

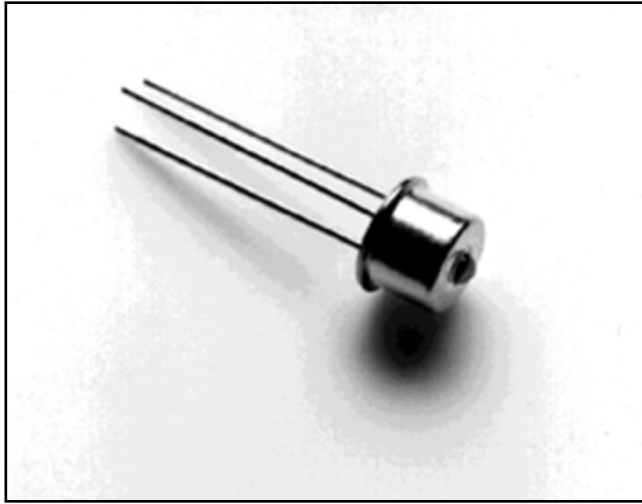


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**TO-46 Package with Lens**

DS5474

ISSUE 1

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### Ordering Information

MF444	13457.11 TO-46 Package
MF444 ST	13511.11 ST Housing
MF444 SC	13459.11 SC Housing
MF444 FC	13536.11 FC Housing

Note: Rated Fiber coupled power apply only on the TO-46 package, for housing options fiber coupled power is typically 10% less

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

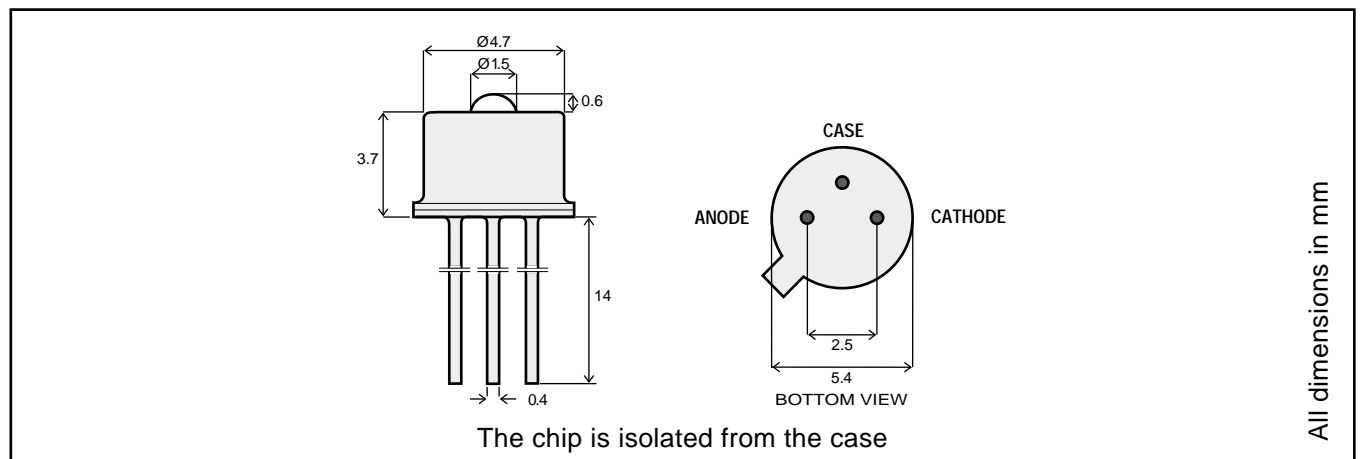
### Description

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

### Optical and Electrical Characteristics - Case Temperature 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Fiber-Coupled Power	$P_{\text{fiber}}$		1.3		mW	$I_F=12\text{mA}$ (Note 1)
Optical Power	$P_o$	0.9	1.7	3.0	mW	$I_F=12\text{mA}$
Slope Efficiency ( $dP_o/dI_F$ )	$\eta$		200		mW/A	$I_F=12\text{mA}$
Bandwidth (3dB <sub>el</sub> )	$f_c$		1.5		GHz	$I_F=12\text{mA}$
Peak Wavelength	$\lambda_p$	830	840	860	nm	$I_F=12\text{mA}$
Spectral Width (FWHM)	$\Delta\lambda$		0.5	1	nm	$I_F=12\text{mA}$
Forward Voltage	$V_F$		1.9	2.2	V	$I_F=12\text{mA}$
Threshold Current	$I_{\text{th}}$		3.5	6	mA	
Relative Intensity Noise	RIN		-130		dB/Hz	$I_F=12\text{mA}$ , $f=1\text{ GHz}$

