MODEL TD1107 AND TD1110D TUNNEL DIODE PULSE DRIVER

PRODUCT SPECIFICATION

Features:

- **200 mV positive step**
- **20 ps to 45 ps risetime**
- **Remote TD pulse head**
- **Low jitter**
- **Self-regulating bias circuit**



The Tunnel Diode Pulse Generator consists of the Model TD1110D Driver with one TD1107 Pulse Head. This combination produces a 230 mV step with risetime in the range of 20 ps to 45 ps, depending on the TD pulse head that is chosen. The 50-ohm source impedance minimizes reflections. The Tunnel Diode Pulse Generator may be operated into any unbiased, resistive load without damage. Applications include Time Domain Reflectometry (TDR) and step response measurements on components.

The TD pulse head is connected to the driver by a 1-meter coax cable, allowing the fast edge that is created in the TD pulse head to be conducted directly to a device under test. The internal 50 kHz clock produces a pre-trigger for sampling oscilloscopes. A front panel switch selects a fixed 65 ns delay for the lowest jitter or a variable delay of 40 ns to 140 ns for more flexibility. The TD driver includes a special self-regulating TD bias circuit to sense the peak current in the TD pulse head and automatically set the bias to the correct level. This automatic circuit is able to track and correct for changes in temperature and load. For each clock cycle, the TD pulse head produces two pulses. One dynamically measures the characteristics of the tunnel diode, and the second produces the fast edge that is linked to Trigger Output. To view the correct pulse, use the Trigger Output as an external trigger on the oscilloscope.

Specifications:

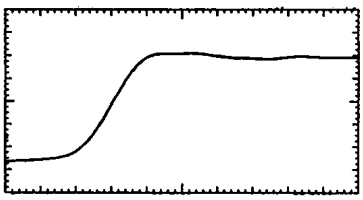
Amplitude		230 mV typ., 200 mV min.
Risetime:	TD1107A	30 to 45 ps
	TD1107B	25 to 30 ps
	TD1107C	20 to 25 ps
Output Impedance		50 ± 1 ohms
Reflection Coefficient		15%, 50 ps FWHM
Repetition Rate		50 kHz fixed
Duration		4 µs, fixed
Delay		65 ns fixed or 40 to 140 ns adjustable
Jitter (rms)		2.1 ps typ., 3.3 ps max.
Trigger Pulse		1V, 2.5 ns risetime, 1µs duration
Connectors: TD Output		SMA
Trigger Output		BNC
Warranty:	TD1107	30 days (static sensitive)
	TD1110D	1 year

AC Power		100, 117, 200, or 230VAC 50/60 Hz, 15 VA (60Hz)
Operating Environment		Indoors, 0 C to 50 C, <80% rh
Safety Certifications		Conforms to EN-061010-1 (CE mark), UL-1244 and IEC-348. Safety class I. For lab use by qualified personnel.
EMI Certifications		Conforms to EU Directive 89/336/ECC, EN55011 and EN50082-1, CE mark
Calibration		Test Report with waveforms included. NPL/NIST traceable.
Accessories Included		1 m SMA coax cable, power cord, instruction manual, video
Dimensions:	TD1107	2 x 0.5 x 0.5 in. (5.1 X 1.3 x 1.3 mm)
	TD1110D	9.6 x 7.5 x 1.7 in. (244 x 190 x 33 mm)
Weight:	TD1107	.05 lbs. (23g)
	TD1110D	3.3 lbs. (1.5 kg)

Ordering Information:

(Note the TD1110C Driver and one of the TD1107 Pulse Heads must be ordered as a set)

Part Number	Description
TD1110D	Tunnel Diode Pulse Driver
TD1107A	Tunnel Diode Pulse Head, 30 to 45 ps
TD1107B	Tunnel Diode Pulse Head, 25 to 30 ps
TD1107C	Tunnel Diode Pulse Head, 20 to 25 ps



50 mV/div and 20 ps/div



50 mV/div and 200 ps/div

Plots show the output from the TD1110D Driver with TD1107B Pulse Head as measured by a HP-54121A 17.5 risetime scope.

PICOSECOND PULSE LABS, P.O. BOX 44, BOULDER, CO 80306, USA, TEL: 1.303.443.1249, FAX: 1.303.447.2236
WWW.PICOSECOND.COM