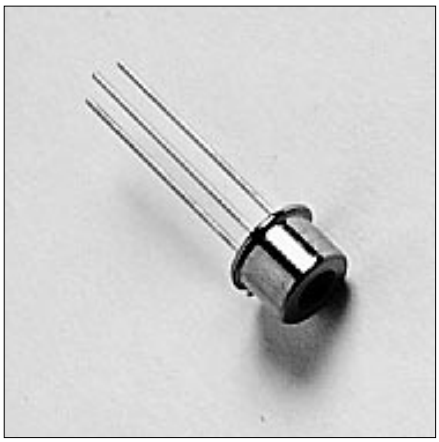
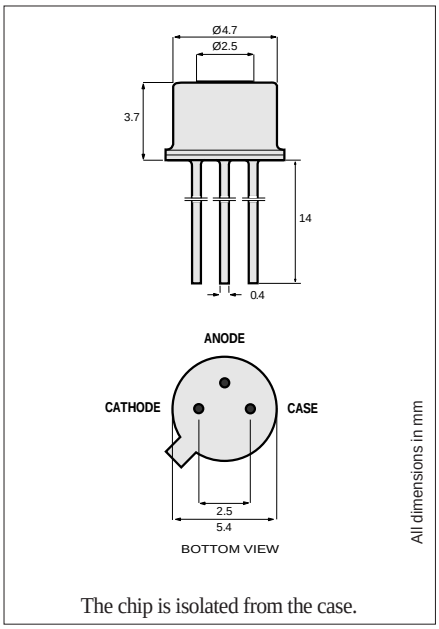
PRODUCT INFORMATION

840nm	**1A440** VCSEL Laser Diode	**Datacom, General Purpose**

This Vertical Cavity Surface-Emitting Laser is designed for Fibre Channel, Gigabit Ethernet, ATM and general applications. It operates in multiple transverse and single longitudinal mode, ensuring stable coupling of power and low noise.





The chip is isolated from the case.

TO-46 Package With Flat Window

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
Fiber-Coupled Power	P_{fiber}		1.3		mW	I_F=12mA (Note 1)
Optical Power	P_o	0.9	1.7	3.0	mW	I_F=12mA
Slope Efficiency (dP_o/dI_F)	η		200		mW/A	I_F=12mA
Beam Divergence	Θ		15		deg	Full Width at $1/e^2$
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. An external glass ball lens with 2 mm diameter is required.

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}	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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MITEL SEMICONDUCTOR

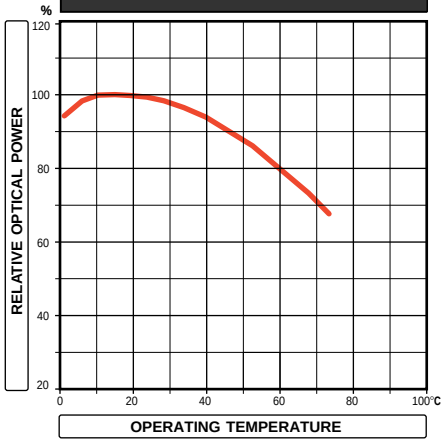
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America: Tel **1-800-96MITEL** Fax **(613) 592-6909**
Asia: Tel **(65) 293 5312** Fax **(65) 293 8527**

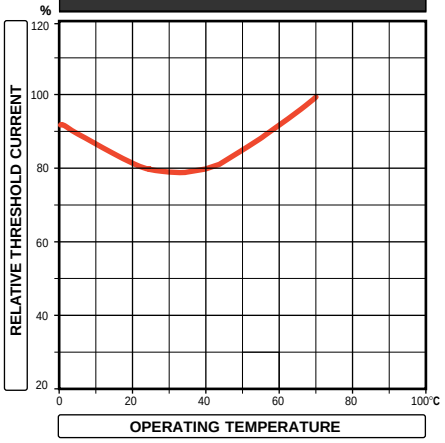
1A440
VCSEL Laser Diode

840nm

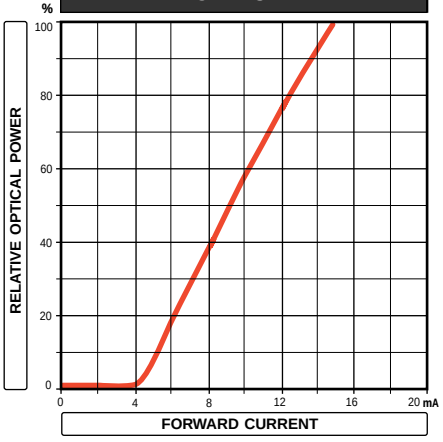
Po vs T



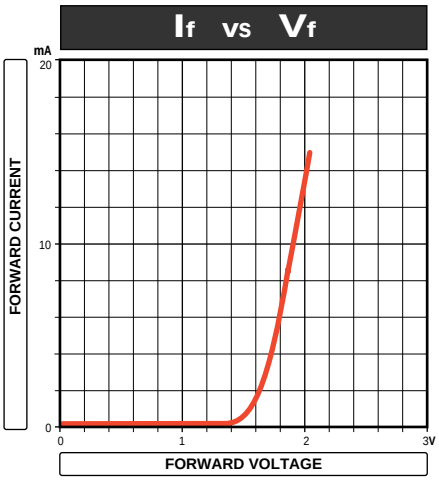
Ith vs T



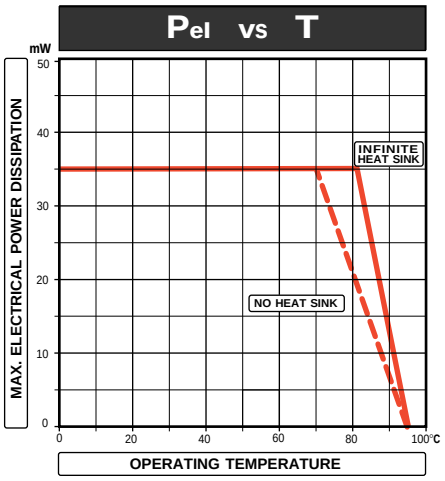
Po vs If



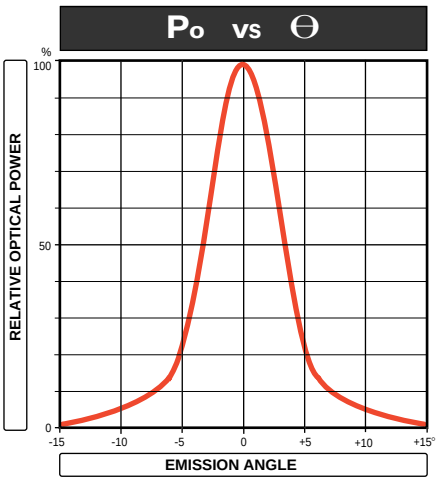
If vs Vf



Pel vs T



Po vs Θ





http://www.mitelsemi.com

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