

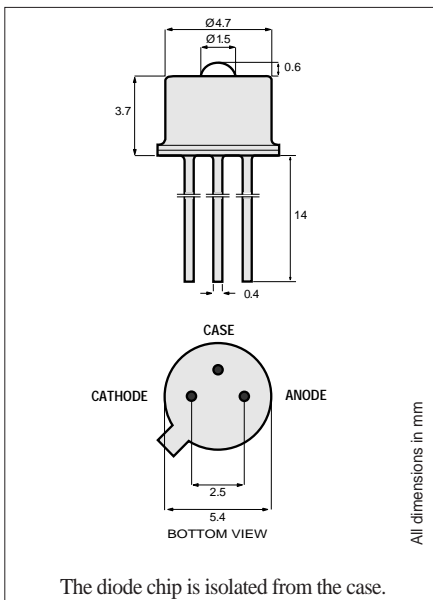
# PRODUCT INFORMATION

840nm

**1A239**  
High-Performance LED

**Datacom, General Purpose**

This device is designed for Ethernet and general applications and offers an excellent price/performance ratio for cost-effective solutions. Since it operates at low drive current, it generates minimal heat — reducing cooling requirements in systems employing large numbers of LEDs.



**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)	$P_{\text{fiber}}$	50	90		$\mu\text{W}$	$I_F=50\text{ mA}$ (Note 1,2) Fiber: 50/125 $\mu\text{m}$
Rise and Fall Time (10-90%)	$t_r, t_f$		7	10	ns	$I_F=50\text{ mA}$ (no bias) Graded Index
Bandwidth (3dB <sub>e</sub> )	$f_c$		50		MHz	$I_F=50\text{ mA}$ NA=0.20
Peak Wavelength	$\lambda_p$	820	840	860	nm	$I_F=50\text{ mA}$
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	$I_F=50\text{ mA}$
Forward Voltage (Fig.5)	$V_F$		1.8	2.0	V	$I_F=50\text{ mA}$
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.

**Note 2:** 1A239A version with Fiber-Coupled Power > 80  $\mu\text{W}$  available on request.

## 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)	$P_{\text{tot}}$	130 mW
Continuous Forward Current ( $f \leq 10\text{ kHz}$ )	$I_F$	60 mA
Peak Forward Current (duty cycle $\leq 50\%$ , $f \geq 1\text{ MHz}$ )	$I_{\text{FRM}}$	100 mA
Reverse Voltage	$V_R$	1.5 V
Soldering Temperature (2mm from the case for 10 sec)	$T_{\text{sld}}$	260°C

## Thermal Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal Resistance - Infinite Heat Sink	$R_{\text{thjc}}$			300	°C/W
Thermal Resistance - No Heat Sink	$R_{\text{thja}}$			600	°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	62/125 $\mu\text{m}$ 0.275	100/140 $\mu\text{m}$ 0.29
90 $\mu\text{W}$	150 $\mu\text{W}$	250 $\mu\text{W}$

Table 1

