TG1B1-A Datasheet

10G BERT



Features

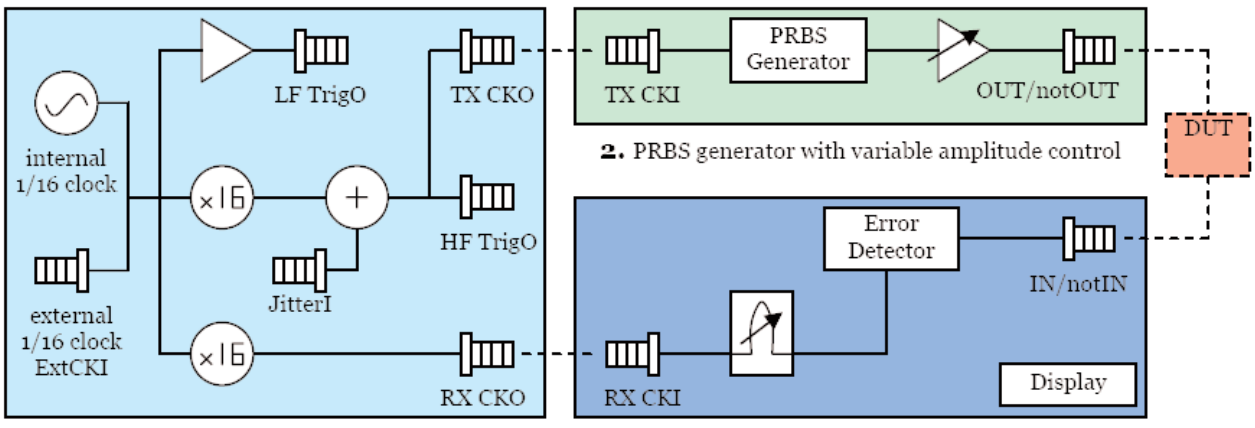
- Internal and external clock system
- 0.5 - 12.5Gbps operation
- Multiple clock and pattern triggers
- Differential or single-ended input and outputs
- Programmable output amplitude control
- High-UI jitter injection for stressed eye testing
- Selectable PRBS pattern length, mark-space density
- Local push-button and GPIB remote interface

Description

The Centellax 10G BERT is a small size, high-performance 0.5 to 12.5Gbps Pseudo-Random Bit Sequence generator and Bit Error Rate Tester designed for automated production-line testing, manufacturing and R&D lab use.

This GPIB controllable BERT, with its small size, is ideal for mounting close to the device under test and minimizes cabling. The internal synthesizer offers performance from 9.85 to 11.35Gbps. The BERT offers 5 PRBS patterns for stressing different types of data networks. In addition, the jitter injection capabilities allows frequency modulation with DC-100MHz bandwidth, for inducing a stressed eye for receiver measurements.

Block Diagram



1. clock system with optional jitter injection

2. PRBS generator with variable amplitude control

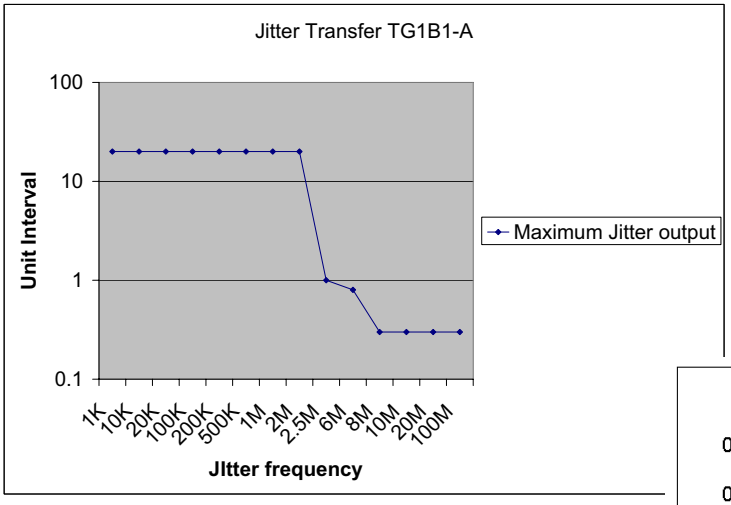
3. BER detector with electronic phase adjustment

