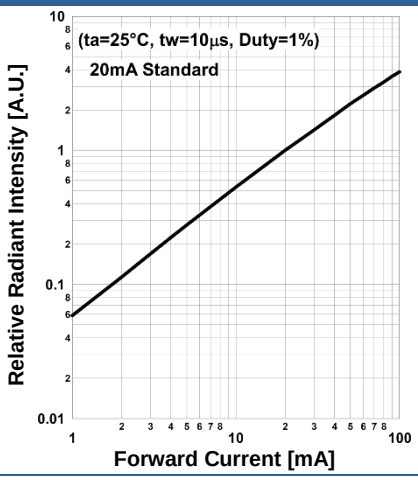
Typical Performance Curves

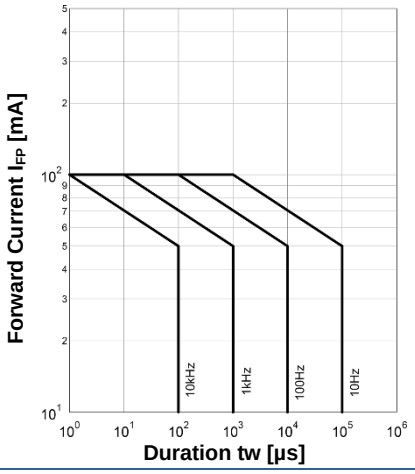
Forward Current vs. Forward Voltage



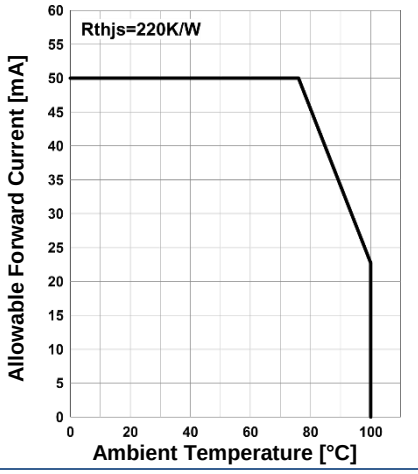
Rel. Radiant Intensity vs. Forward Current



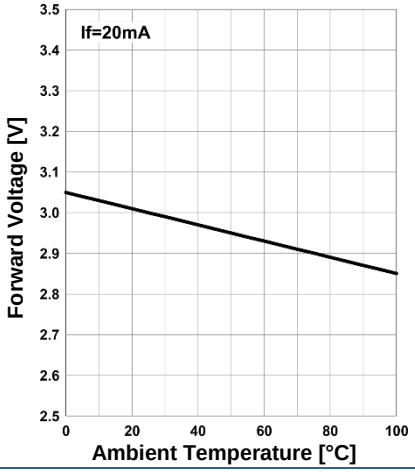
Forward Current vs. Pulse Duration



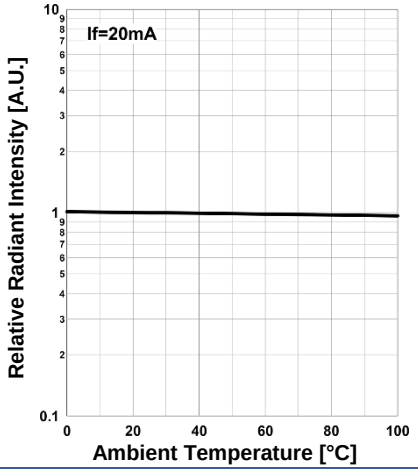
Allowed Forward Current vs. Ambient Temperature



Forward Voltage vs. Ambient Temperature



Rel. Radiant Intensity vs. Ambient Temperature



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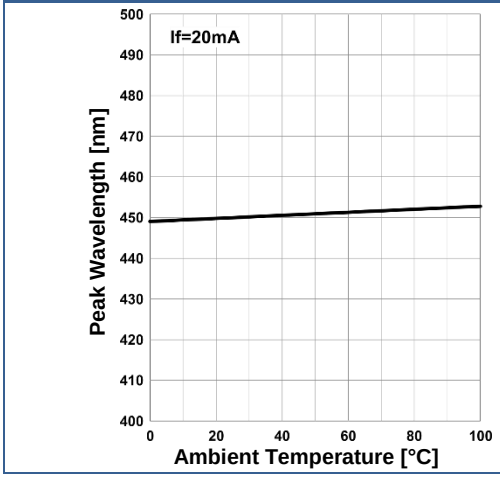
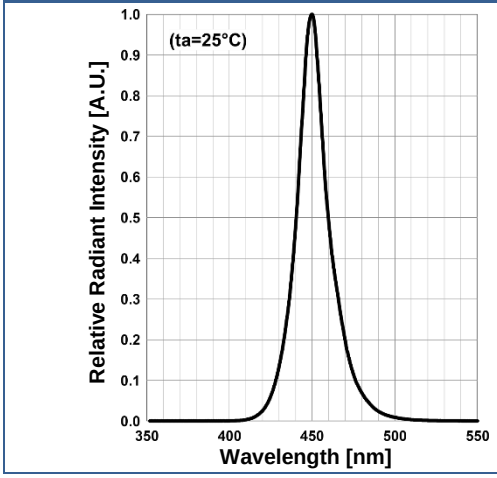
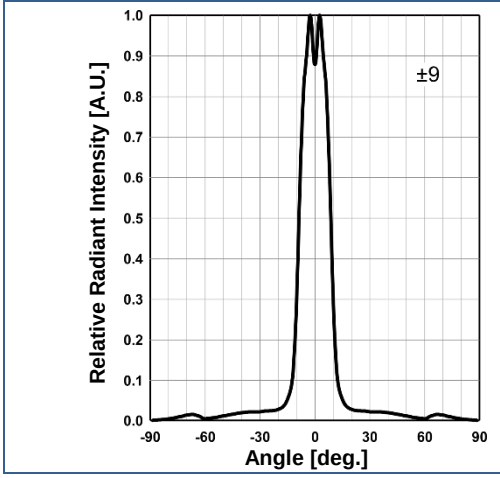
Peak Wavelength vs. Ambient Temperature



