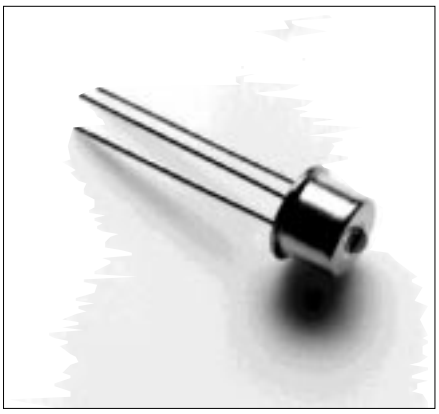
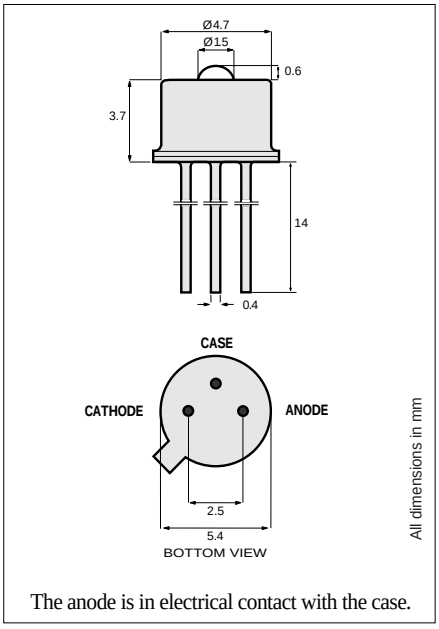
860nm 1A313 High-Performance LED

Power Transmission

This is the ultimate in high power for 850 nm LEDs - making it the device of choice for high power transmission via large core fibers. The hermetically sealed package contributes to its high reliability and the device can withstand the harshest environmental conditions.





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}	5	7		mW	I_F=300 mA (Note 1) (Note 2)	Fiber: 300/330 µm Step Index NA=0.37
Rise and Fall Time (10-90%)	t_r, t_f		4	8	ns	I_F=300 mA (no bias)	
Bandwidth ($3dB_{el}$)	f_c		85		MHz	I_F=300 mA	
Peak Wavelength	λ_p	840	860	880	nm	I_F=100 mA	
Spectral Width (FWHM)	$\Delta\lambda$		40		nm	I_F=100 mA	
Forward Voltage (Fig.5)	V_F		1.9	2.2	V	I_F=300 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: Mounted in a heatsinked metal housing.

Absolute Maximum Ratings

PARAMETER	SYMBOL	LIMIT
Storage Temperature	T_{stg}	-55 to +125°C
Operating Temperature (derating: Fig.4)	T_{op}	-55 to +125°C
Electrical Power Dissipation (derating: Fig.4)	P_{tot}	660 mW
Continuous Forward Current (f 10 kHz)	I_F	300 mA
Peak Forward Repetitive Current (duty cycle 50%)	I_{FRM}	500 mA
Peak Forward Surge Current (100 µs pulse)	I_{FSM}	1000 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}			75	°C/W
Thermal Resistance - In Housing (Note 2)	R_{thja}			150	°C/W
Temperature Coefficient - Optical Power	dP/dT_j		-0.5		%/°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	
200/230 µm 0.37	300/330 µm 0.37
4 mW	7 mW

Table 1

FIGURE 1

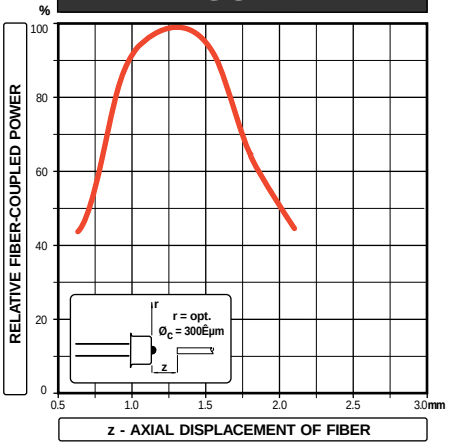

FIGURE 2

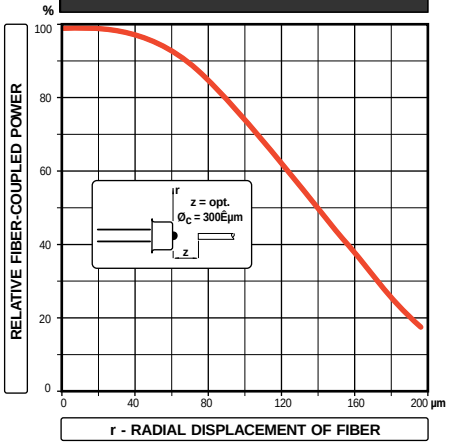

FIGURE 3

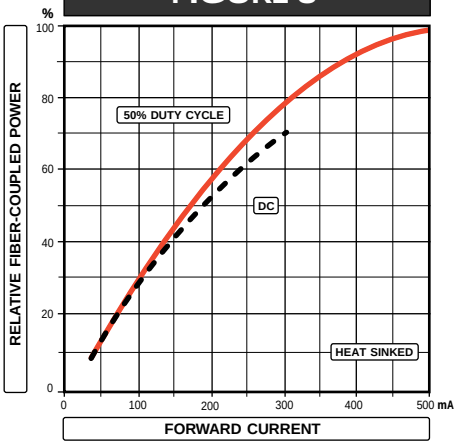

FIGURE 4

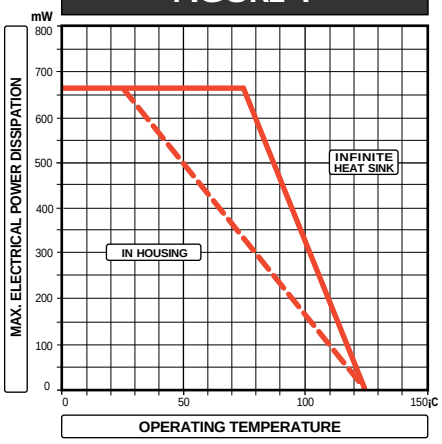

FIGURE 5