

TO-46 Package with Lens

DS5458

ISSUE 1

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### Ordering Information

MF284	12270.11 TO-46 Package
MF284 ST	12287.11 ST Housing
MF284 SMA	13130.13 SMA Housing
MF284 FC	12625.11 FC Housing

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

### Description

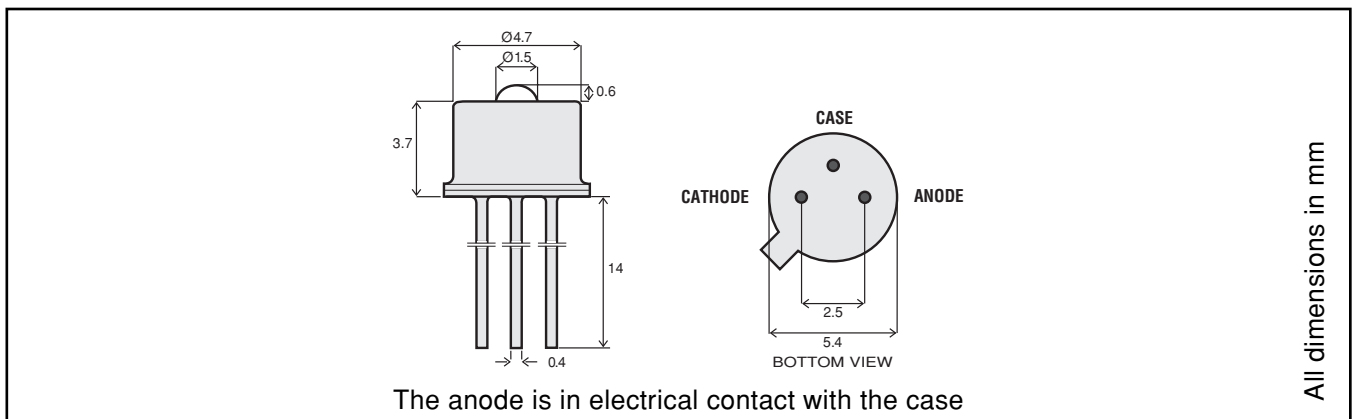
The low thermal droop of this device allows baseband video transmission with minimum distortion. The double-lens optical system provides for optimum coupling of power into the fiber.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition	
Fiber-Coupled Power (Fig. 1,2 & 3) (Table 1)	$P_{\text{fiber}}$	35	50		$\mu\text{W}$	$I_F=100\text{mA}$ (Note 1)	Fiber:
Rise and Fall Time (10-90%)	$t_r, t_f$		6	9	ns	$I_F=100\text{mA}$ (no bias)	62.5/ 125 $\mu\text{m}$ Graded Index NA=0.275
Bandwidth (3dB <sub>el</sub> )	$f_c$		55		MHz	$I_F=100\text{mA}$	
Thermal Droop (non linearity) (Note 2)	$ \Delta\text{PI} $		2		%	$I_F=100\text{mA}$	
Peak Wavelength	$\lambda_p$	1280	1320	1350	nm	$I_F=100\text{mA}$	
Spectral Width (FWHM)	$\Delta\lambda$		120	155	nm	$I_F=100\text{mA}$	
Forward Voltage (Fig. 5)	$V_F$		1.5	2	V	$I_F=100\text{mA}$	
Reverse Current	$I_R$			100	$\mu\text{A}$	$V_R=1\text{V}$	
Capacitance	C		200		pF	$V_R=0\text{V}, f=1\text{MHz}$	

**Note 1: Measured at the exit of 100 meters of fiber**

**Note 2: Transient decling in optical power due to self-heating**



All dimensions in mm

## Absolute Maximum Ratings

Parameter	Symbol	Limit
Storage Temperature	$T_{stg}$	-55 to +125°C
Operating Temperature see (derating: Fig. 4)	$T_{op}$	-40 to +85°C
Electrical Power Dissipation (derating: Fig. 4)	$P_{tot}$	230 mW
Continuous Forward Current (f<10kHz)	$I_F$	110 mA
Peak Forward Current (duty cycle<50%, f>1MHz)	$I_{FRM}$	170 mA
Reverse Voltage	$V_R$	1.5V
Soldering Temperature (2mm from the case for 10sec)	$T_{sld}$	260°C

## Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance-Infinite Heat Sink	$R_{thjc}$			100	°C/W
Thermal Resistance-No Heat Sink	$R_{thja}$			400	°C/W
Temperature Coefficient - Optical Power	$dP/dT_j$		-0.8		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.55		nm/°C

## Typical Fiber-Coupled Power

Core Diameter/Cladding Diameter Numerical Aperture		
50/125 μm 0.20	62.5/125 μm 0.275	100/140 μm 0.29
12μW	50μW	90μW

