

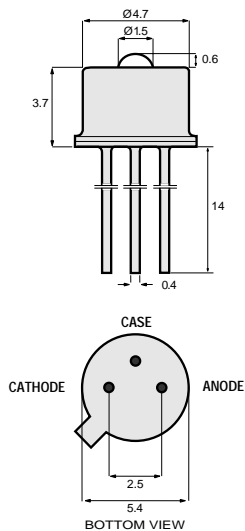
PRODUCT INFORMATION

880nm

1A212
High-Performance DUPLEX

Half-Duplex Communication

This single-chip device operates as both an Emitter and Detector, and transmits data over a single fiber in half-duplex mode — thus reducing both fiber and component costs when compared with traditional approaches.



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	
EMITTING MODE	Fiber-Coupled Power (Fig. 1,2,&3) (Table 1)	P_{fiber}	25	55		μW	$I_F=60\text{ mA}$ (Note 1)	Fiber: 50/125 μm
	Rise and Fall Time (10-90%)	t_r, t_f		7	10	ns	$I_F=60\text{ mA}$ (no bias)	Graded Index
	Bandwidth (3 dB $_{\text{el}}$)	f_c		50		MHz	$I_F=60\text{ mA}$	NA=0.20
	Peak Wavelength	λ_p	870	880	890	nm	$I_F=60\text{ mA}$	
	Spectral Width (FWHM)	$\Delta\lambda$		50		nm	$I_F=60\text{ mA}$	
	Forward Voltage (Fig.5)	V_F		1.7	1.9	V	$I_F=60\text{ mA}$	
RECEIVING MODE	Responsivity (Fig. 6,7,&8) (Table 2)	R	0.10	0.15		A/W	$V_R=1\text{ V}$ $\lambda=880\text{ nm}$	Fiber: 50/125 μm
	Rise and Fall Time (10-90%)	t_r, t_f		7	10	ns	$V_R=1\text{ V}$ $R_L=50\Omega$ (no bias)	Graded Index
	Bandwidth	f_c		50		MHz	$V_R=1\text{ V}$ $R_L=50\Omega$	NA=0.20
	Capacitance	C		30		pF	$V_R=1\text{ V}, f=1\text{ MHz}$	
	Dark Current	I_d		5	10	nA	$V_R=1\text{ V}$	

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)	T_{op}	-55 to +125°C
Electrical Power Dissipation (derating: Fig.4)	P_{tot}	160 mW
Continuous Forward Current ($f \leq 10\text{ kHz}$)	I_F	80 mA
Peak Forward Current (duty cycle $\leq 50\%$, $f \geq 1\text{ MHz}$)	I_{FRM}	130 mA
Reverse Voltage	V_R	2.0 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}			200	°C/W
Thermal Resistance - No Heat Sink	R_{thja}			500	°C/W
Temperature Coefficient - Optical Power	dP/dT_j		-0.4		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.3		nm/°C
Temperature Coefficient - Responsivity	dR/dT_j		0.2		%/°C
Temperature Coefficient - Dark Current	dI_d/dT_j		2.5		%/°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
55 μW	90 μW

Table 1

Typical Responsivity	
Core Diameter/Cladding Diameter Numerical Aperture	
50/125 μm 0.20	62.5/125 μm 0.275
0.15 A/W	0.15 A/W

Table 2

