InGaAs Receiver Optical Sub Assembly (ROSA)

(without TIA, up to 25GHz, 850nm, 1310nm, 1550nm, LC receptacle)

DATASHEET

Return to the Webpage

The ROSA (Receiver Optical Sub-Assembly) is built on a proven transceiver fabrication platform, offering industry-leading attributes in low cost, high bandwidth, high coupling efficiency, and long-term stability. As a key component in optical networks, it converts optical signals into electrical signals. This specific ROSA variant is designed without a transimpedance amplifier (TIA), enabling high-fidelity analog signal output and making it especially well-suited for precision analog applications. The sensitivity of the ROSA is approximately proportional to the photodetector's active area, while the response speed is inversely proportional—highlighting a tradeoff between sensitivity and bandwidth. The optical power handling is scaled with detector's area due to thermal conductivity and optical power density limit.

The bonding material used meets NASA's stringent low-outgassing requirements and is rated for high-temperature operation up to 85°C. The mechanical package is compliant with Telcordia GR-1221 reliability standards and supports both PCB and panel mounting configurations.

Features

- High Bandwidth
- High Reliability
- Wide Operating Temperature

Specifications

Parameter	Min	Typical	Max	Unit
Max input power	0.8		2	mW
Supply Voltage		3.3		V
Supply Current (CW)		26		mA
Wavelength	840		1600	nm
Bandwidth	0.05		25	GHz
Sensitivity (1310nm)		-10		dBm
Responsivity (1310nm)	0.7			A/W
Optical Return Loss (1310nm, 25GHz))			-27	dB
RSSI Offset Current (Vcc = 3.3V)			100	nA
Storage Temperature	-40 ~ +85			°C
Operating Temperature	-40 ~ +85			°C
Lead Solder Temperature	260			°C
Lead Solder Time	10			S

Applications

- Sensor
- Instrument

Rev 04/24/25

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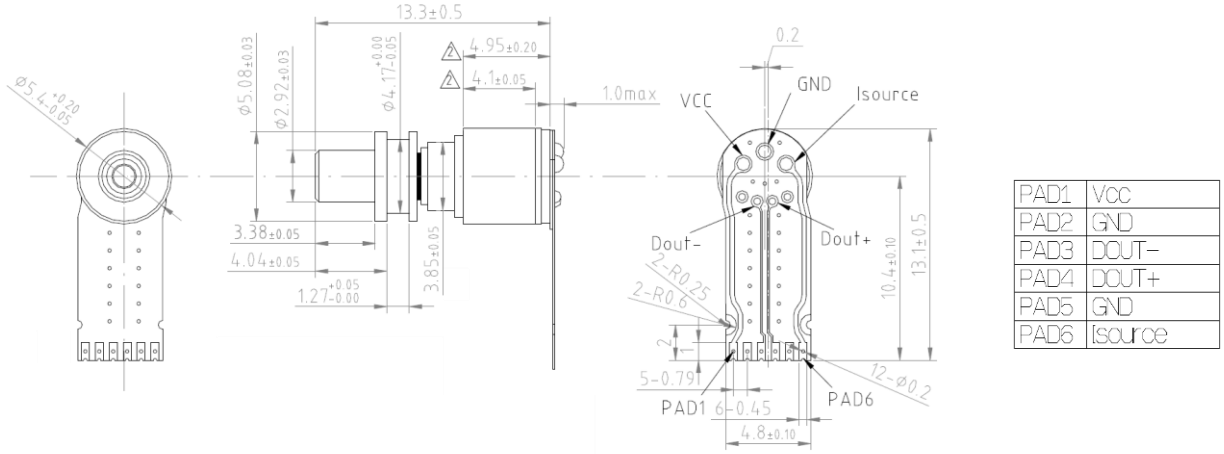
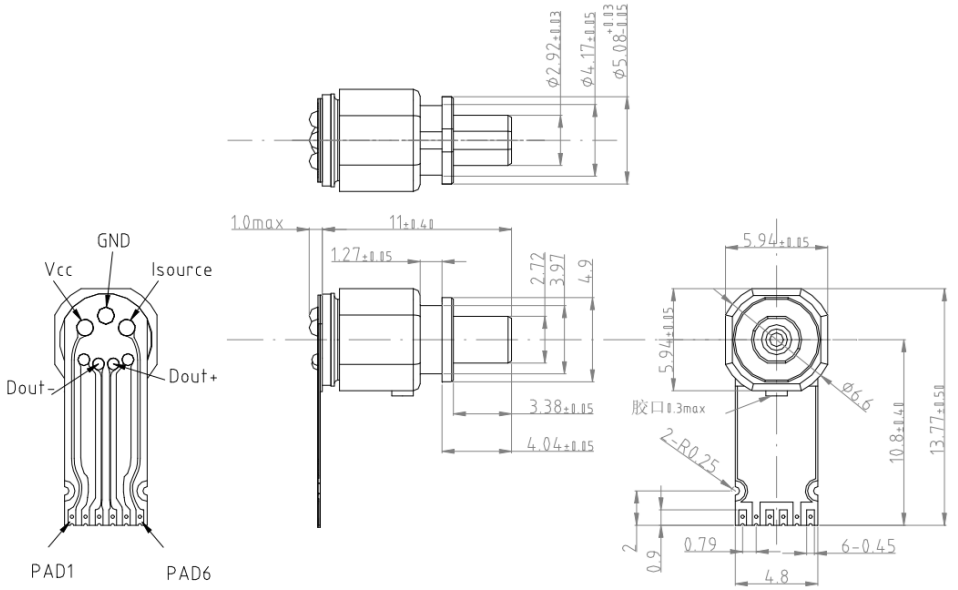
Mechanical Dimensions (mm)



