

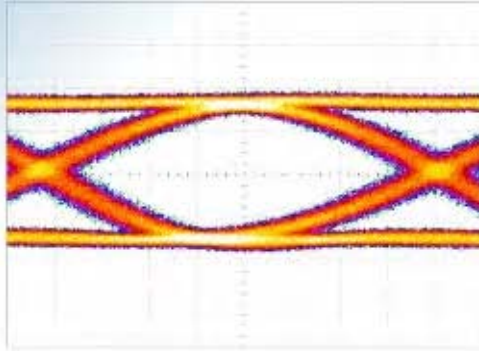


SHF Communication Technologies AG

Wilhelm-von-Siemens-Str. 23 • Aufgang D • 12277 Berlin – Marienfelde • Germany

Phone ++49 30 / 772 05 10 • Fax ++49 30 / 753 10 78

E-Mail: sales@shf.biz • Web: <http://www.shf.biz>



Datasheet

SHF 47100 A

O/E Conversion Module





Description

The SHF 47100 A is a module which converts optical signals with a bit rate up to 50 Gbps into electrical signals. Broadband RZ and NRZ operation is possible and the wide output dynamic range combined with excellent pulse behaviour makes the device ideal for OEM applications and optical system research

Features

- Broadband operation up to 50 Gbps
- High optical sensitivity
- Wide output dynamic range
- NRZ and RZ operation
- High output saturation suitable for 2R regeneration
- Ideal for OEM applications and optical system research
- Excellent pulse behaviour
- Unsurpassed high power handling capability
- High responsivity

Applications

- R&D for optical communication systems up to 44 Gbps
- Microwave photonics
- Characterization of high speed optical components

Options

The receiver can be supplied with various connector options.

The standard configuration is a single mode fiber at the input of approximately 1 m length and an FC/PC optical connector.

Various other kinds of precision optical connectors can be mounted to the pigtail fiber and have to be specified with the order.



Specifications

Parameter	Unit	Min.	Typ.	Max.	Conditions
Optical parameters					
Wavelength range		C and L band			
High frequency 3dB point	GHz	30			
Low frequency 3dB point	kHz			30	
Conversion gain	mV/mW	350	450		at 1550 nm
Optical return loss	dB	24	28		without optical connector
Optical PDL @ 1550 nm	dB		0.3	0.5	
Output electrical reflection (S22)	dB			-10	
Receiver sensitivity @ $2^{31}-1$ PRBS, measured at 40Gbps with BER of 10^{-9}	dBm		-9		measured with SHF BPG44 low jitter output for data generation, SHF 4003 transmitter and SHF EA44 as error detector
Input optical signal overload	mW			10	mean power
Output saturation voltage (peak-peak)	V		5	6	
Output rise and fall times (10-90 %)	ps		9	10	
Output timing jitter <RMS>	ps			0.8	measured on RZ signal (see below)
Absolute maximum ratings					
Optical input power	dBm			13	CW
General					
Power supply	V	5.2		10	
Supply current	A		0.5		
Power consumption	W	2.6			
Operating temperature	°C	0		40	
Storage temperature	°C	-20		85	
Dimensions	mm				85x65x19 without connectors
Connector					V (1.85 mm) male

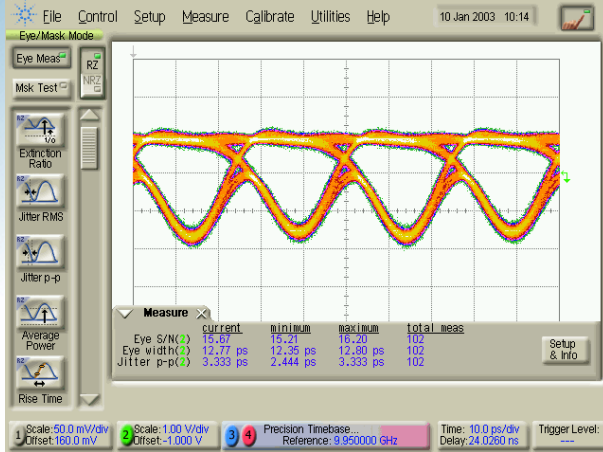
All parameters measured at 25°C



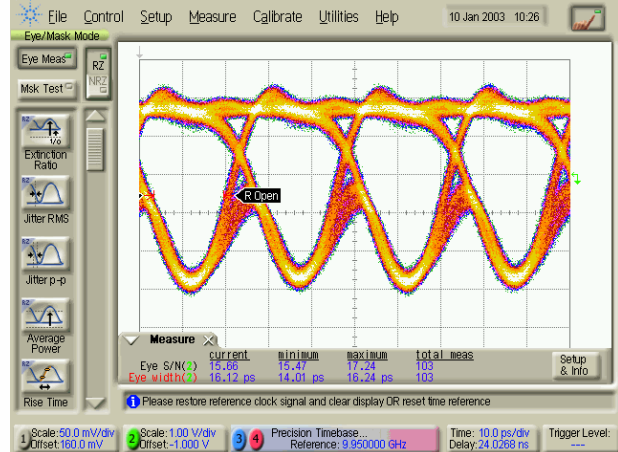
Output Waveforms

Pattern generated by SHF BPG 44 E and SHF 5003 RZ Laser Transmitter to generate NRZ and RZ optical signals. Output detected by SHF 47100 A and displayed on Agilent DCA 86100 A with 70 GHz sampling head. All patterns used are PRBS with a length of $2^{31}-1$.