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Clock System Specifications

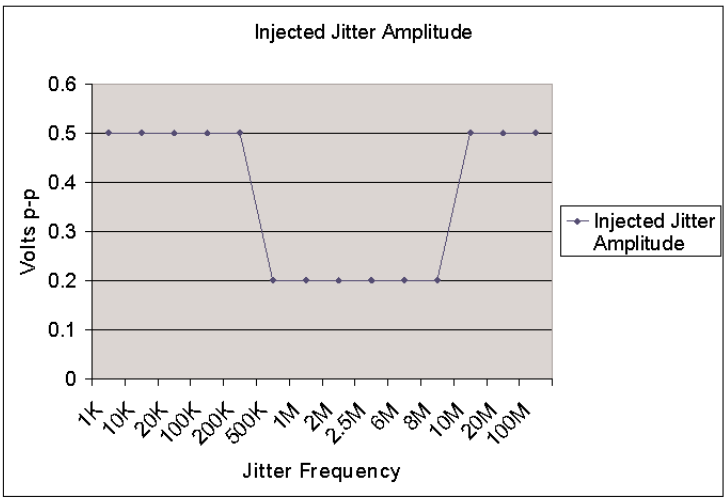
	Units	Min	Typ	Max
(TXCKO,RXCKO) High Frequency Clock	GHz	9.85	-	11.35
Output Amplitude	Vpp	0	-	2
Resolution GPIB Controlled	MHz	-	1	-
Resolution Front Panel Controlled	MHz	-	10	-
RMS Jitter	pS	-	0.9	1.5
External Interface	AC Coupled Female SMA 50 ohms			
HF TrigO Frequency Range	GHz	9.85	-	11.35
HF TrigO Amplitude	Vpp	-	1.3	-
External Interface	AC Coupled Female SMA 50 ohms			
LF TrigO Frequency Range	MHz	615.625	-	709.375
LF TrigO Amplitude	Vpp	-	0.7	-
External Interface	AC Coupled Female SMA 50 ohms			
Jitter Input Frequency Range	MHZ	DC	-	100
Jitter Amplitude	Max 15UI < 100kHz, 0.4UI > 10 MHz			
Jitter Outputs	Out, NotOut, TX CKO, HF TrigO jittered, (RX CKO unjittered)			
Interface	DC Coupled Female SMA 50 ohms			

Jitter Frequencies



Jitter transfer capability of the TG1B1-A showing typical unit interval capabilites over frequency of modulation.

Jitter input amplitude required for maximum jitter output as a function of frequency. The nonlinearity of the amplitude is a result of different types of modulators used within the TG1B1-A. It is recommended that users measure desired jitter output prior to making stressed receiver measurements to ensure the proper amount of jitter injection is applied.



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PRBS Generator

	Units	Min	Typ	Max
Bit Rate	Gbps	0.5	-	12.5
PRBS Patterns	$2^7 - 1$, $2^{10} - 1$, $2^{15} - 1$, $2^{23} - 1$, $2^{31} - 1$			
Mark Space Density	1/2, 1/4, 1/8			

Data Output

	Units	Min	Typ	Max
RMS Jitter	pS	-	1.0	2.2
Rise/Fall Time (20%-80%)	pS	16	19	25
Amplitude	mVpp	300	-	1800
Resolution	mV	10	-	-
External Interface	AC Coupled, 50ohm nominal, female 2.92mm			

Clock Input

	Units	Min	Typ	Max
Frequency Range	GHz	0.5	-	12.5
Input Amplitude	dBm	-4	-	10
External Interface	AC Coupled, 50ohm nominal, female SMA			

Error Detector

	Units	Min	Typ	Max
Data Rate	Gbps	0.5	-	12.5
PRBS Patterns	$2^7 - 1$, $2^{10} - 1$, $2^{15} - 1$, $2^{23} - 1$, $2^{31} - 1$			
Mark Space Density	1/2, 1/4, 1/8			
Input Sensitivity (single ended)	Vpp	0.1	-	1
Phase resolution 5G thru 12.5G	Deg (UI)	2	-	-
Phase resolution 0.5G thru 5G	Deg (UI)	90	-	-
Max Input Voltage Single Ended (zero)	V	-1.0	-	0.05
Max Input Voltage Single Ended (one)	V	-0.05	-	1.0
Input Voltage with External DC Block	V	-2	-	2
External Interface	DC Coupled, 50ohm nominal, female SMA			

RX Clock Input

	Units	Min	Typ	Max
Frequency Range	GHz	0.5	-	12.5
Sensitivity	Vpp	1	-	2
External Interface	AC Coupled, 50ohm nominal, female SMA			

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ORDERING INFORMATION

TG1B1-A — **10G BERT**

0.5 to 12.5Gbps PRBS pattern generator and error detector system with internal 9.85 - 11.35 GHZ clock system; includes standard 1-year warranty.

OPTIONS

-OPT002 TG1B1-A — **Rack Mount Hardware**

Adds a rack mount kit for a standard 19” rack

-OPT004 TG1B1-A — **Output Decreased to 10-800mVpp; Increased Tr/f**

Adds additional output amplitude control; operates from 10 to 800mVpp per side; increases output rise and fall time to 25-30ps

-OPT005 TG1B1-A — **Calibration Service**

1/year included in warranty

-OPT008 TG1B1-A — **Extended Training Delay**

For applications requiring standard support for fiber optic BER measurements

-OPT101 TG1B1-A — **European Power Cord**

-OPT102 TG1B1-A — **UK Power Cord**

-OPT106 TG1B1-A — **Extended Warranty (1 year)**

ORDERING CONTACT

For additional information or to place an order

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