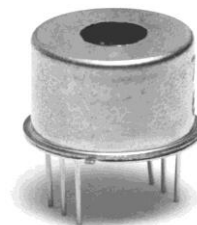




HIGH SENSITIVITY APD OPTICAL RECEIVER

- OUTSTANDING LOW NEP
- EXCELLENT DYNAMIC RANGE > 30 dB
- BANDWIDTH: 100 MHz
- INCORPORATES TEC AND TEMPERATURE SENSOR
- HERMETIC LOW PROFILE TO-8 PACKAGE, 0.1 CU. IN.
- 200 μm InGaAs APD DETECTOR WITH MASK
- OPERATION FROM 1.0 μm to 1.7 μm WAVELENGTH



DESCRIPTION:

The **7510-1** is a high gain, low noise, APD-preamp, optical receiver. The compact construction (modified TO-8 header) and PCB mounting capability makes the **7510-1** ideal for miniature applications. The thermo-electric heater/cooler allows the highest performance to be achieved with an external control circuit. Alternate detector sizes available, consult factory.

SPECIFICATIONS:

PARAMETER	7510-1-04			Units
	Min.	Typical	Max.	
InGaAs APD Active Diameter	180	200	220	μm
Bandwidth (3dB)	80	100	120	MHz
Responsivity (1.55 μm , 6ns pulse)	0.5	1	1.5	MV/W
Noise Equivalent Power (NEP) @1.55 μm	1	2	3.5	nW
Noise (RMS) at output	1.5	2	2.5	mV
Linear Dynamic Range (Peak signal/RMS noise)	1800:1	2500:1	4000:1	
Peak Output Pulse (Negative Swing)	4.5	5.1	6	V
DC Output Offset	1.8	2.5	3	V
APD				
Bias Voltage	40	50	80	V
Bias Current	-	10	50	nA
Temperature Coefficient (TEC off)	-	+0.1	0.15	V/ $^{\circ}\text{C}$
Temperature Sensor	-	-2.5	-	mV/ $^{\circ}\text{C}$
THERMOELECTRIC COOLER (TEC)				
Voltage	-	-	0.9	V
Current	-	-	0.6	A
TEMPERATURE				
Operating	-40	-	+80**	$^{\circ}\text{C}$
Storage	-55	-	+85	$^{\circ}\text{C}$
Input Power	+4.9 -4.9	+5 -5	+5.1 -5.1	VDC
Input Current	-	18 (+5V) 13 (-5V)	20 15	mA
Weight	-	4.3 (0.15Oz.)	-	Grams

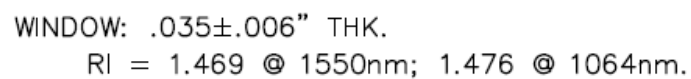
*All measurements made at 25 $^{\circ}\text{C}$, $R_L = 50\Omega$, AC Coupled

**Useful life of TEC is reduced at temperatures in excess of 80 $^{\circ}\text{C}$.

Specifications subject to change without notice

APPLICATIONS:

*Eyesafe Sensors, Medical Applications,
Laboratory Instrumentation, Ranging, LIDAR*



See 7510-1 Application Note for detailed operating information and design considerations.