



## AC6512 Series

### 1.25 Gbps APD Receiver in 5-pin ROSA Package



#### Features:

- Wide dynamic range with differential output
- Low power +3.3 V operation
- Wide operation temperature (-40°C to +85°C)
- High Optical Return Loss, <-27 dB
- Suitable for 1.25 Gbps applications needing receptacle style connectorization

**Applications:** Telecom and Datacom

#### Electrical/Optical Characteristics (T<sub>c</sub>=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply	V <sub>cc</sub>	3.0	3.3	3.6	V
Supply Current <sup>(1)</sup>	I <sub>cc</sub>		30	39	mA
Bandwidth	BW	0.9	1.0		GHz
Low-Frequency Cut Off	LF		50		kHz
Rise Time/Fall Time <sup>(2,3)</sup>	T <sub>r</sub> /T <sub>f</sub>			250	ps
Wavelength	λ	1100		1650	nm
Responsivity M=1 1310/1550nm	R		0.8/0.9		A/W
Optical Return Loss	ORL	-27	-40		dB
APD Bias (variation 0.1 V/°C)	V <sub>APD</sub>		50		V
Single Ended Output Impedance	R <sub>o</sub>	25		50	Ohms
Sensitivity <sup>(3,4)</sup>	P <sub>sens</sub>		-35	-34	dBm
Optical Overload <sup>(3,5)</sup>	P <sub>over</sub>	-3	0		dBm
Conversion Gain (M=10) <sup>(6)</sup>		100	130		kV/W
Differential Output Voltage <sup>(7)</sup>	V <sub>diff</sub>		240		mVpp

(1) No Loads

(2) 20% to 80% at -20 dBm input

(3) λ=1550 nm

(4) BER = 10<sup>-10</sup>, PRBS 2<sup>31</sup>-1, ER = 10 dB, V<sub>APD</sub>=optimum Vbias

(5) BER = 10<sup>-10</sup>, PRBS 2<sup>31</sup>-1, ER = 10 dB, M=3

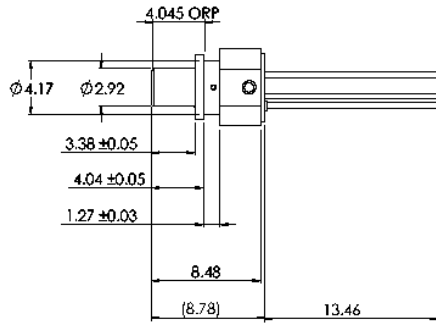
(6) Single ended output voltage (peak to peak) to optical power swing (OMA), -33 dBm

(7) Into 50 Ohms

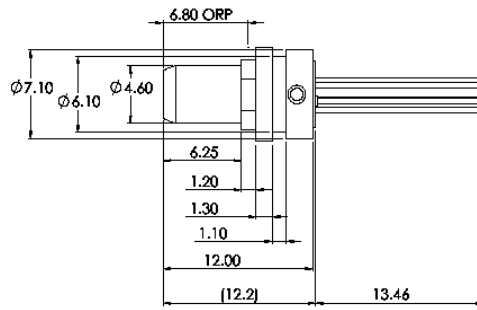
#### Absolute Maximum Ratings:

Parameter	Symbol	Min	Max	Unit
Case Temperature	T <sub>C</sub>	-40	+85	°C
Storage Temperature	T <sub>sig</sub>	-40	100	°C
Humidity Range	RH	5	95	%
Amplifier Bias Voltage	V <sub>ccmax</sub>		4.0	V
Input Optical Power	P <sub>max</sub>		+3	dBm
Load Solder Temp. and Time			260 °C, 10sec	

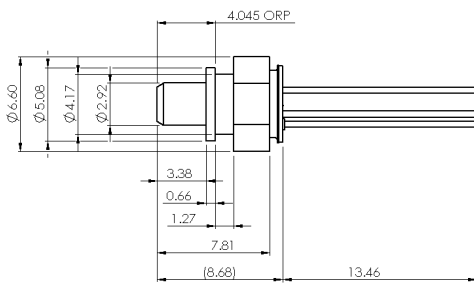
Outline Drawing (Customer special order is available):



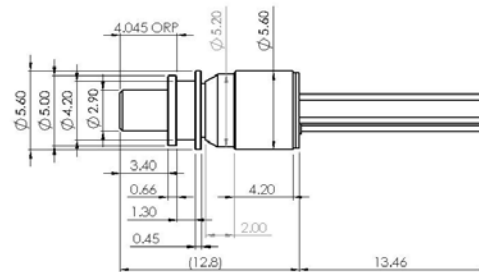
**Plastic LC receptacle, Option L1**



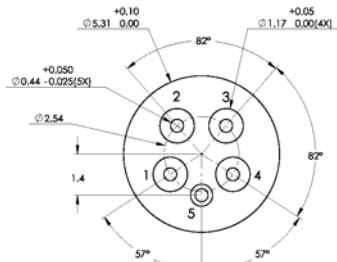
**Plastic SC receptacle, Option S1**



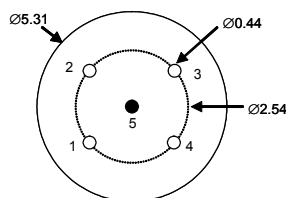
**Metal LC receptacle, Option L2**



**Metal LC receptacle with -30dB ORL, Options L3 and L4**



**Bottom View for Pin-out "B" and "E"**



**Bottom View for Pin-out "F"**

5-pin Pin-out Assignment			
Pin #	"B"	"E"	"F"*
1	Dout-P	V <sub>APD</sub>	V <sub>CC</sub>
2	V <sub>CC</sub>	Dout-N	Dout-N
3	V <sub>APD</sub>	Dout-P	Dout-P
4	Dout-N	V <sub>CC</sub>	V <sub>APD</sub>
5	GND	GND	GND

Note: "F" uses alternate 5-pin header. See Bottom View drawings

**Ordering Information:****AC6512-W-YZ**

**W** = Pin-out: "B," "E" or "F" see table. (Custom pin-out available)

**YZ** = Receptacle type: "L1" for LC Plastic, "L2" for LC Metal, "L3" for LC metal (-27dB ORL), "L4" for electrically isolated LC metal (-27dB ORL), "S1" for SC plastic,

Example: **AC6512-B-L3** is an Archcom 5-pin, 1.25 Gbps APD ROSA with Type-B pin-out with metal receptacle for high optical return loss

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