TG2P1A Datasheet

CENTELLAX

10 Gbps PRBS Source
with Integrated Clock Test Accessory



Features

- Fixed-Frequency Clock Source (9.85GHz-11.35GHz)
- Wide Operating Range,from 50Mbps to 12.5Gbps
- RMS Jitter ~ 1.5 ps
- Fast Rise/Fall Times ~ 25 ps
- Small Size: 3.5” x 3.5” x 1”
- Multiple Output Patterns: 2^7, 2^{10}, 2^{15}, 2^{23}, 2^{31}
- Multiple Mark Ratios: 1/2, 1/4, 1/8
- Differential Outputs

Description

The TG2P1A is a self contained 10 Gbps pseudo random bit sequence (PRBS) generator. The TG2P1A can be configured to use an external clock source allowing operation from 50Mbps to 12.5 Gbps. Five different PRBS pattern lengths and three mark density ratios are available via user selectable jumpers. Differential data outputs provide CML compatible signal levels via the front panel SMA connectors. The TG2P1A’s small size, measuring just 3.5 x 3.5 x 1.0”, allows for close placement to the device under test. The generator is self contained and plugs into standard PC power supplies.

Application

The TG2P1A can be used as a digital source for stimulus/response measurements of high speed logic devices. Characterizing waveform distortion of high speed telecommunication components is simplified with the source’s low jitter and fast rise/fall times. Production environments can take advantage of the source’s simple interface, low power consumption and small size.

Key Specifications

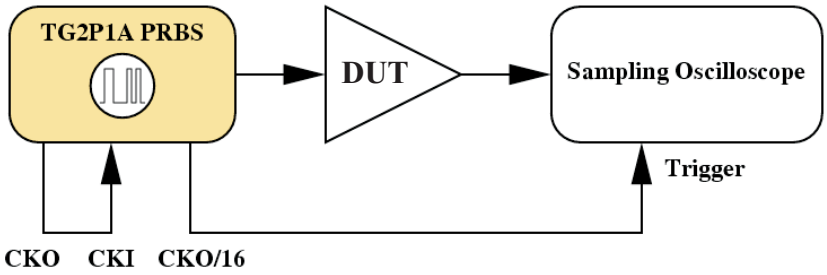
Description	Minimum	Typical	Maximum
Int. Clock Speed	9.85 GHz	—	11.35 GHz
Ext. Clock Speed	0.05 GHz	—	12.5 GHz
Output Bit Rate *	0.05 Gb/s	—	12.5 Gb/s
RMS Jitter (Data) **	—	0.9 ps	—
RMS Jitter (Int. Clock)	—	1.0 ps	—
20-80 Rise/Fall Times	—	23 ps	25 ps
Eye Height	200 $mV_{(p-p)}$	250 $mV_{(p-p)}$	—
Eye Amplitude	250 $mV_{(p-p)}$	300 $mV_{(p-p)}$	—
Eye SNR ***	18	22	—
Output Voltage Low	—	- 300 mV	—
Output Voltage High	—	0.0 V	—
Clock Power	-1 dBm	+ 2 dBm	+ 3 dBm

* Min rate depends on input slew rate; lower rates are possible with fast input
** Measured with external clock and precision timebase
*** As measured by the Agilent 86100A

