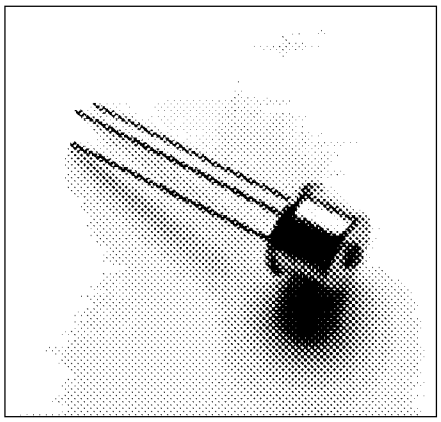
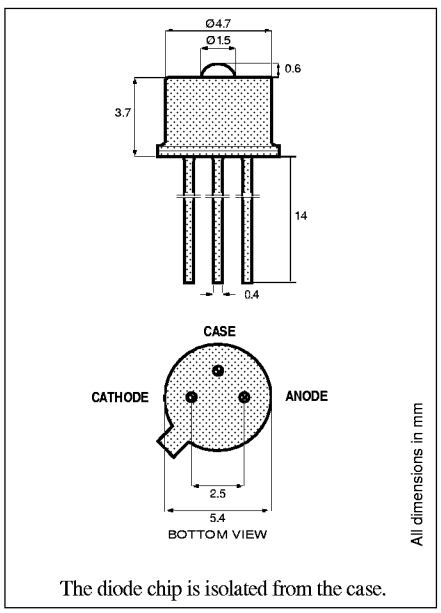
840nm 1A239 High-Performance LED

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.





The diode chip is isolated from the case.

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_{fiber}	50	90		µW	I_F=50 mA (Note 1,2)	Fiber: 50/125µm Graded Index NA=0.20
Rise and Fall Time (10-90%)	t_r, t_f		7	10	ns	I_F=50 mA (no bias)	
Bandwidth ($3dB_{el}$)	f_c		50		MHz	I_F=50 mA	
Peak Wavelength	λ_p	820	840	860	nm	I_F=50 mA	
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	I_F=50 mA	
Forward Voltage (Fig.5)	V_F		1.8	2.0	V	I_F=50 mA	
Reverse Current	I_R			20	µA	V_R=1V	
Capacitance	C		250		pF	V_R=0V, f=1 MHz	

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

Note 2: 1A239A version with Fiber-Coupled Power > 80 µW available on request.

Absolute Maximum Ratings

PARAMETER	SYMBOL	LIMIT
Storage Temperature	T_{stg}	-55 to +125°C
Operating Temperature (derating: Fig.4)	Top	-55 to +125°C
Electrical Power Dissipation (derating: Fig.4)	P_{tot}	130 mW
Continuous Forward Current (f≤10 kHz)	I_F	60 mA
Peak Forward Current (duty cycle≤50%, f≥1 MHz)	I_{FRM}	100 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}			300	°C/W
Thermal Resistance - No Heat Sink	R_{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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Asia: Tel (65) 293 5312 Fax (65) 293 8527

Typical Fiber-Coupled Power		
Core Diameter/Cladding Diameter Numerical Aperture		
50/125 µm 0.20	62/125 µm 0.275	100/140 µm 0.29
90 µW	150 µW	250 µW

Table 1

FIGURE 1

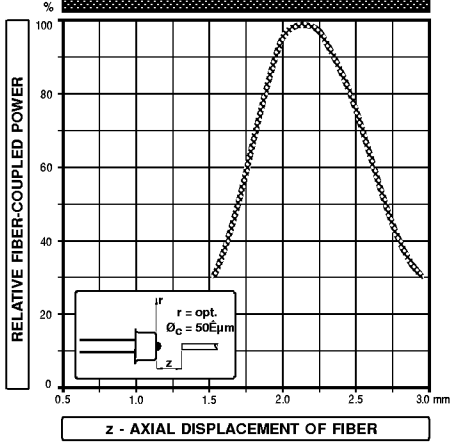

FIGURE 2

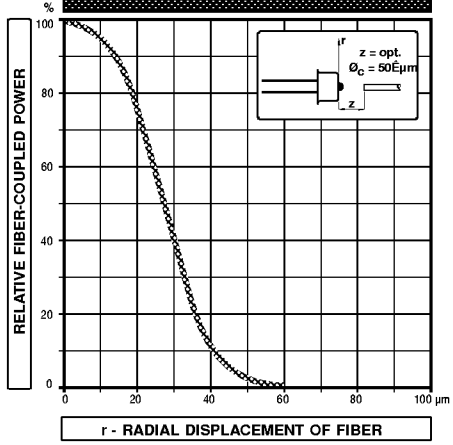

FIGURE 3

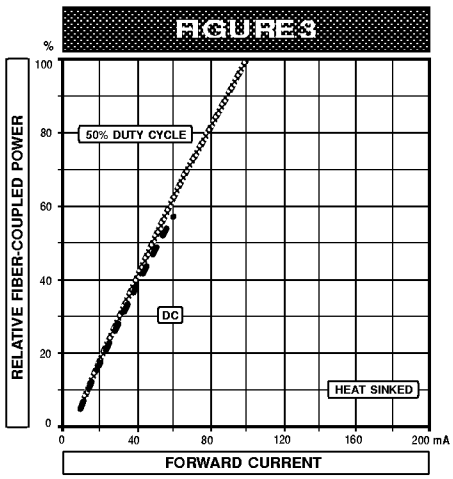

FIGURE 4

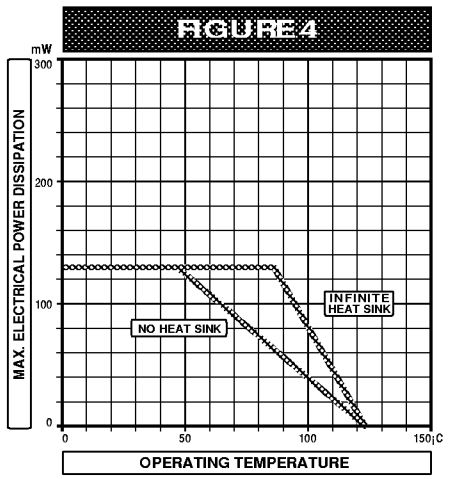

FIGURE 5