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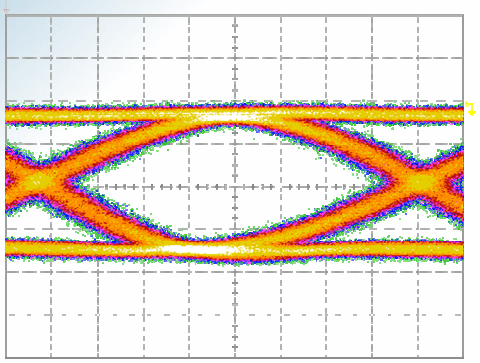
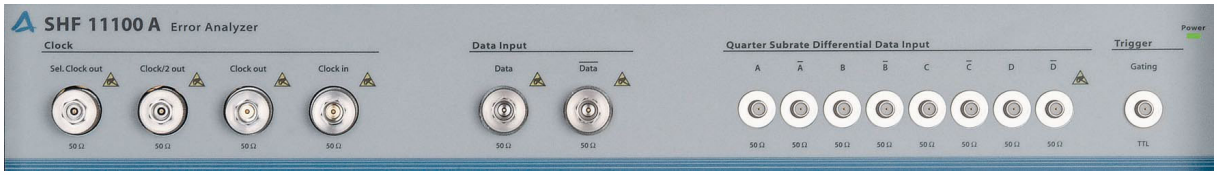


Datasheet

SHF 11100 A

Error Analyzer



Description

The SHF 11100 A is an error analyzer plug-in which can be fitted into any the SHF 10000 Series mainframes.

It has broadband operation from 1.5 to 56Gbps[1] and features high sensitivity and a wide clock phase margin. It allows the analysis of PRBS signals with pattern lengths of 2^7-1, 2^9-1, 2^{11}-1, 2^{15}-1, 2^{20}-1, 2^{23}-1 and 2^{31}-1. User patterns can also be analyzed.

In a back-to back configuration with the SHF 12100 B, the system Q-factor is an impressive 25 (28dB), measured using a 2^31-1 PRBS pattern.

Features

- Broadband operation up to 56 Gbps[1]
- Operation by intuitive software interface
- Q-factor determination
- Jitter analysis
- Auto search of optimum sampling point
- Seven built-in PRBS patterns: 2^7-1, 2^9-1, 2^{11}-1, 2^{15}-1, 2^{20}-1, 2^{23}-1, 2^{31}-1
- Pattern coding and decoding of DQPSK transmission experiments
- Up to 128 MBit user pattern
- Sub-rate clock outputs

Options

010 – Four 12.5 Gbps sub-rate inputs

56 – Guaranteed operation up to 56 Gbps

[1] Depending on the configuration of the particular system

Specifications – SHF 11100 A

Parameter	Unit	Min.	Typ.	Max.	Comment
Data input					
Bit rate With Option 56	Gbps	6		50 56	input AC coupled; DC coupled on request (ground referenced CML, 0…-500mV)
S_{11}	dB			-10	
Sensitivity [1]	mV		25	50	standard, up to 50 Gbps value corresponds to the measured eye heights on an Agilent 86100 A
Clock phase margin [2]	°	200			
Threshold adjustment	mV	-300		300	0.5mV steps
Subrate data inputs (optional)	Gbps	1.5		12.5	sensitivity: 100mV
Clock input					
Frequency With option 56	GHz	3 6		25 50 28 56	half clock full clock half clock full clock
Input level	dBm	0		4	
Phase adjustment	ps	0		160	0.1ps resolution
Trigger (gating)					LV TTL
Clock outputs					
Frequency	GHz GHz MHz	3 3 11.7		50 25 3125	clock clock/2 sel. clock sel: can be switched between bitrate/N (N=16,32,64,128,256, 512)
Output level	mV	300	600		
S_{11}	dB			-10	

System					
Data patterns					2^7-1, 2^9-1, 2^{11}-1, 2^{15}-1, 2^{20}-1, 2^{23}-1, 2^{31}-1
User-programmable pattern	Mbit			128	
Back to back Q factor	linear dB	25 28	30 30		measured with SHF 12100 A @ 40 Gbps, 2^{31}-1, 400 mV amplitude