PAD1	Vcc
PAD2	GND
PAD3	DOUT-
PAD4	DOUT+
PAD5	GND
PAD6	Isource

25Gbps 1310nm ROSA with flexible PCB and LC receptacle



PAD1	Vcc
PAD2	GND
PAD3	Dout-
PAD4	Dout+
PAD5	GND
PAD6	Isource

25Gbps 850nm multimode ROSA with flexible PCB and LC receptacle

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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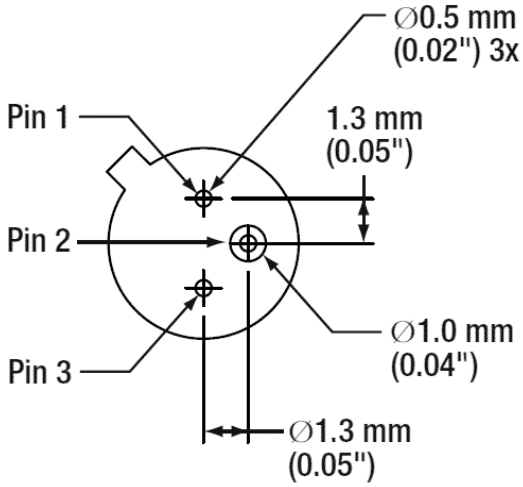
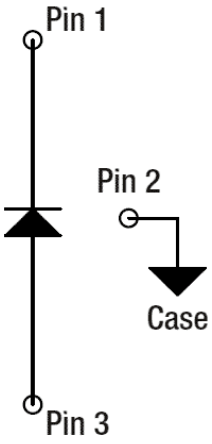
Mechanical Dimensions (mm)





Pin Circle Diameter = 2.5 mm (0.10")

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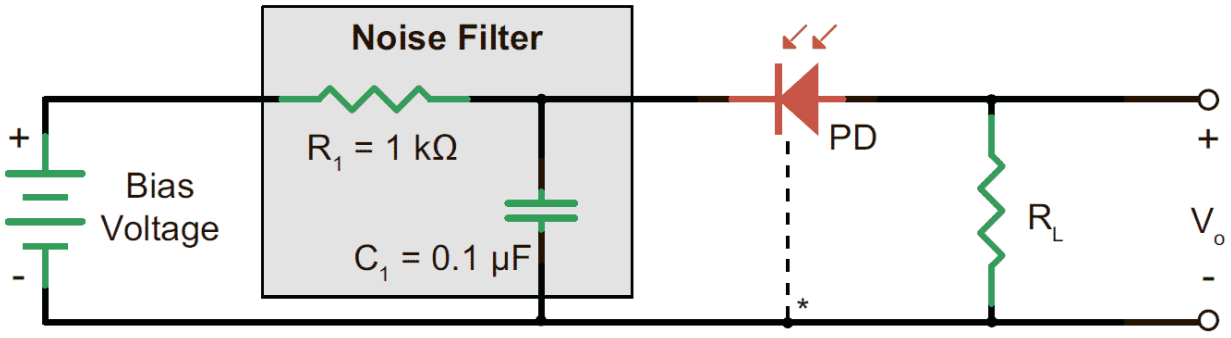
Recommend Circuit



* Case ground for PD with a third lead.

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Ordering Information

	1	☐	☐	1	☐	☐
Prefix	**Wavelength**	**Bandwidth**	**Model**	**TIA**	**Package**	**Receptacle**
ROSA-	850- 1630 = 1 Special = 0	0.1GHz (~100 µm) = 1 1.25 GHz(~30 µm) = 2 3 GHz(~30 µm) = 3 5 GHz (~20 µm) = 5 10GHz (~10 µm) = 6	Single mode = 1 Multimode [1] = 2	Non = 1 One Stage = 2 Two Stage = 3	Standard = 1 Special = 0	LC = 1 Special = 0

[1] For 850nm only

Application Notes

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