

PRODUCT INFORMATION

850nm

1A458
VCSEL Laser Diode

Industry, Sensors

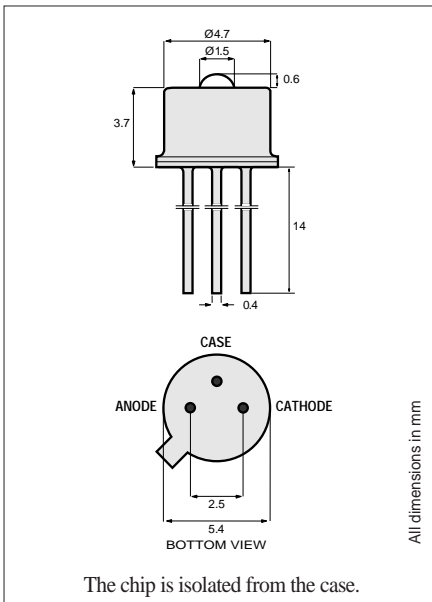
PRELIMINARY/β

This High-Power VCSEL (Vertical Cavity Surface-Emitting Laser) is designed for Industrial and sensors applications. It operates in multiple transverse and single longitudinal mode, ensuring stable output power and low noise. And it matches the 1A354 PIN Photodiode.



Optical and Electrical Characteristics (25°C Case Temperature)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Optical Power	P_O		10		mW	$I_F=70\text{mA}$
Slope Efficiency (dP_O/dI_F)	η		250		mW/A	$I_F=70\text{mA}$
Beam Divergence	θ		15		deg	Full Width at $1/e^2$
Bandwidth (3dB _{el})	f_c		1		GHz	$I_F=70\text{mA}$
Peak Wavelength	λ_p	830	840	860	nm	$I_F=70\text{mA}$
Spectral Width (FWHM)	$\Delta\lambda$		1		nm	$I_F=70\text{mA}$
Forward Voltage	V_F		2.2		V	$I_F=70\text{mA}$
Threshold Current	I_{th}		30	40	mA	

Absolute Maximum Ratings		
PARAMETER	SYMBOL	LIMIT
Storage Temperature	T_{stg}	-55 to +125°C
Operating Temperature	T_{op}	0 to +70°C
Electrical Power Dissipation	P_{tot}	200 mW
Continuous Forward Current ($f \leq 10$ kHz)	I_F	100 mA
Peak Forward Current (duty cycle $\leq 50\%$, $f \geq 1$ MHz)	I_{FRM}	125 mA
Reverse Voltage	V_R	1.5 V
Soldering Temperature (2mm from the case for 10 sec)	T_{sld}	260°C



The chip is isolated from the case.

TO-46 Package With Lens

WARNING: Laser Radiation, avoid exposure to beam. Class 3B laser product, potential eye hazard. Warning labels in each box.

Thermal Characteristics						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Thermal Resistance - Infinite Heat Sink	R_{thjc}		200		°C/W	
Thermal Resistance - No Heat Sink	R_{thja}		500		°C/W	
Temp. Coefficient - Wavelength	$d\lambda/dT_j$		0.06		nm/°C	
Optical Power - Variation 0 to 70°C	ΔP		± 2.7		dB	
Threshold Current - Variation 0 to 70°C	ΔI_{th}		± 5		mA	

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