

## Up to 50 Gbit/s 900–1350 nm High Speed Receiver Optical Subassembly (ROSA)



*Sample image only. Actual product may vary*

Product Code: R50-1300

## Preliminary

### Product Description

The R50-1300 receiver optical subassembly (ROSA) utilizes a PIN photodetector and transimpedance amplifier (TIA) integrated in a square size 5.6mm package. The multi mode fiber coupled ROSA is designed for short reach ultrahigh-speed data communication applications of up to 50Gbit/s. Each part is electro-optically tested to ensure a maximum performance.

### Features

- Up to 50 Gbit/s data rate
- Small size package
- Low power consumption

### Applications

- 50G / 100G short reach transceivers
- Proprietary optical interconnects
- Research and development

Parameter	Typical (PD chips)	Notes
Operating Wavelength	900 ~ 1350 nm	
3 dB Bandwidth	≥ 30 GHz	
Rise time (20% to 80%)	6 ps	
Dark Current	< 10 pA	
Maximum input power	1 mW @ 1310 nm	

All product specifications and descriptions are subject to change without notice.

Please contact our sales department for additional information and to receive a quotation: [sales@v-i-systems.com](mailto:sales@v-i-systems.com)

### Electro-optical characteristics (at T<sub>case</sub> = 25 °C)

Preliminary

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Wavelength responsivity	$\lambda$		900	1310	1350	nm
Case operating temperature	T <sub>op</sub>		-10		85	°C
Supply voltage	V <sub>cc</sub>		3.3		3.4	V
Supply current	I <sub>cc</sub>		34	45	61	mA
Bandwidth	BW			30		GHz
Low frequency cutoff					70	kHz
Sensitivity (OMA)	S			-13	-12	dBm
Output resistance	R <sub>o</sub>			100		$\Omega$
Differential output voltage	V <sub>out</sub>	1310nm		400		mV
Duty cycle distortion				1	10	%
Rise/Fall time	T <sub>R</sub> / T <sub>F</sub>		9		10	ps

### Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage temperature	T <sub>st</sub>	-40	+90	°C
Lead solder temperature	T <sub>s</sub>		260° for 10 sec	°C
Incident optical power	P <sub>in</sub>		+5	dBm
Power supply voltage	V <sub>p</sub>		4.0	V

All product specifications and descriptions are subject to change without notice.

Please contact our sales department for additional information and to receive a quotation: [sales@v-i-systems.com](mailto:sales@v-i-systems.com)

