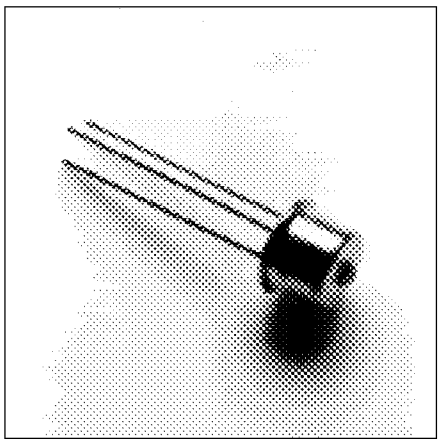
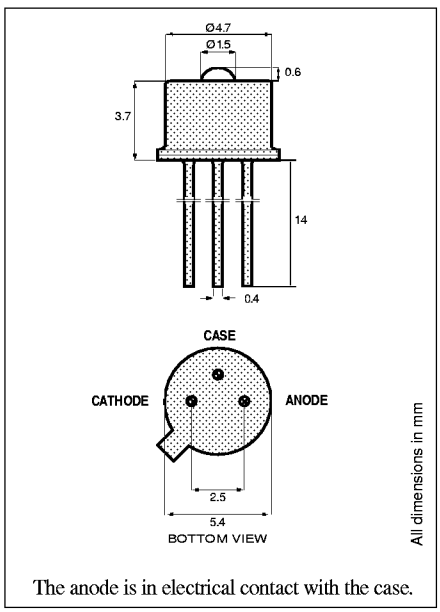
850nm 1A228 High-Performance LED

Electronic Distance Measurement

This device is capable of providing high power into large-core fiber over a wide temperature range. Thanks to its very uniform phase distribution of the optical power, it is ideal for Electronic Distance Measurement equipment.





The anode is in electrical contact with 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}	1000	1200		µW	I_F=100 mA (Note 1) — Fiber: 200/280µm Step Index NA=0.24
Rise and Fall Time (10-90%)	t_r, t_f		7	10	ns	I_F=100 mA (no bias)
Bandwidth ($3dB_{el}$)	f_c		50		MHz	I_F=100 mA
Peak Wavelength	λ_p	830	850	870	nm	I_F=100 mA
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	I_F=100 mA
Forward Voltage (Fig.5)	V_F		1.8	2.2	V	I_F=100 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.

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}	250 mW
Continuous Forward Current (f≤10 kHz)	I_F	110 mA
Peak Forward Current (duty cycle≤50%, f≥1 MHz)	I_{FRM}	180 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}			100	°C/W
Thermal Resistance - No Heat Sink	R_{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 µm 0.20	62.5/125 µm 0.275	100/140 µm 0.29	200/230 µm 0.37	200/280 µm 0.24
60 µW	150 µW	450 µW	1300 µW	1200 µW

Table 1

FIGURE 1

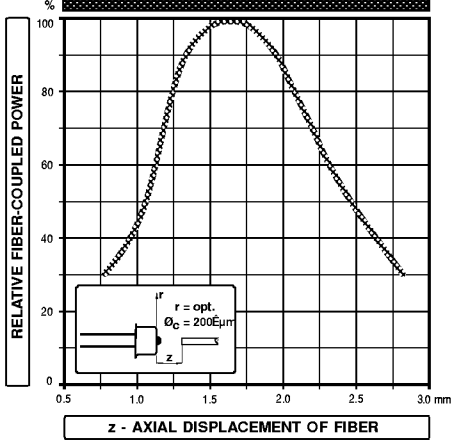

FIGURE 2

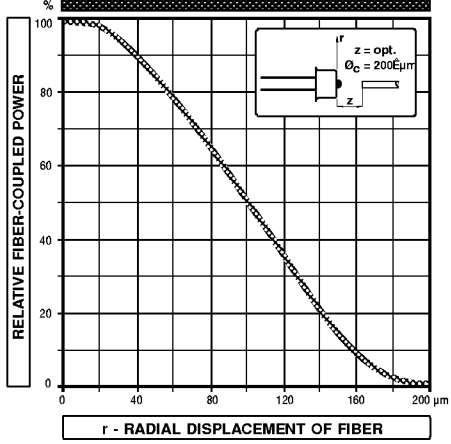

FIGURE 3

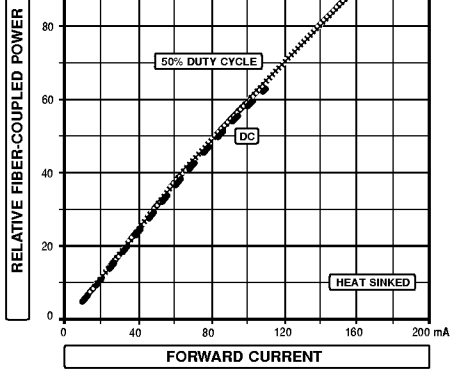

FIGURE 4

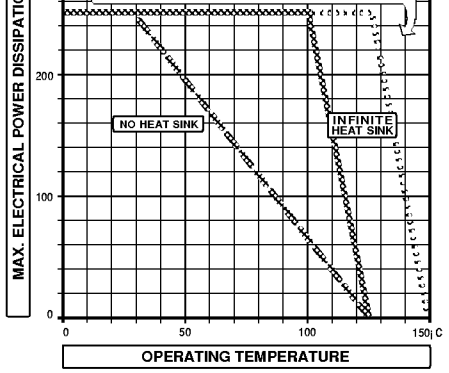

FIGURE 5

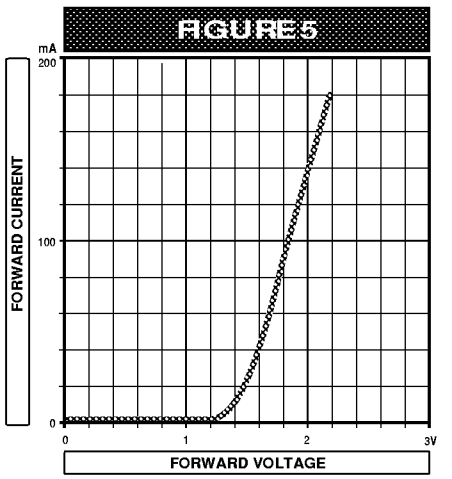

FIGURE 6