



03/2018

UVLED-365-750-SMD

- High Power UV LED
- 365 nm, 750 mW
- Ceramic SMD, 6.8 x 6.8 x 1.9 mm
- Viewing angle: 120°



Description

UVLED-365-750-SMD is a surface mount infrared High Power LED with a typical peak wavelength of **365 nm** and radiant intensity of typ. **750 mW**. It comes in ceramic SMD package with silver plated soldering pads (lead free solderable), hard glass window and built-in ESD Protection Device.

Maximum Ratings (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Forward Current	I _F		700	mA
Pulse Forward Current *	I _{FP}		1000	mA
Reverse Current	I _R		85	mA
Power Dissipation	P _D		3.08	W
Operating Temperature	T _{OP}	-10	+85	°C
Storage Temperature	T _{STR}	-40	+100	°C
Junction Temperature	T _J		+130	°C
Soldering Temperature (max. 10s)	T _{SOL}		+260	°C

* pulse width ≤10 ms, duty cycle ≤10 %

Electro-Optical Characteristics (T_{CASE} = 25°C, I_F = 7500mA)

Parameter	Symbol	Values			Unit
		Min.*	Typ.*	Max.*	
Peak Wavelength * ¹	λ _P	360	365	370	nm
Half Width (FWHM)	Δλ		9		nm
Forward Voltage * ²	V _F		3.8		V
Radiant Flux * ³	Φ _e		750		mW
Thermal Resistance	R _{θJS}		4.4	7.3	°C/W

*¹ wavelength measurement tolerance: ± 3 nm

*² forward voltage measurement tolerance: ± 0.05 V

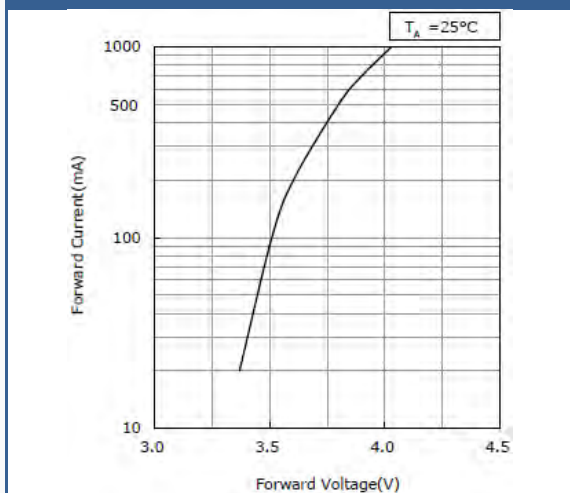
*³ radiant flux measurement tolerance: ± 10 %



