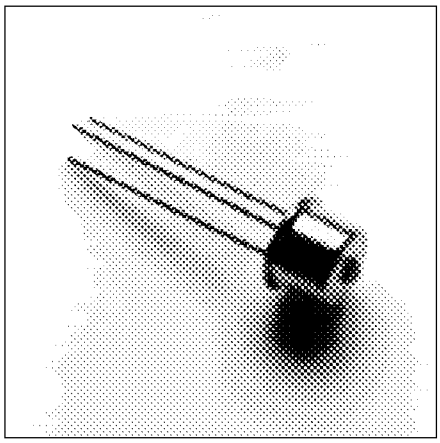
PRODUCT INFORMATION

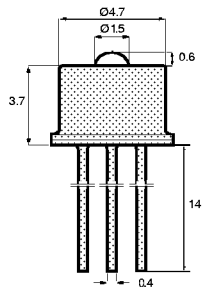
850nm **1A458** VCSEL Laser Diode

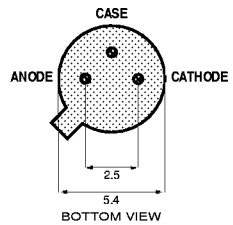
Industry, Sensors

PRELIMINARY/P

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.







All dimensions in mm

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=60mA
Slope Efficiency (dP_o/dI_F)	η		300		mW/A	I_F=60mA
Beam Divergence	Θ		15		deg	Full Width at $1/e^2$
Bandwidth ($3dB_{el}$)	f_c		1		GHz	I_F=60mA
Peak Wavelength	λ_p	830	840	860	nm	I_F=60mA
Spectral Width (FWHM)	$\Delta\lambda$		1		nm	I_F=60mA
Forward Voltage	V_F		2.2		V	I_F=60mA
Threshold Current	I_{th}		17		mA	

Absolute Maximum Ratings

PARAMETER	SYMBOL	LIMIT
Storage Temperature	T_{stg}	-55 to +125°C
Operating Temperature	Top	0 to +70°C
Electrical Power Dissipation	P_{tot}	170 mW
Continuous Forward Current (f≤10 kHz)	I_F	70 mA
Peak Forward Current (duty cycle≤50%, f≥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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