

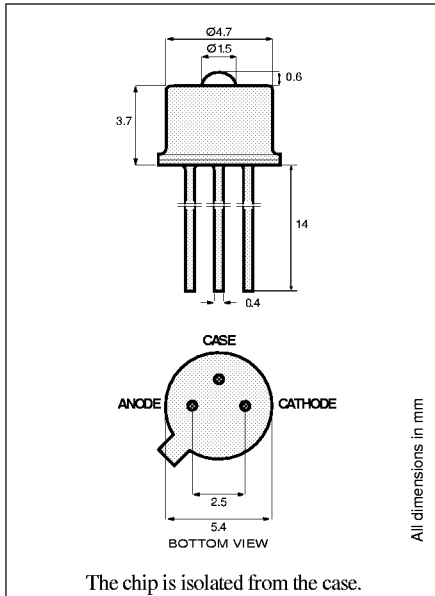
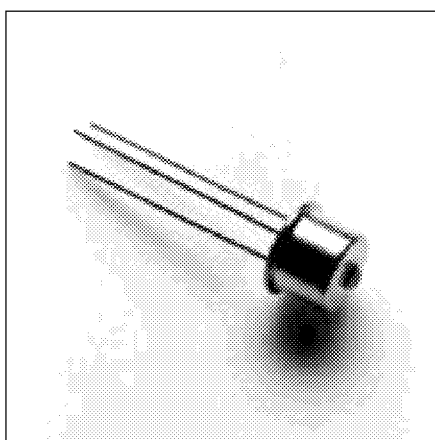
PRODUCT INFORMATION

PRELIMINARY/β

850nm **1A458**
VCSEL Laser Diode

Industry, Sensors

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.



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.

Optical and Electrical Characteristics (25°C Case Temperature)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Optical Power	P_o		10		mW	$I_F=60\text{mA}$
Slope Efficiency (dP_o/dI_F)	η		300		mW/A	$I_F=60\text{mA}$
Beam Divergence	θ		15		deg	Full Width at $1/e^2$
Bandwidth (3dB _{c1})	f_c		1		GHz	$I_F=60\text{mA}$
Peak Wavelength	λ_p	830	840	860	nm	$I_F=60\text{mA}$
Spectral Width (FWHM)	$\Delta\lambda$		1		nm	$I_F=60\text{mA}$
Forward Voltage	V_F		2.2		V	$I_F=60\text{mA}$
Threshold Current	I_{th}		17		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}	170 mW
Continuous Forward Current ($f \leq 10$ kHz)	I_F	70 mA
Peak Forward Current (duty cycle $\leq 50\%$, $f \geq 1$ MHz)	I_{FRM}	100 mA
Reverse Voltage	V_R	1.5 V
Soldering Temperature (2mm from the case for 10 sec)	T_{sld}	260°C

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		3		dB	
Threshold Current - Variation 0 to 70°C	ΔI_{th}		5		mA	

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