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



## 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<1- kHz)	$I_F$	15 mA
Peak Forward Current (duty cycle<50%, f>1 MHz)	$I_{FRM}$	25 mA
Reverse Voltage	$V_R$	1.5V
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	$\Delta P$		±0.7		dB
Threshold Current - Variation 0 to 70°C	$\Delta I_{th}$		±0.6		mA

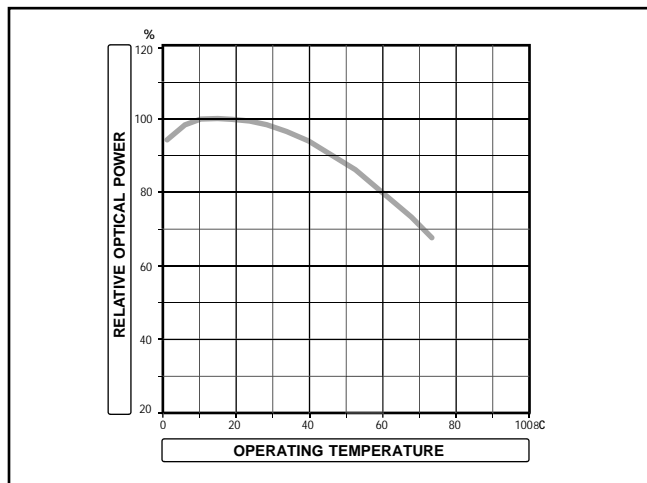


