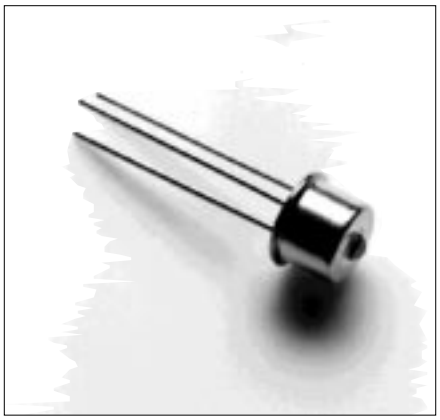
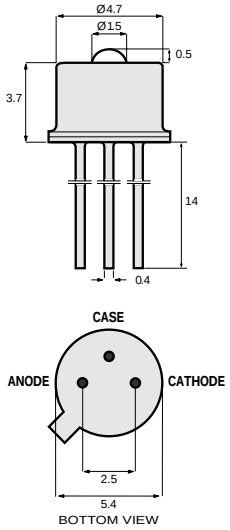
780nm 1A359 High-Performance LED

Baseband Video

The low thermal droop of this device allows baseband video transmission with minimum distortion. The double-lens optical system provides for optimum coupling of power into the fiber. It matches with the 1A354 PIN Photodiode.





All dimensions in mm

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}	80	120		µW	I_F=80 mA (Note 1)	Fiber: 62.5/125µm Graded Index NA=0.275
Rise and Fall Time (10-90%)	t_r, t_f		6	8	ns	I_F=80 mA (no bias)	
Bandwidth ($3dB_{el}$)	f_c		55		MHz	I_F=80 mA	
Thermal Droop (nonlinearity) (Note 2)	$\|\Delta P\|$		2		%	I_F=80 mA	
Peak Wavelength	λ_p	760	780	800	nm	I_F=80 mA	
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	I_F=80 mA	
Forward Voltage (Fig.5)	V_F		2.2	2.4	V	I_F=80 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: Transient decline in optical power due to self-heating.

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}	300 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		-0.5		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.3		nm/°C

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