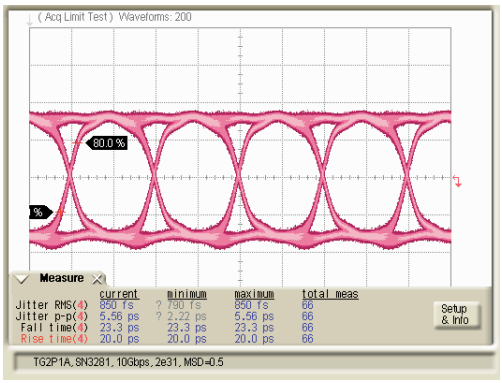
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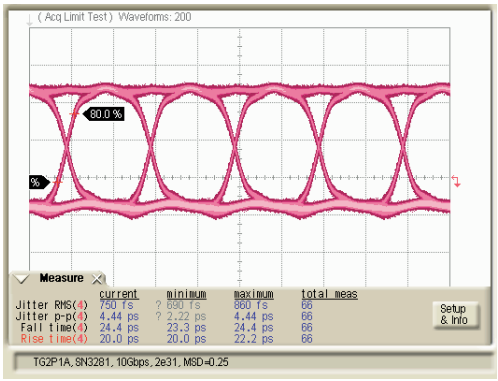
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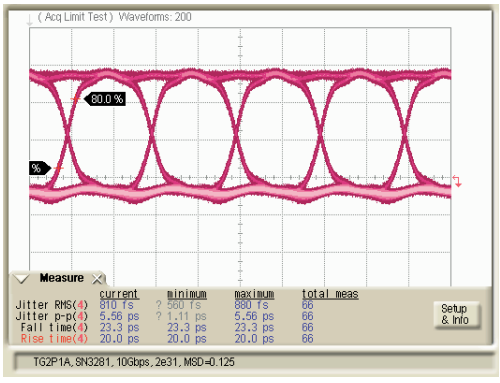
EYE Quality Measurement setup using the TG2P1A, DUT and oscilloscope



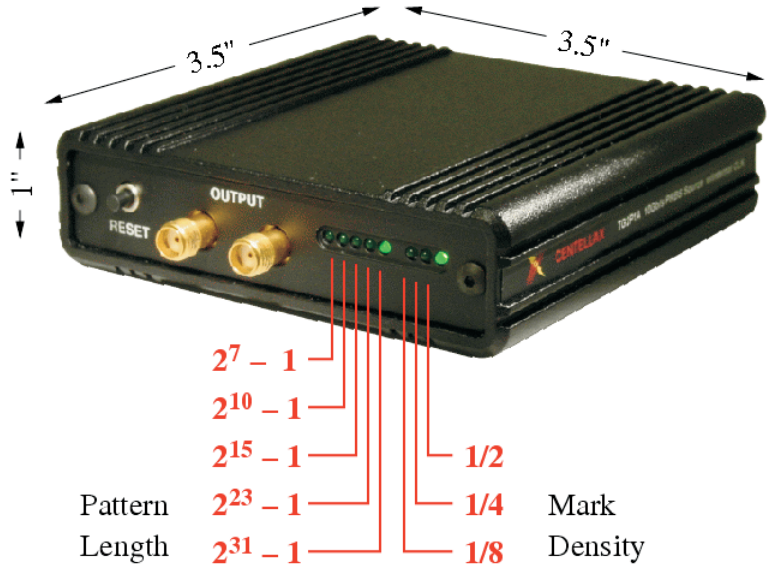
10Gb/s, 2^{31}-1, Mark Density 1/2



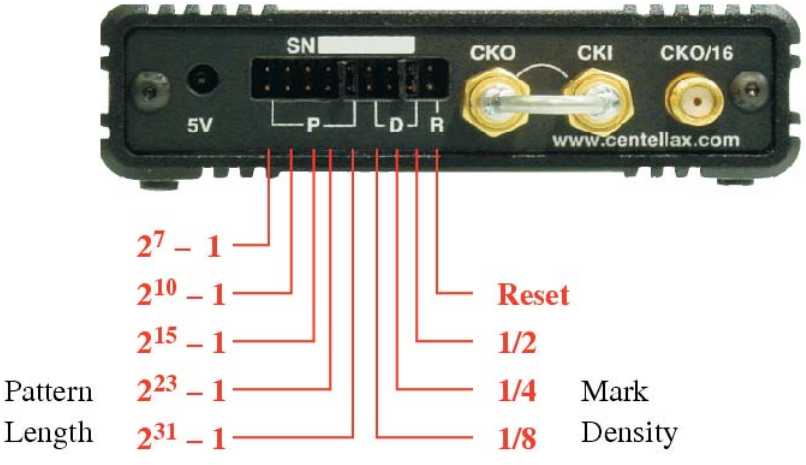
10Gb/s, 2^{31}-1, Mark Density 1/4



10Gb/s, 2^{31}-1, Mark Density 1/8



TG2P1A Front Panel Outputs and LED Annunciators



TG2P1A Rear Panel inputs and Controls

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