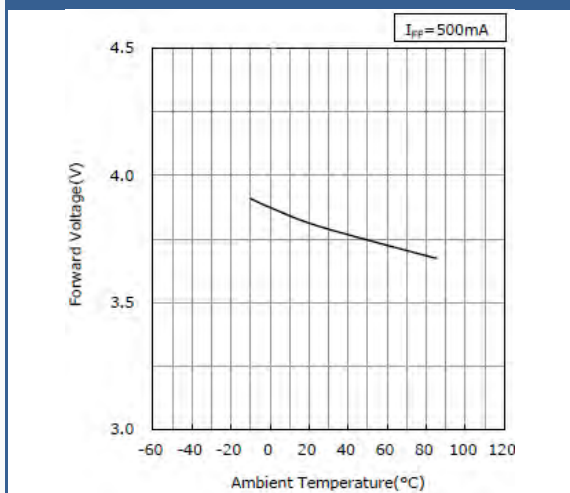


Performance Characteristics

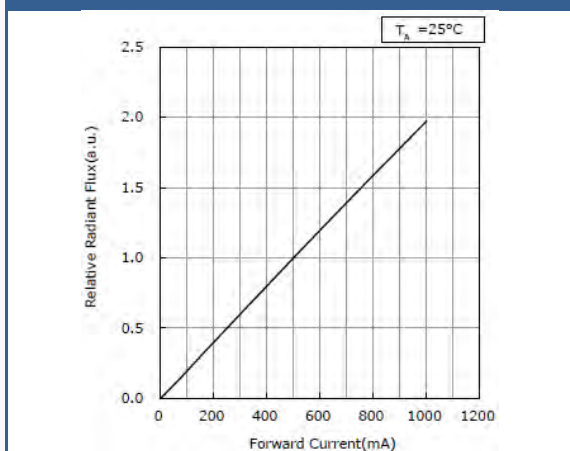
Forward Voltage vs. Forward Current



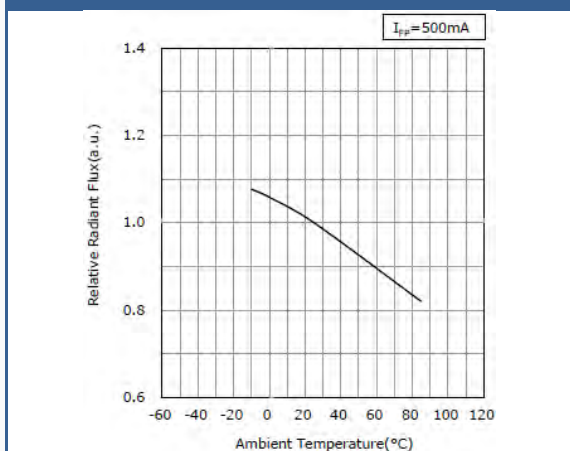
Ambient Temperature vs. Forward Current



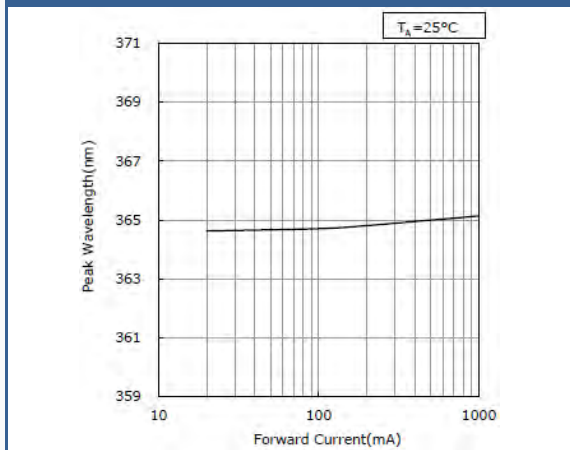
Forward Current vs. Rel. Radiant Flux



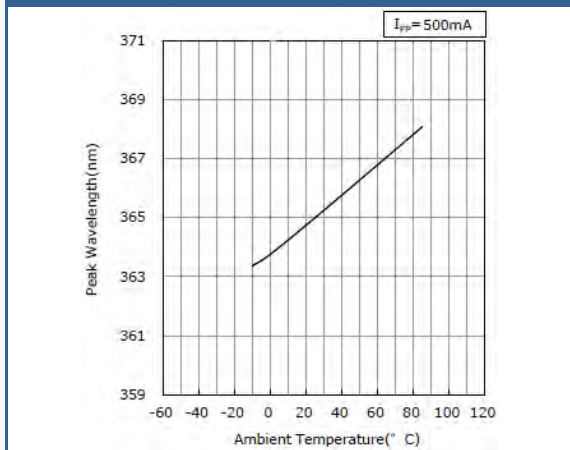
Ambient Temperature vs. Rel. Radiant Flux