CS-RZ signals at 40 Gbps



3 dBm optical input power

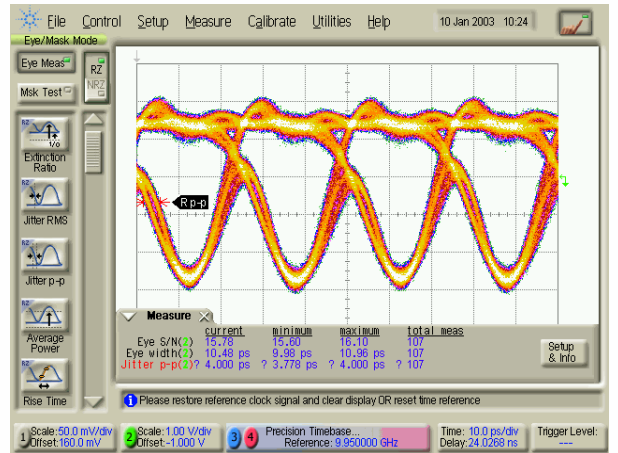


6 dBm optical input power

C-RZ signals at 40 Gbps

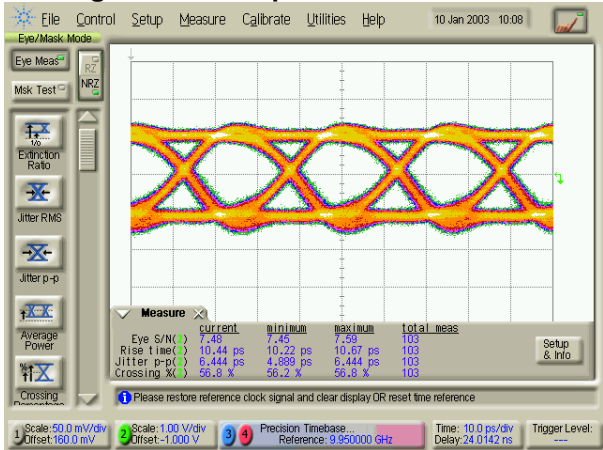


3 dBm optical input power

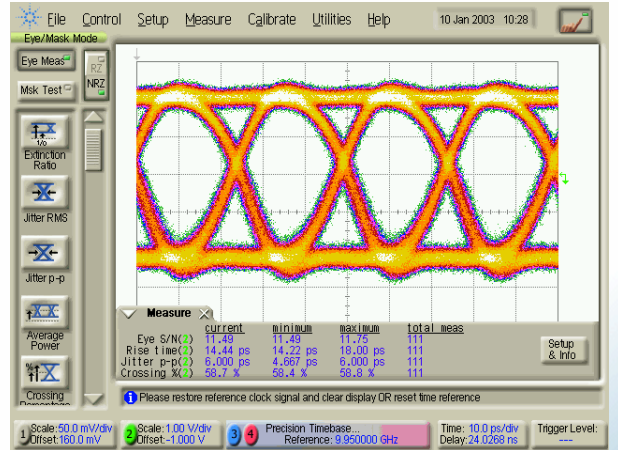


6 dBm optical input power

NRZ signals at 40 Gbps



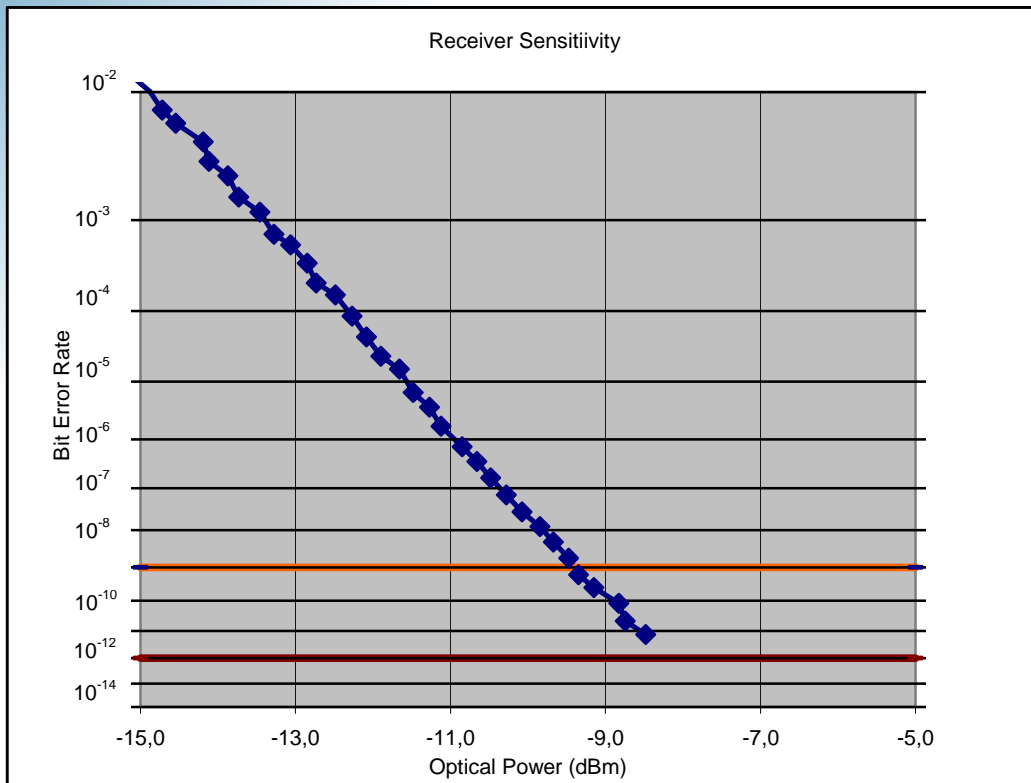
3 dBm optical input power



6 dBm optical input power



Sensitivity



Bit error rate measured using SHF BPG 44 E LJ + SHF 5003 RZ + SHF 47100 A into SHF EA 44 under optimum bias condition for input threshold. Dynamic extinction ratio of input signal: 12 dB.



Module Outline