Figure 1

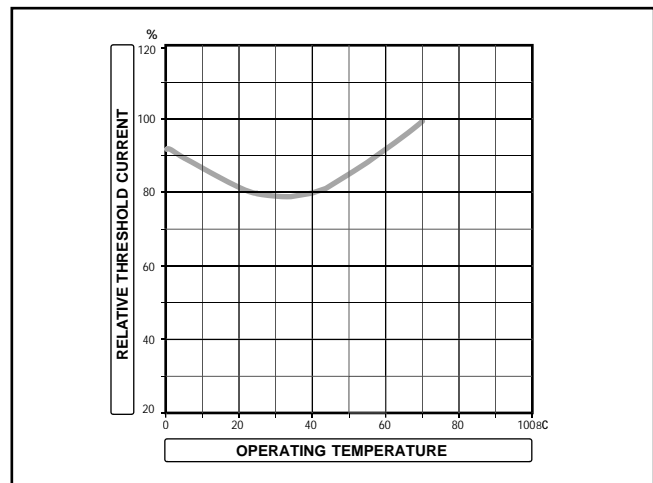


Figure 2

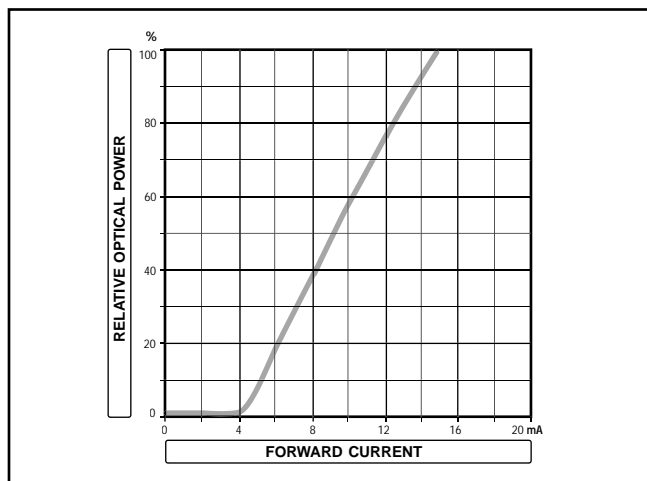


Figure 3

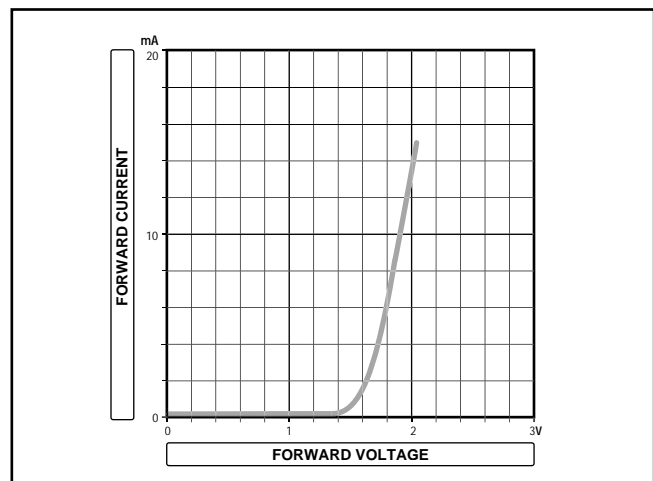


Figure 4

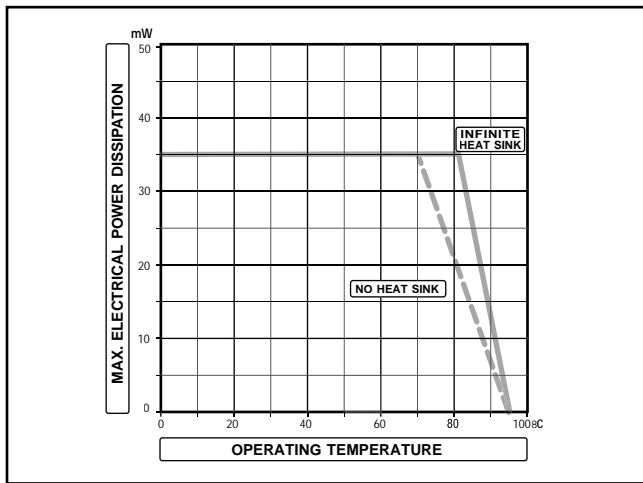


Figure 5

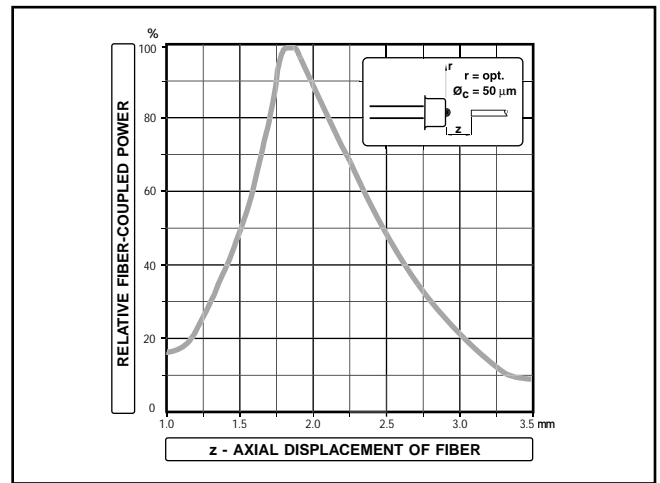


Figure 6

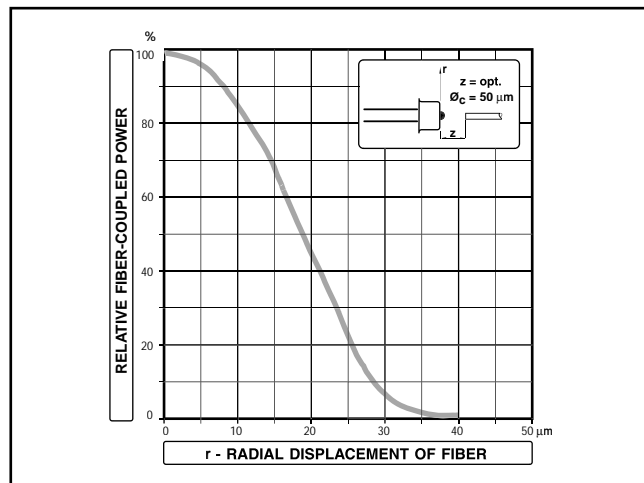


Figure 7



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