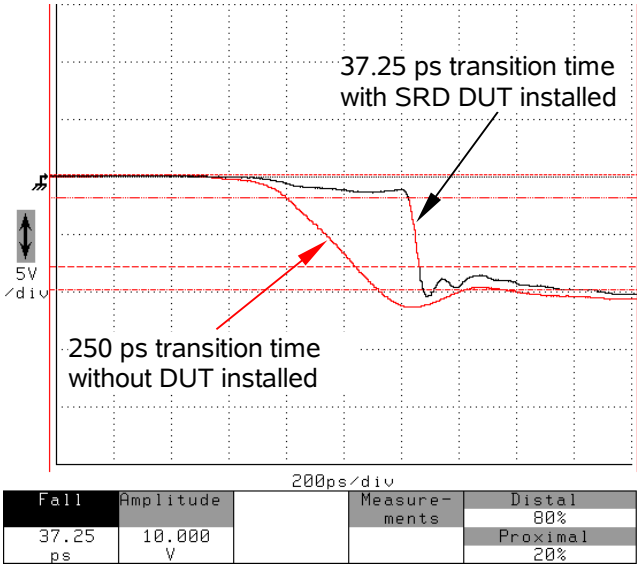
AVR-EBT1 SERIES

HIGH-SPEED PULSE GENERATOR
FOR STEP RECOVERY DIODE (SRD)
TRANSITION TIME MEASUREMENTS



- Pulser and test jigs for SRD transition time measurements
- Forward biases to +20 mA
- Reverse pulse amplitudes to -10V
- Pulser switching time < 300 ps
- IEEE-488.2 GPIB and RS-232 interfaces
- Optional ethernet port for VXI-11.3 support

The AVR-EBT1-B is a high performance, GPIB and RS232-equipped pulse generator used for measuring the transition time of step recovery diodes (SRDs).

The AVR-EBT1-B generates a forward DC bias current of +1 to +20 mA. A 20 ns wide negative pulse of -1 to -10V is superimposed onto the DC bias. The rise time of this negative-going pulse is less than 300 ps (20%-80%).

The negative pulse is initially “shorted out” by the reverse conduction of the SRDs. The diode voltage suddenly rises once the reverse conduction ends. The speed of this sudden rise may be measured with a user-supplied high-bandwidth (> 15 GHz) sampling oscilloscope. Typical waveforms are shown above. The black waveform is the “sharpened” waveform generated with a high-speed SRD DUT. The red waveform is the “unsharpened” waveform with no DUT installed.

The AVR-EBT1-B may be provided with customer-specific test jigs to hold the DUT, or it may be used with user-supplied jigs. Please refer to the operating manual (available online) for examples of jigs that have been provided to customers, as well as an information about how to construct your own jig. Some degree of customization is normal when specifying semiconductor switching time testers. Contact Avtech engineers (info@avtechpulse.com) with your special requirement!

The AVR-EBT1-B includes a complete computer control interface. This provides GPIB and RS-232 computer-control, as well as front panel keypad and adjust knob control of the output pulse parameters. A large back-lit LCD displays the output amplitude, DC bias, and frequency. To allow easy integration into automated test systems, the programming command set is based on the SCPI standard. For details, please see http://www.avtechpulse.com/gpib.

The -VXI option adds a rear-panel Ethernet connector, allowing the instrument to be remotely controlled using the VXI-11.3, ssh, telnet, and web protocols. In particular, the VXI-11.3 features allows software like LabView to control an instrument using standard VISA communications drivers and network cabling, instead of using older-style GPIB cabling and GPIB controller cards. For details, please see http://www.avtechpulse.com/options/vxi.

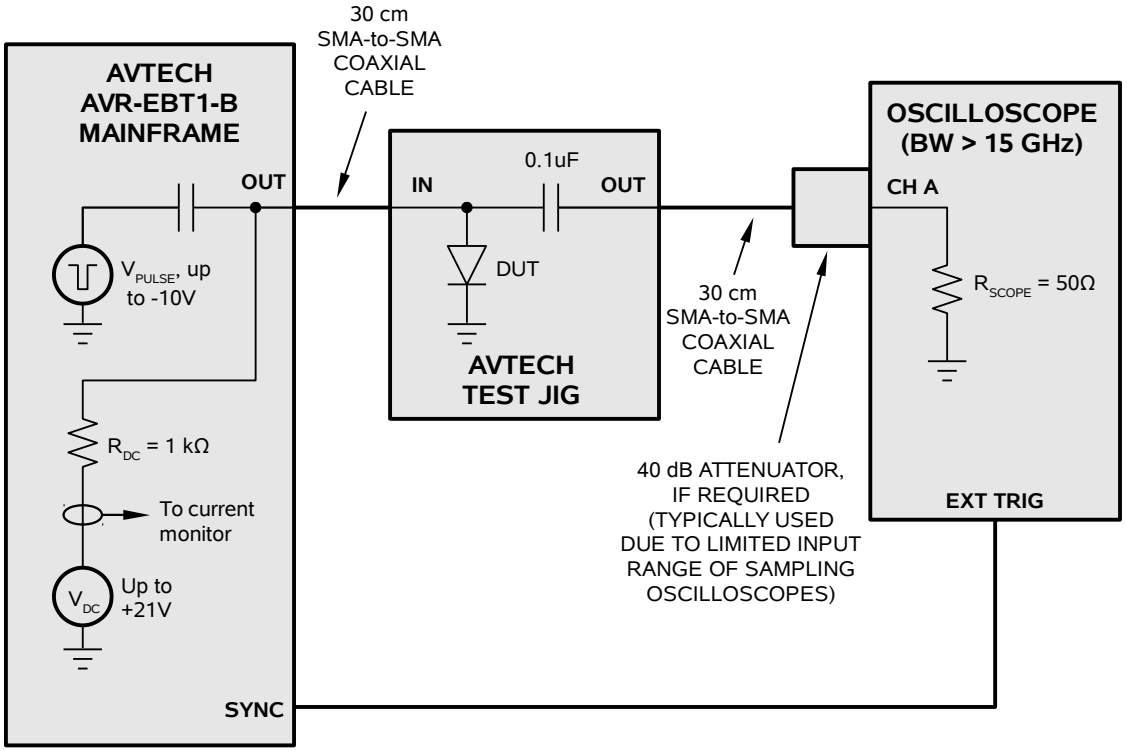
Avtech also offers a variety of pulse generators for use in recovery time tests (forward and reverse), bipolar junction transistor (BJT) switching time tests, dV/dt tests, and common mode transient immunity (CMTI) tests. For more information, please visit:

