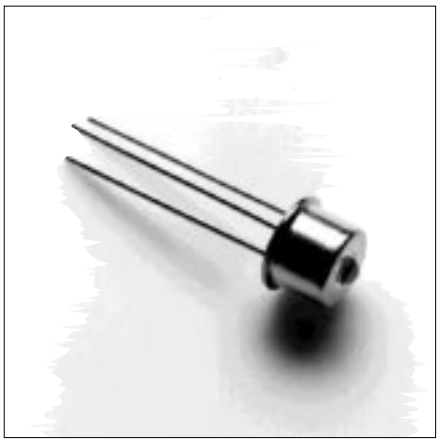
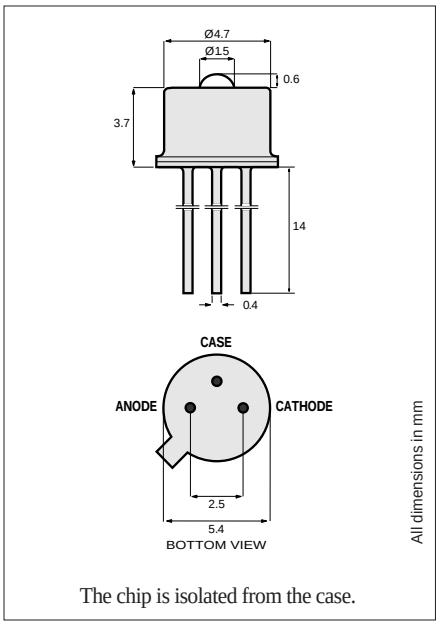
PRODUCT INFORMATION

840nm	**1A448** VCSEL Laser Diode	**Datacom**

This Vertical Cavity Surface-Emitting Laser is designed for Fibre Channel, Gigabit Ethernet and ATM applications. For eye safety, the optical power is attenuated to comply with IEC Laser Class 1 requirements. And it matches the 1A354 PIN Photodiode.





The chip is isolated from the case.

TO-46 Package With Lens

Class 1 Laser Product

Optical and Electrical Characteristics (25° C Case Temperature)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Fiber-Coupled Power 1A448 1A448A	P_{fiber}	 100 160			µW	I_F=12mA (Note 1)
Optical Power	P_o			400	µW	I_F=12mA (Note 2)
Slope Efficiency (dP_o/dI_F)	η		50		mW/A	I_F=12mA
Bandwidth ($3dB_{el}$)	f_c		2		GHz	I_F=12mA
Peak Wavelength	λ_p	830	840	860	nm	I_F=12mA
Spectral Width (FWHM)	$\Delta\lambda$		0.5	1	nm	I_F=12mA
Forward Voltage	V_F		1.9	2.2	V	I_F=12mA
Threshold Current	I_{th}		3.5	6	mA	
Relative Intensity Noise	RIN		-130		dB/Hz	I_F=12mA, f=1 GHz

Note 1: Fiber: 50/125 Graded Index, NA=0.2 or 62.5/125 Graded Index, NA=0.275.

Note 2: Complies with laser Class 1 when operated at max 12 mA; Class 3 above 12 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}	35 mW
Continuous Forward Current (f≤10 kHz)	I_F	15 mA
Peak Forward Current (duty cycle≤50%, f≥1 MHz)	I_{FRM}	25 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}		400		°C/W
Thermal Resistance - No Heat Sink	R_{thja}		700		°C/W
Temp. Coefficient - Wavelength	$d\lambda/dT_j$		0.06		nm/°C
Optical Power - Variation 0 to 70°C	ΔP		±0.7		dB
Threshold Current - Variation 0 to 70°C	ΔI_{th}		±0.6		mA

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