



VL415-3-20

- Violet Light Emitting Diode
- 415 nm, 10-16 mW
- Zener Diode, ESD Protective Circuit
- Viewing Angle: 20°
- Package: 3 mm Clear Epoxy



Description



VL415-3-20 is a InGaN based Light Emitting Diode with a typical peak wavelength of **415 nm** and radiation of **10-16 mW**. It is mounted on a lead frame and encapsulated in a 3 mm clear UV-resistant epoxy resin, which provides a viewing angle of 20°.

Maximum Ratings ($T_{CASE}=25^{\circ}C$)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		80	mW
Forward Current	I_F		20	mA
Pulse Forward Current * ¹	I_{FP}		100	mA
Allowable Reverse Voltage	I_R		50	mA
Operating Temperature	T_{CASE}	- 40	+ 85	°C
Storage Temperature	T_{STG}	- 40	+ 100	°C
Lead Solder Temperature * ²	T_{SLD}		+ 250	°C

*¹ duty $\leq 1/10$, pulse width ≤ 10 ms

*² must be completed within 5 seconds

Electro-Optical Characteristics ($T_{CASE}=25^{\circ}C$)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength * ¹	λ_P	$I_F=20mA$	410	415	420	nm
Half Width	$\Delta\lambda$	$I_F=20mA$				nm
Forward Voltage * ²	V_F	$I_F=20mA$	3.2		4.2	V
Radiated Power * ³	P_O	$I_F=20mA$	10		16	mW
Reverse (Leakage) Current	I_R	$V_R=5V$			50	μA
Viewing Angle	φ	$I_F=20mA$		20		deg.

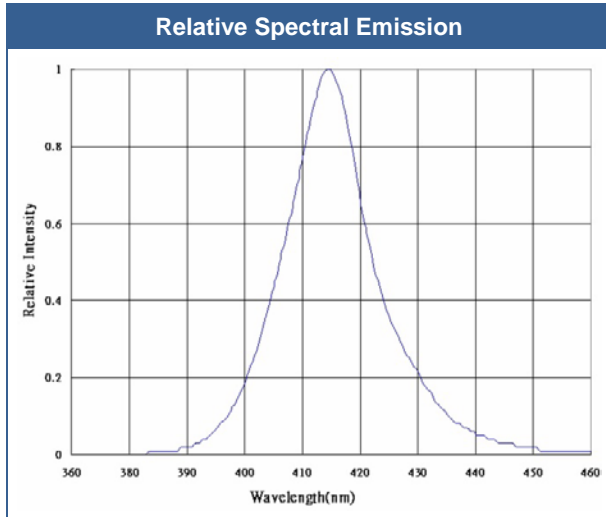
*¹ measurement allowance is ± 2 nm

*² measurement allowance is ± 0.2 V

*³ measurement allowance is ± 10 %



Typical Performance Curves



Outline Dimensions

VL415
5 mm

Anode ● —> Cathode

Item	Material
Die	InGaN based
Zener Diode	Si
Lead Frame	Ag Plating, Iron Alloy
Bonding Wire	Au
Encapsulation	UV-resistant clear epoxy resin

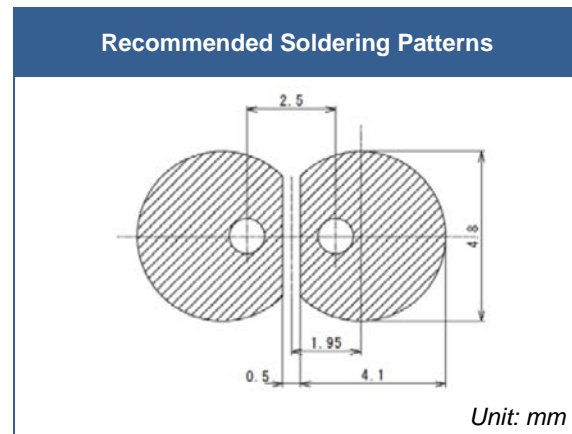
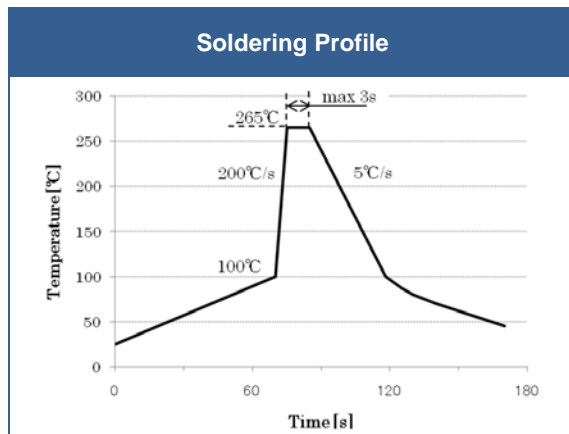
All Dimensions in mm; Tolerance: ± 0.15 mm



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 only cut the leads at room temperature with an ESD protected tool
- Do not solder closer than 3 mm from base of the header
- Do form leads prior to soldering
- Do not impose mechanical stress on the header when forming the leads
- Do not apply current to the LED until it has cooled down to room temperature after soldering



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.

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.