http://www.avtechpulse.com/semiconductor

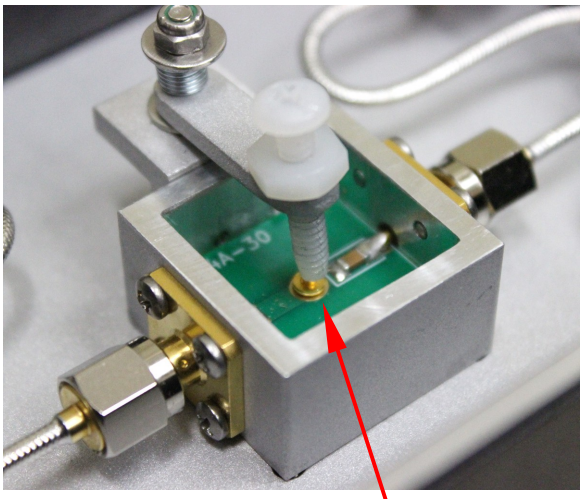
Model[1]:	AVR-EBT1-B	
Intended application:	Step Recovery Diode Transition Time Tests	
Suitable DUT transition time range (20%-80%):	< 60 ps to > 200 ps	
Basic waveform:	Positive DC bias interrupted by a negative pulse	
Required measurement system:	The output signal is the voltage across the DUT. The output must be viewed on a user-supplied high-bandwidth (> 15 GHz) sampling oscilloscope.	
Waveform portion:	DC	-
Voltage output[2]:	+1V to +21V, applied to a 1 kΩ resistance in series with the DUT, permitting DC bias currents of up to +20 mA.	-1V to -10V, applied to the DUT through a length of coaxial cabling
Pulse width (FWHM):	DC	20 ns, nominally
Rise time (10%-90%):	< 300 ps	
Maximum PRF:	10 kHz	
Delay:	Fixed. Nominally 75 ns, SYNC to main OUT.	
Included test jig[3]:	Varies with customer requirements. May affect pricing. Contact Avtech (info@avtechpulse.com) for details, and refer to the operating manual (available online).	
Connectors (OUT, jig):	SMA	
Connectors (Gate, Trig):	BNC	
GPIB & RS-232:	Standard on -B units. See http://www.avtechpulse.com/gpib for details.	
Ethernet port, for remote control using VXI-11.3, ssh, telnet, & web:	Optional[4]. Recommended as a modern alternative to GPIB / RS-232. See http://www.avtechpulse.com/options/vxi for details.	
Settings resolution:	The resolution of the timing parameters varies, but is always better than 0.15% of the set value. The amplitude and offset resolution is typically 0.02% of the maximum amplitude.	
Settings accuracy[2]:	Typically ± 3% after 10 minute warmup, for timing parameters. For high-accuracy applications requiring traceable calibration, verify the output parameters with a calibrated oscilloscope.	
Trigger required:	External trigger mode: + 5 Volts, 10 ns or wider (TTL)	
Gate input:	Active high or low, switchable. Suppresses triggering when active.	
Power requirements:	100 - 240 Volts, 50 - 60 Hz	
Dimensions:	H x W x D: 100 mm x 430 mm x 375 mm (3.9" x 17" x 14.8")	
Chassis material:	cast aluminum frame and handles, blue vinyl on aluminum cover plates	
Temperature range:	+5°C to +40°C	

1) -B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude, pulse width, PRF and delay (see http://www.avtechpulse.com/gpib).
2) The pulse amplitude settings should not be relied upon for any degree of accuracy, because the dynamics of the device under test can affect the actual generated waveforms. Pulse amplitude settings should always be verified by oscilloscope measurements.
3) Customized jigs available upon request.
4) Add the suffix -VXI to the model number to specify the Ethernet port.

TYPICAL TEST ARRANGEMENT



EXAMPLE TEST JIG



Installed DUT
(Microsemi Package Type 30)