Forward Current vs. Peak Wavelength



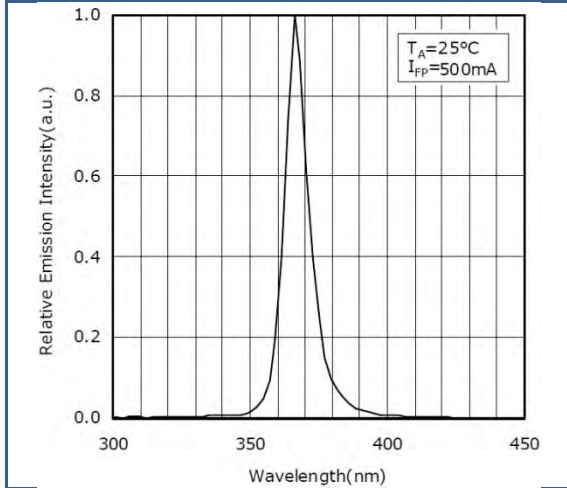
Ambient Temperature vs. Peak Wavelength



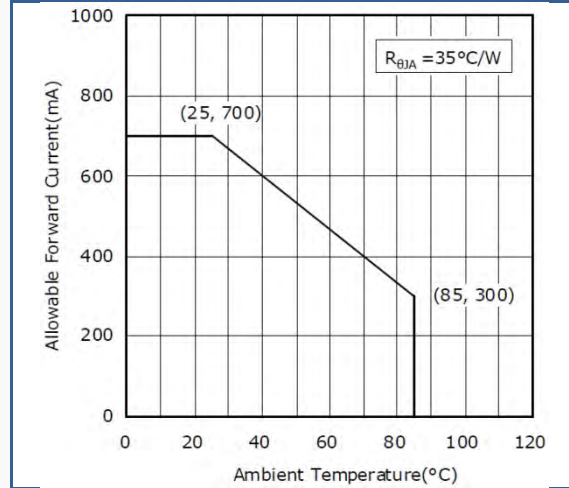


Performance Characteristics

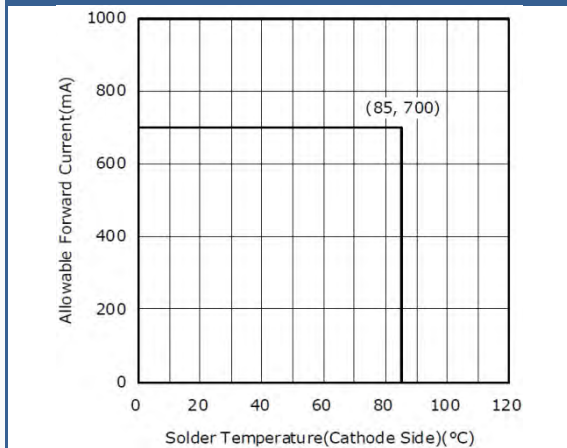
Spectrum



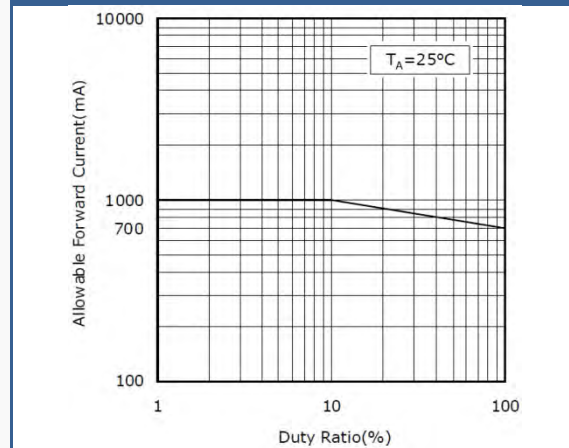
Ambient Temperature vs. Allowable Forward Current



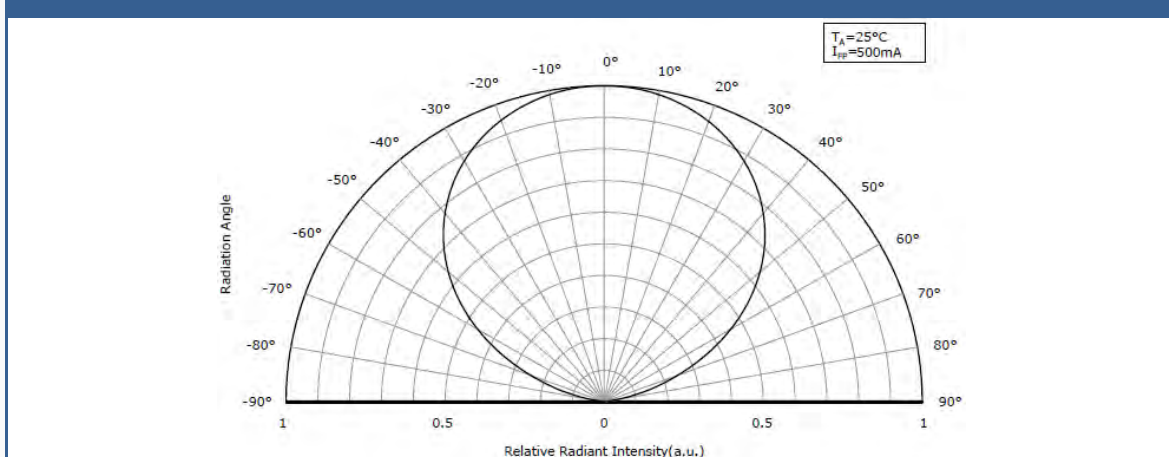
Solder Temperature (Cathode Side) vs. Allowable Forward Current



