

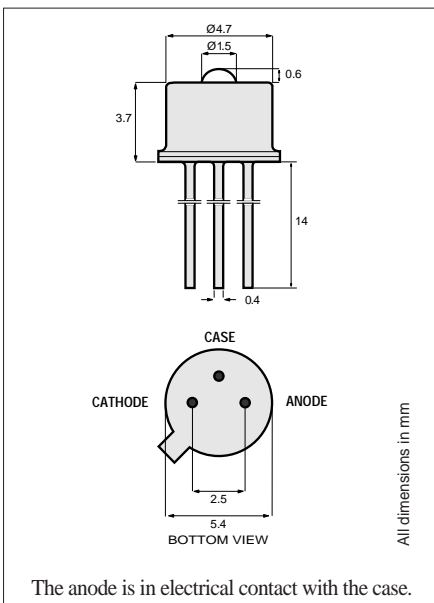
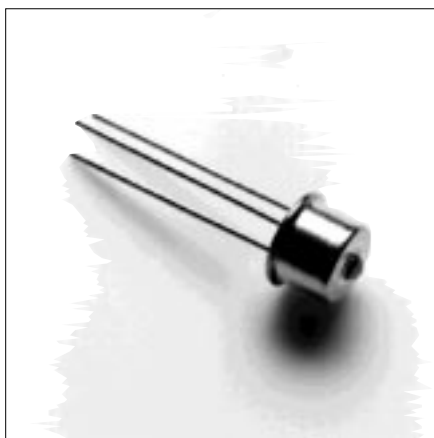
# PRODUCT INFORMATION

840nm

**1A288**  
High-Performance LED

Avionics, Military Datacom

This high speed device is optimized at 810 nm wavelength which is of particular interest for use in radiation-hardened fiber. It operates in a wide temperature range and delivers very high power to 200  $\mu\text{m}$  core fiber, making it ideal in avionics and military datacom applications.



**TO-46 Package With Lens**

## Optical and Electrical Characteristics (25° C Case Temperature)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Fiber-Coupled Power (Fig. 1, 2, & 3) (Table 1)	$P_{\text{fiber}}$	700	850		$\mu\text{W}$	$I_F=100 \text{ mA}$ (Note 1) Fiber: 100/140 $\mu\text{m}$
Rise and Fall Time (10-90%)	$t_r, t_f$		3.5	5	ns	$I_F=100 \text{ mA}$ (no bias) Graded Index NA=0.29
Bandwidth (3dB <sub>el</sub> )	$f_c$		100		MHz	$I_F=100 \text{ mA}$
Peak Wavelength	$\lambda_p$	800	840	880	nm	$I_F=100 \text{ mA}$
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	$I_F=100 \text{ mA}$
Forward Voltage (Fig.5)	$V_F$		2.0	2.4	V	$I_F=100 \text{ mA}$
Reverse Current	$I_R$			20	$\mu\text{A}$	$V_R=1\text{V}$
Capacitance	$C$		250		pF	$V_R=0\text{V}, f=1 \text{ MHz}$

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

## Absolute Maximum Ratings

PARAMETER	SYMBOL	LIMIT
Storage Temperature	$T_{\text{stg}}$	-55 to +125°C
Operating Temperature (derating: Fig.4)	$T_{\text{op}}$	-55 to +125°C
Electrical Power Dissipation (derating: Fig.4)	$P_{\text{tot}}$	250 mW
Continuous Forward Current ( $f \leq 10 \text{ kHz}$ )	$I_F$	110 mA
Peak Forward Current (duty cycle $\leq 50\%$ , $f \geq 1 \text{ MHz}$ )	$I_{\text{FRM}}$	180 mA
Reverse Voltage	$V_R$	1.5 V
Soldering Temperature (2mm from the case for 10sec)	$T_{\text{sld}}$	260°C

## Thermal Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal Resistance - Infinite Heat Sink	$R_{\text{thjc}}$			100	°C/W
Thermal Resistance - No Heat Sink	$R_{\text{thja}}$			400	°C/W
Temperature Coefficient - Optical Power	$dP/dT_j$		-0.4		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.3		nm/°C

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Typical Fiber-Coupled Power		
Core Diameter/Cladding Diameter Numerical Aperture		
50/125 $\mu\text{m}$ 0.20	62.5/125 $\mu\text{m}$ 0.275	100/140 $\mu\text{m}$ 0.29
150 $\mu\text{W}$	400 $\mu\text{W}$	850 $\mu\text{W}$

Table 1

