


2.5Gb/s High Sensitivity coplanar APD preamp receiver

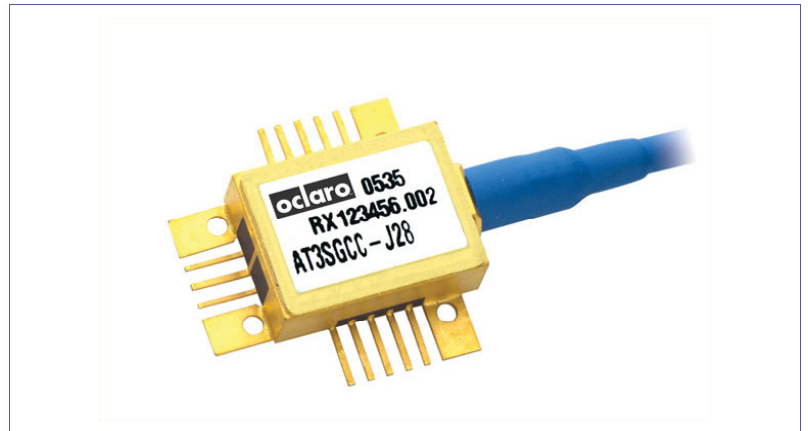
AT3SGCC

Features:

- High sensitivity, -35.0dBm typical
- Wide dynamic range performance to -3dBm
- MSA coplanar receiver package
- Differential data outputs
- +3.3V operation
- RoHS 5/6 compliant 

Applications:

- OC-48 DWDM optical transport systems
- OS-48 DWDM metro and long haul systems
- STM-16 or OC-48 SONET systems



The AT3SGCC is an optical receiver offering optimum sensitivity and overload performance for OC-48 optical transport systems. The hermetic packaged fibre pigtailed receiver contains an avalanche photodiode, an AGC low noise pre-amp and a precision thermistor.

The RF coplanar data outputs from the package provide differential noise rejection for improved sensitivity. The product has been optimized for use in metro applications, either as a discrete device or within a transceiver, using NRZ modulation, with or without FEC, at data rates up to 2.7Gb/s. The combination of a high performance avalanche photodiode, (APD), low noise AGC pre-amp and RF coplanar package provides unmatched performance for maximising transmission distance. The AGC low noise pre-amp is well suited to dynamic threshold level decision circuitry often used to maximize overall receiver chain performance

Operating Characteristics:

On all parameters listed below case temperature = 25°C unless otherwise stated.

Operating temperature -5°C to +70°C.

Optical wavelength between 1525-1575nm. Data 1575nm to 1610nm available on request.

(Operating temperature range of -20°C to +85°C is optional details available upon request).

Parameter	Symbol	Measurement Conditions	Min	Typ	Max	Unit
APD breakdown voltage	V_{br}	-5°C to 70°C	40		65	V
APD temperature coefficient of breakdown voltage	T_{vbr}	-5°C to 70°C	0.09	0.1	0.12	V/°C
Transimpedance gain	Z_I	-5°C to 70°C	2.3	3.6	4.7	k Ω
Bandwidth ^[1]	S_{21}	M = 10, small signal	1.8	2.2	3.0	GHz
Lower cut-off frequency ^[1]	S_{21} cut-off	M = 10, small signal			50	kHz
APD sensitivity	Sens.	2.5Gb/s, 2 ²³ -1 PRBS T=25°C, M=optimal ER = 10dB, BER=1x10 ⁻¹⁰		-35.0	-33.5	dBm
APD overload	P_{sat}	2.5Gb/s, 2 ²³ -1 PRBS @ 25°C. M=3, ER = 10dB BER=1x10 ⁻¹⁰	-3			dBm
Output voltage swing	V_{out}	Differential	18		300	mV _{pp}
Optical return loss	ORL		30			dB
Power supply current	I_{cc}			44	65	mA
Power supply voltage	V_{cc}		3.0	3.3	3.6	V
Output return loss	S_{22}	DC – 3.0 GHz	10			dB
Thermistor resistance	R_{TH}		9.5		10.5	k Ω

Notes:

[1] Load impedance is 50 Ω AC-coupled.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Operating case temperature	T_{op}	-40	+85	°C
Storage temperature	T_{stg}	-40	+85	°C
Optical input power			+3	dBm
Power supply voltage	V_{CC}	-0.5	3.6	V
APD supply voltage[1]	V_{APD}	V_{M3}	V_{br}	V
Fibre bend radius		25		mm
Lead soldering time at 260°C		10		s

Notes:

[1] The breakdown voltage and APD bias data will vary from device to device.