Duty Ratio vs. Allowable Forward Current



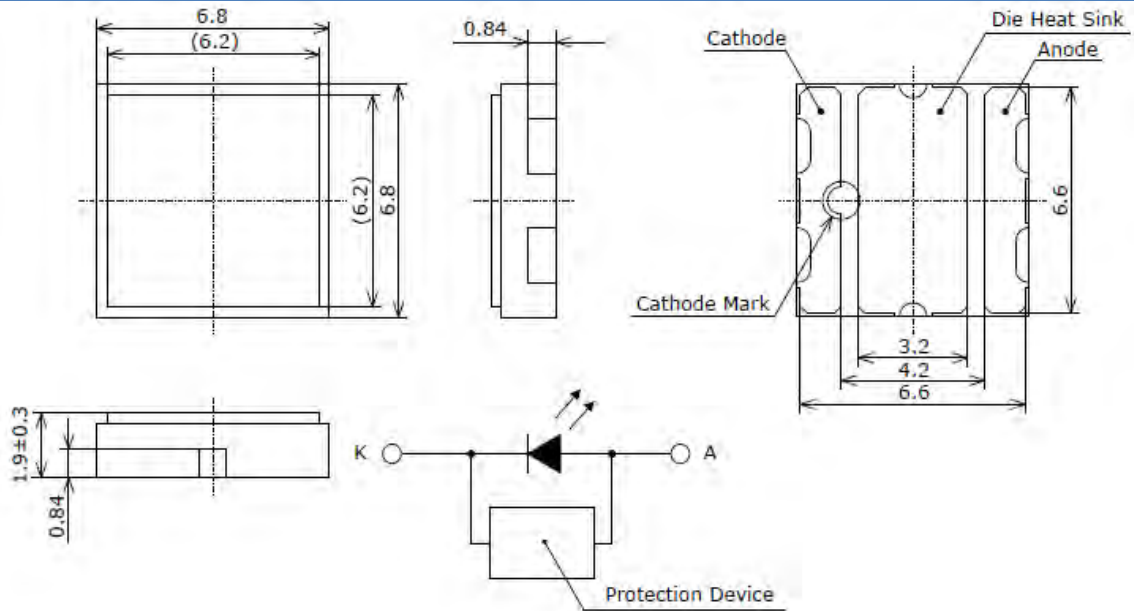
Directivity





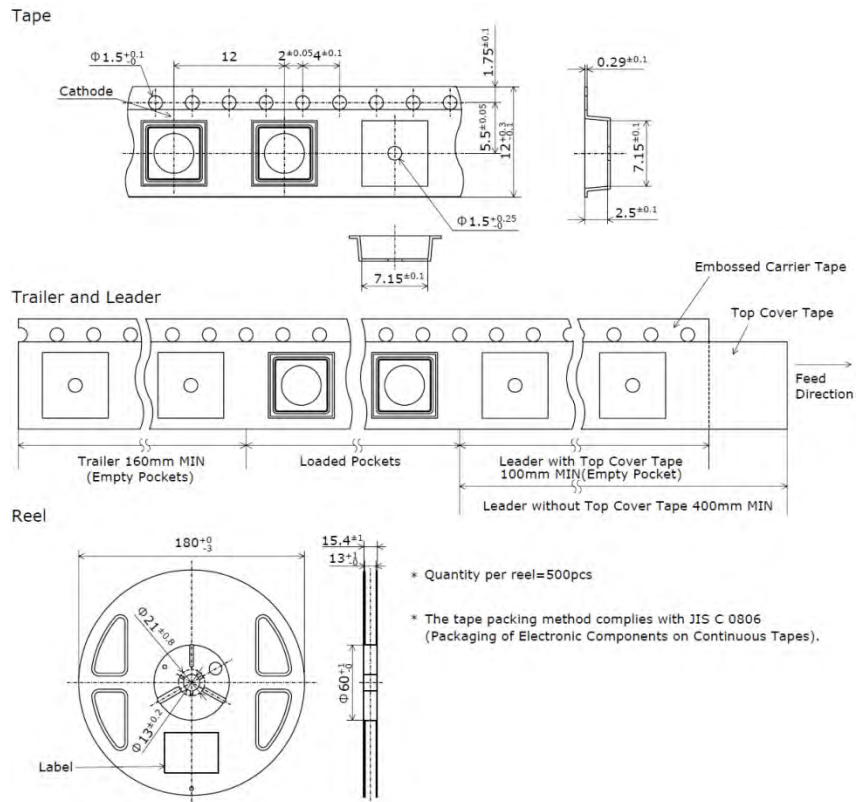
Outline Dimensions

Package



All dimensions in mm, tolerance ± 0.2 mm

Tape And Reel Packaging



All dimensions in mm



Reliability

Test	Reference Standard	Test Conditions	Test Duration	Failure Criteria	Units Failed/Tested
Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701 300 301	T _{SLD} =260°C, 10sec, 2reflows, Precondition: 30°C, 70%RH, 168hr		#1	0/10
Temperature Cycle	JEITA ED-4701 100 105	-40°C(30min) ~ 25°C(5min) ~ 100°C(30min) ~ 25°C(5min)	100 cycles	#1	0/10
High Temperature Storage	JEITA ED-4701 200 201	T _A = 100 °C	1000 hours	#1	0/10
Low Temperature Storage	JEITA ED-4701 200 202	T _A = -40 °C	1000 hours	#1	0/10
Room Temperature Operating Life		T _A = 25 °C, I _F = 700 mA	1000 hours	#1	0/10
High Temperature Operating Life		T _A = 85 °C, I _F = 300 mA	1000 hours	#1	0/10
Temperature Humidity Operating Life		60 °C, RH = 90 %, I _F = 450 mA	500 hours	#1	0/10
Low Temperature Operating Life		T _A = -10 °C, I _F = 500 mA	1000 hours	#1	0/10
Vibration	JEITA ED-4701 400 403	200 m/s ² , 100 ~ 2000 ~ 100 Hz, 4 cycles, 4 min; each X, Y, Z	48 minutes	#1	0/10