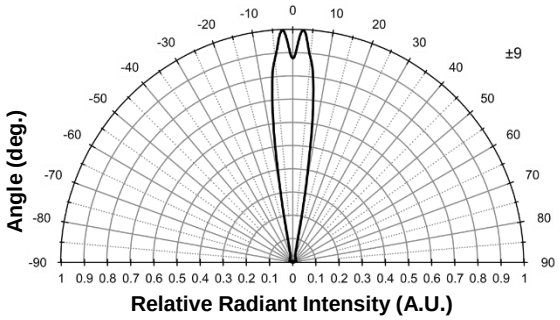
Relative Spectral Emission



Radiation Characteristics

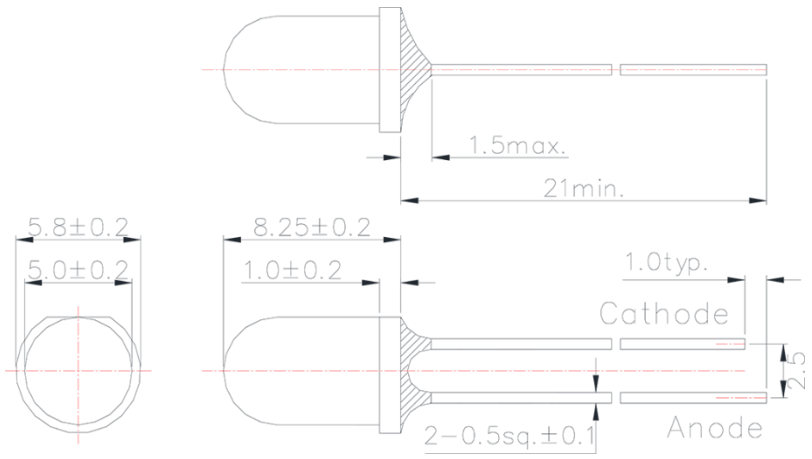


Radiation Characteristics



Outline Dimensions

LED450-03 **5 mm**



Lead	Description
Short Pin	LED Cathode
Long Pin	LED Anode

All Dimensions in mm

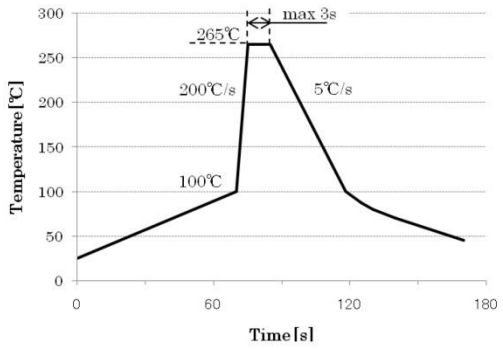
Precautions

Soldering:

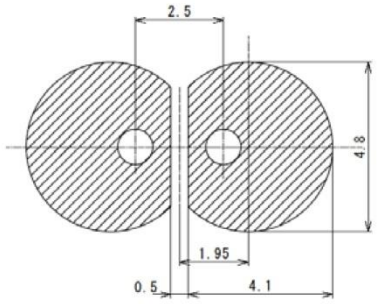
- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux
- Do not apply current to the LED until it has cooled down to room temperature after soldering

Recommended soldering conditions:

Soldering Conditions



Recommended Soldering Patterns



Unit: mm

Above table specifies the maximum allowed duration and temperature during soldering. It is strongly advised to perform soldering at the shortest time and lowest temperature possible.

Cleaning:

Cleaning with isopropyl alcohol, propanol, or ethyl alcohol is recommended
DO NOT USE acetone, chloroseen, trichloroethylene, or MKS
DO NOT USE ultrasonic cleaners

Static Electricity:

LEDs are sensitive to electrostatic discharge (ESD). Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

Radiation:

During operation these LEDs do emit light, which could be hazardous to skin and eyes, and may cause cancer. Do avoid exposure to the emitted light. Protective glasses if needed. It is further advised to attach a warning label on products/systems.

Operation:

Do *only* operate LEDs with a current source.
Running these LEDs from a voltage source will result in complete failure of the device.
Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.

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Revisions History

Rel.	Rel. Date	Chapter	Modification	Page
A2	*2020-08-24*	Maximum Ratings	Included: Thermal Resistance, Junction Temperature T_{CASE}: -40..+100 °C *(previously -30..+85 °C)*	1
		Electro-Optical Characteristics	Δλ: typ. 19 nm *(previously typ. 20 nm)* V_F: typ. 3.0 V *(previously max. 3.4 V)* 2θ1/2: 16° *(previously 20°)* P_O: min. 16 mW / typ. 24 mW *(previously min. -- mW / typ. 20 mW)* t_R: typ. 30 ns *(previously typ. 1000 ns)* t_F: typ. 40 ns *(previously typ. 400 ns)* Included: λ_D , I_E, ΦV, T_R, T_F, V_{FP}, P_O @ I_{FP}, I_E @ I_{FP}	1
		Typical Performance Curves	included	2-3
A1	*2010-05-14*	-	Initial release	-