Absolute maximum ratings

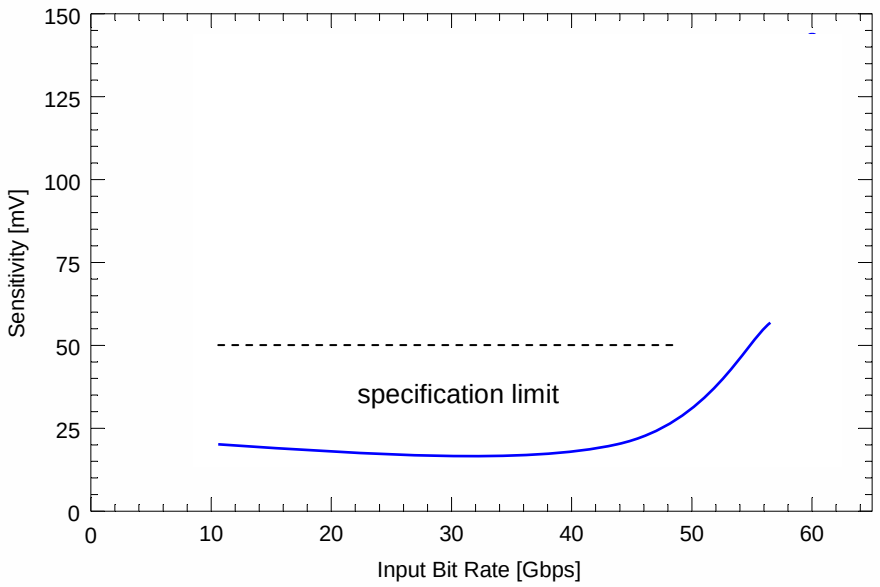
Parameter	Unit	Min.	Typ.	Max.	Comment
Data input	V_{pp}			1	
Clock input	V_{pp}			1	
Subrate input	V_{pp}			1	

Note 1: Value corresponds to the measured eye height on an Agilent 86100 B with 70 GHz sampling heads using 2^{31}-1 PRBS at a BER limit of 10^{-9}

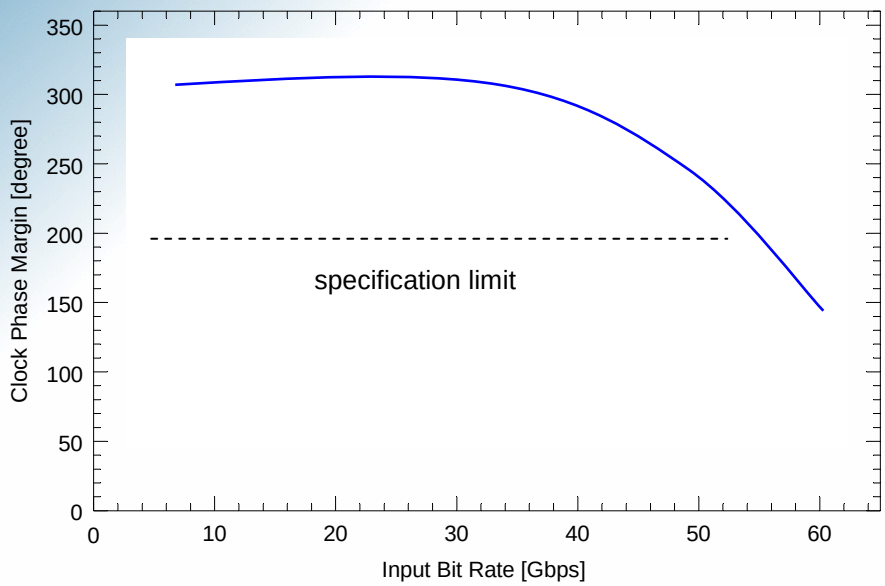
Note 2: BER limit 10^{-9}, PRBS 2^{31}-1, Eye Height 100 mV_{pp}, Peak-to-Peak-Source-Jitter as displayed on an Agilent 86100 B with 70 GHz sampling heads and precision timebase, calculated using the formula:

$$\text{Clock Phase Margin}\,[\text{ps}] = 360 \cdot \frac{\text{Measured Clock Margin}\,[\text{ps}] - (\text{Peak - to - Peak - Source - Jitter}\,[\text{ps}])}{\text{Eye Length}\,[\text{ps}]}$$

Typical Sensitivity and Phase Margin



Sensitivity measurement



Clock phase margin