Electrostatic Discharges	JEITA ED-4701 300 304	HGM, 2kV, 1.5kΩ, 100 pF, 3pulses, alternately positive or negative		#1	0/10

* R_{θJA} ≈ 35 °C/W

*² Measurements are performed after allowing the LEDs to return to room temperature

Failure Criteria #	Items	Conditions	Failure Criteria
#1	Forward Voltage (V _F)	I _F = 500 mA	> Initial value x 1.1
	Radiant Flux (Φ _e)	I _F = 500 mA	< Initial value x 0.7



Precautions

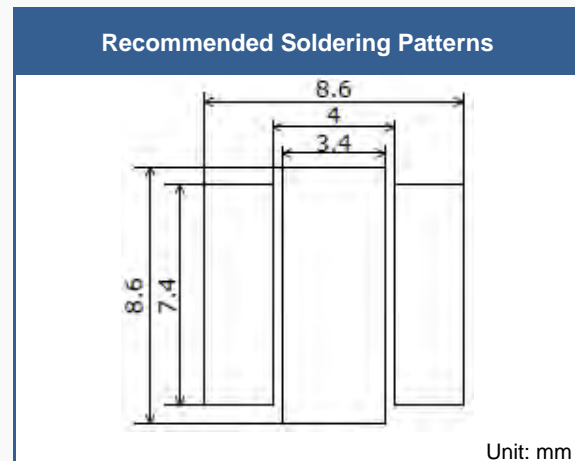
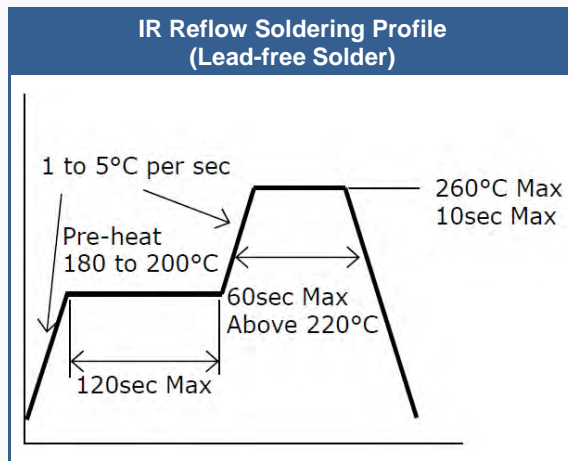
Soldering:

- 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:

This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, its reliability cannot be guaranteed.

Nitrogen reflow soldering is recommended. Air flow soldering conditions can cause optical degradation, caused by heat and/or atmosphere.



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, chloroform, 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 **high intensity light**, which is hazardous to skin and eyes, and may cause cancer. Do avoid exposure to the emitted light. **Protective glasses are recommended.** It is further advised to attach a warning label on products/systems that do utilize UV-LEDs:

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.