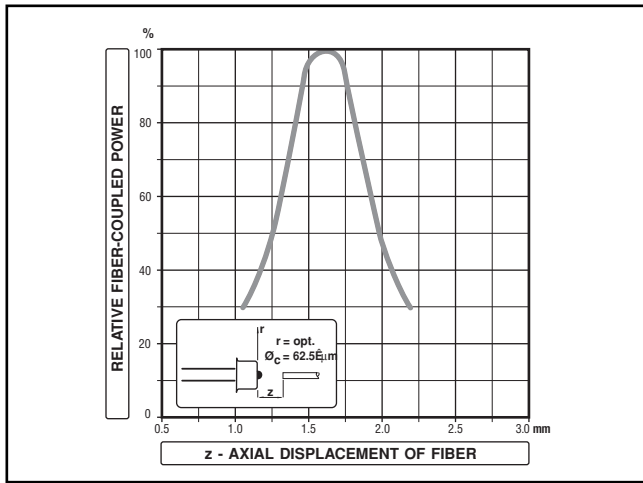


Figure 1

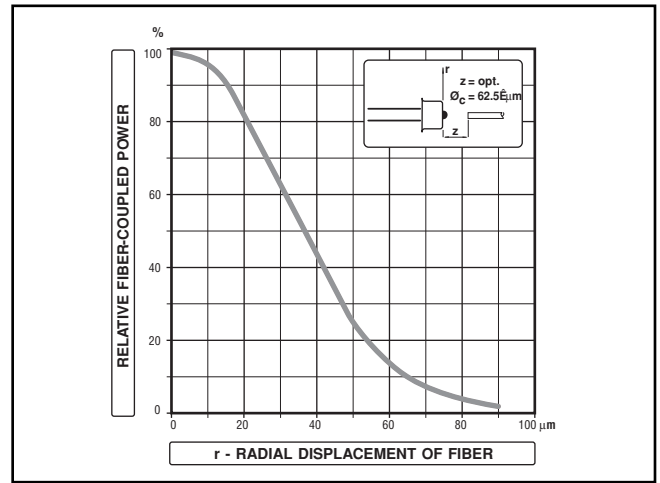


Figure 2

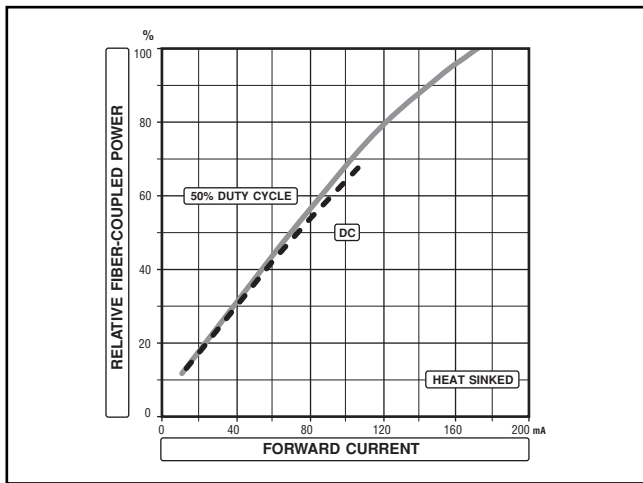


Figure 3

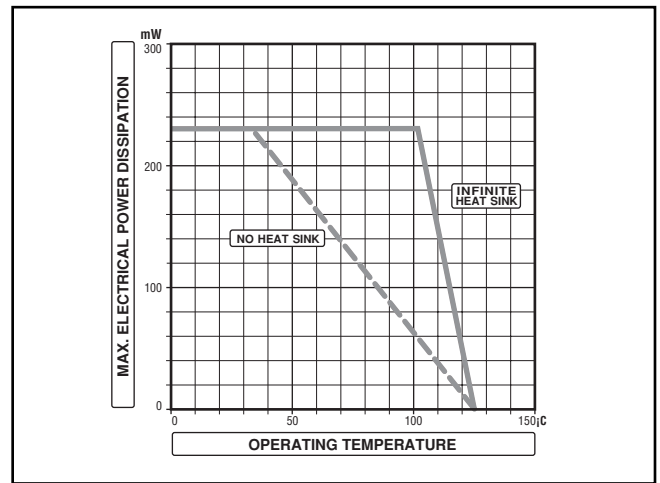


Figure 4

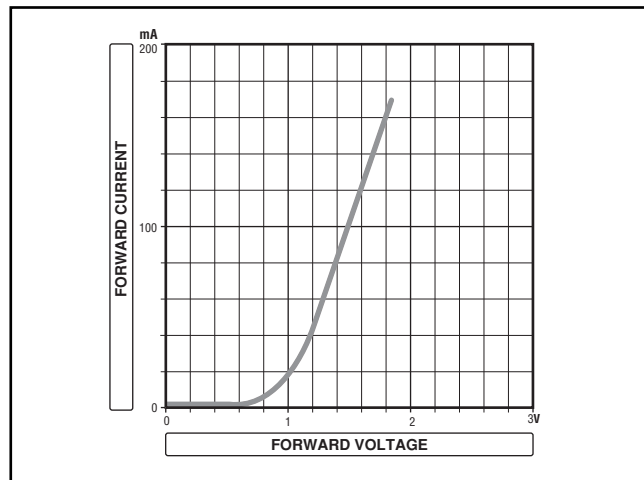


Figure 5



<http://www.zarlink.com>

**World Headquarters - Canada**

Tel: +1 (613) 592 0200

Fax: +1 (613) 592 1010

**North America - West Coast**

Tel: (858) 675-3400

Fax: (858) 675-3450

**North America - East Coast**

Tel: (978) 322-4800

Fax: (978) 322-4888

**Asia/Pacific**

Tel: +65 333 6193

Fax: +65 333 6192

**Europe, Middle East,  
and Africa (EMEA)**

Tel: +44 (0) 1793 518528

Fax: +44 (0) 1793 518581

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