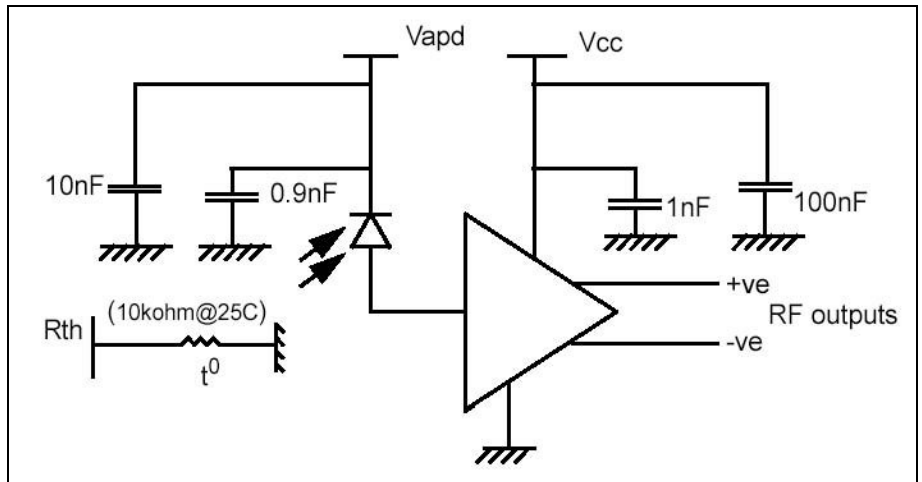
Each module will be supplied with deliverable data, in the form of V_{br} and APD bias voltages relative to a 10k Ω thermistor resistance.

Class 2 ESD precautions must be observed when handling these devices.

Pin Out

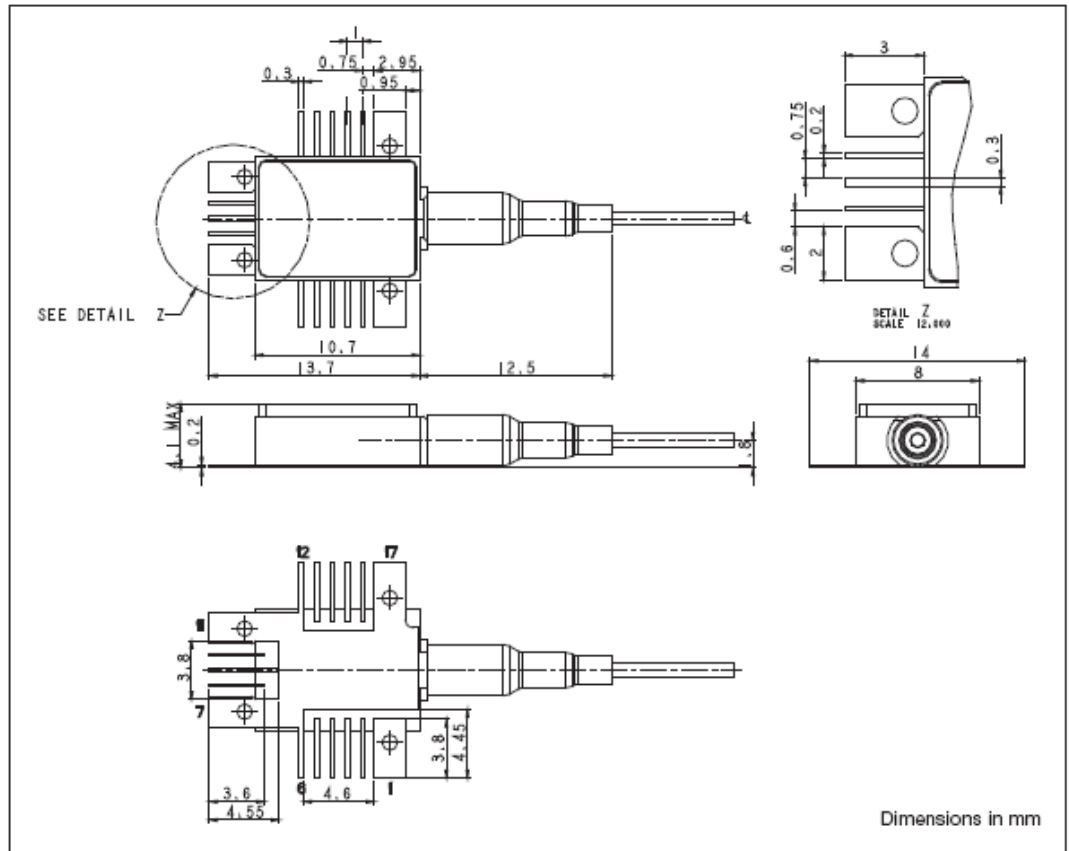
Pin #	Function	Pin #	Function
1	Case ground	10	+ve RF output
2	APD photodiode bias	11	Case RF ground
3	No connection	12	Case ground
4	No connection	13	No connection
5	No connection	14	Amplifier bias (3.3 Volts)
6	Case ground	15	No connection
7	Case RF ground	16	Thermistor
8	-ve RF output	17	Case ground
9	Case RF ground		

Circuit Schematic



Figure[1] AT3SGCC Circuit Schematic

Outline Drawing



Figure[2] Outline diagram (Illustration only. For full details, refer to appropriate assembly drawing)
 Note: Fibre is 900mm secondary coated single-mode-fibre, length = 1100 +0/-200 mm.

RoHS Compliance



Oclaro is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information:

AT3SGCC - (Connector)

J28 = SC/PC

J34 = FC/PC

J57 = LC

J59 = MU

e.g. AT3SGCC-J28 is an AT3SGCC with an SC/PC connector

Other options available on request

Contact Information

www.oclaro.com

Important Notice

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