

# PRODUCT INFORMATION

860nm

**1A314**  
High-Performance LED

Baseband Video

The exceptionally low thermal droop of this device allows baseband video transmission with ultimate quality and minimum distortion. The double-lens optical system provides for optimum coupling of power into the fiber.

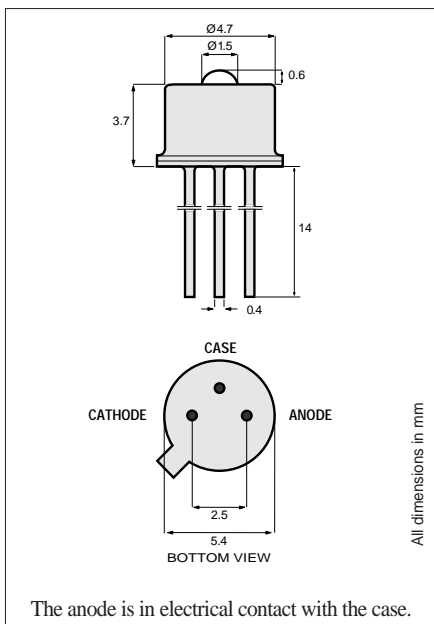


## Optical and Electrical Characteristics (25° C Case Temperature)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Fiber-Coupled Power (Fig. 1, 2, & 3) (Table 1)	$P_{\text{fiber}}$	70	100		$\mu\text{W}$	$I_F=100\text{mA}$ (Note 1)
Rise and Fall Time (10-90%)	$t_r, t_f$		6	8	ns	$I_F=100\text{mA}$ (no bias)
Bandwidth (3dB <sub>el</sub> )	$f_c$		55		MHz	$I_F=100\text{mA}$
Thermal Droop (nonlinearity) (Note 2)	$ \Delta P $		1		%	$I_F=100\text{mA}$
Peak Wavelength	$\lambda_p$	840	860	880	nm	$I_F=100\text{mA}$
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	$I_F=100\text{mA}$
Forward Voltage (Fig.5)	$V_F$		1.6	2	V	$I_F=100\text{mA}$
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:** Transient decline in optical power due to self-heating.



**TO-46 Package With Lens**

## Absolute Maximum Ratings

PARAMETER	SYMBOL	LIMIT
Storage Temperature	$T_{\text{stg}}$	-55 to +125°C
Operating Temperature	$T_{\text{op}}$	-55 to +125°C
Electrical Power Dissipation	$P_{\text{tot}}$	250 mW
Continuous Forward Current ( $\leq 10\text{kHz}$ )	$I_F$	110 mA
Peak Forward Current (duty cycle $\leq 50\%$ , $f \geq 1\text{MHz}$ )	$I_{\text{FRM}}$	180 mA
Reverse Voltage	$V_R$	1.5 V
Soldering Temperature (2mm from the case for 10 sec)	$T_{\text{slid}}$	260°C

## Thermal Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal Resistance - Infinite Heat Sink	$R_{\text{thjc}}$			100	°C/W
Thermal Resistance - No Heat Sink	$R_{\text{thja}}$			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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Typical Fiber-Coupled Power			
Core Diameter/Cladding Diameter Numerical Aperture			
50/125 $\mu\text{m}$ 0.20	62.5/125 $\mu\text{m}$ 0.275	100/140 $\mu\text{m}$ 0.29	200/230 $\mu\text{m}$ 0.37
40 $\mu\text{W}$	100 $\mu\text{W}$	250 $\mu\text{W}$	400 $\mu\text{W}$

Table 1