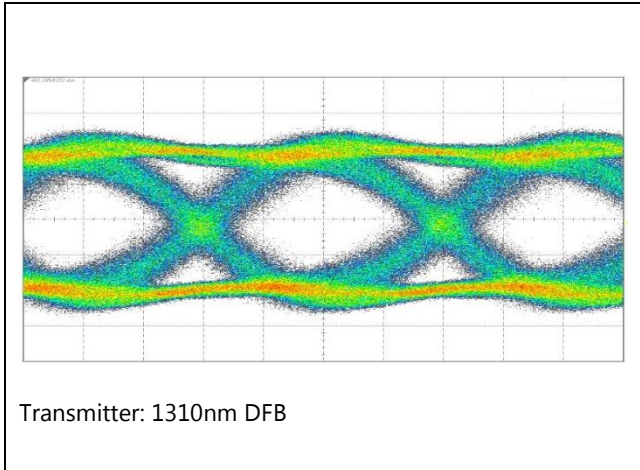
# Datasheet

R50-1300

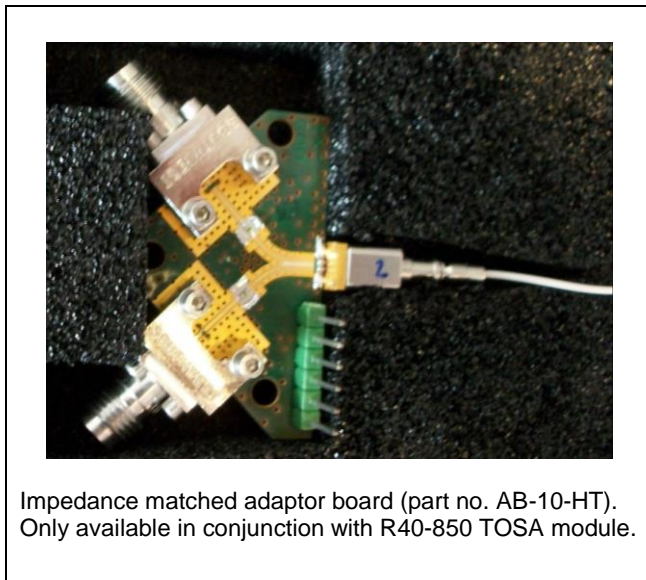


Vertically Integrated Systems

## Eye diagram at 50 Gbit/s (1310nm)



## Optional adaptor board



## Pin description for AB-10-HT adaptor board



Pin#	Signal	Description
1	Vcc	supply voltage for TIA 3.3 V
2	--	not used
3	--	not used
4	Ving	crossing adjustment 0...3 V
5	Vmod	amplitude adjustment 0...3 V
6	V <sub>PD</sub>	bias voltage for PD 2...5 V

Ground is to be supplied by the RF connectors

All product specifications and descriptions are subject to change without notice.

Please contact our sales department for additional information and to receive a quotation: [sales@v-i-systems.com](mailto:sales@v-i-systems.com)

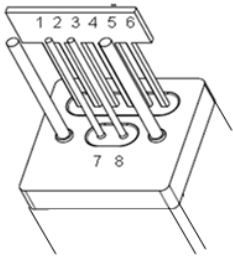
# Datasheet

## R50-1300



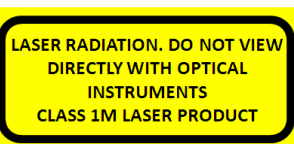
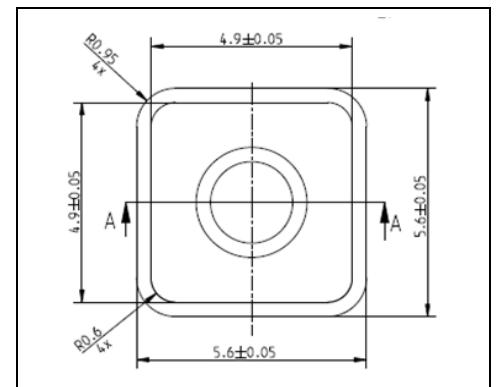
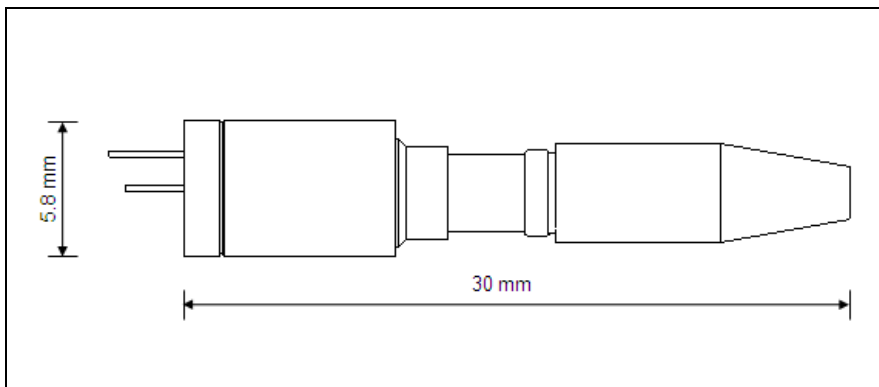
Vertically Integrated Systems

### Pin out



Pin#	Signal	Description
1	V <sub>PD</sub>	Bias voltage for PD
2	V <sub>mod</sub>	Amplitude adjustment
3	V <sub>xing</sub>	Crossing point adjustment
4		Amplitude adjustment 0...3 V
5	GND	Ground
6	V <sub>cc</sub>	Supply voltage TIA
7	OUT1	Diff. HF output
8	OUT2	Diff. HF output

### Dimensions



### VI Systems GmbH

Hardenbergstrasse 7  
10623 Berlin

Tel.: +49 30 3083143 30

Fax: +49 30 3083143 59

sales@v-i-systems.com

www.v-i-systems.com



www.facebook.com/VISystems

All product specifications and descriptions are subject to change without notice.

Please contact our sales department for additional information and to receive a quotation: sales@v-i-systems.com

[www.v-i-systems.com](http://www.v-i-systems.com)

VI Systems GmbH Hardenbergstrasse 7 D-10623 Berlin

No. 161012 Rev 1.0

October 2016