

# SECTION 1

## SPECIFICATION

*Change information, if any, affecting this section will be found at the rear of this manual.*

### General Information

The S-52 Pulse Generator Head provides a step pulse output for use with fast rise sampling oscilloscope systems. The S-52, which provides a pretrigger output signal and a fast positive pulse output signal at 50  $\Omega$  impedance, is also useful with Time Domain Reflectometry (TDR) systems.

The pretrigger output signal is available from front and rear connectors. When the S-52 is installed in the 7S12 TDR unit, the pulse output trigger time is controlled by the TDR unit. When installed in other sampling units, the internal pretrigger lead time is about 85 ns.

Operating power for the S-52 is obtained when the unit is installed into the sampling head compartment (or con-

nected via an interconnecting cable) of Tektronix sampling instruments such as the 7S12, 7S11, Types 3S2, 3S5, or 3S6. The S-52 can also be powered from the Type 285 Power Supply.

### Electrical Characteristics

The following characteristics apply over an ambient temperature range of 0°C to +50°C after a 10 minute warmup, for an S-52 calibrated at a temperature between +20°C and +30°C. The required operating voltages are applied to the S-52 when it is connected or installed into the sampling head compartment or powered by a sampling head power supply.

#### ELECTRICAL CHARACTERISTICS

Characteristics	Performance Requirement	Supplemental Information
<b>PULSE OUTPUT</b>		
Risetime into 50 $\Omega$	25 ps or less	
Amplitude into 50 $\Omega$	At least 200 mV, positive going	
Aberrations	+7%, -7%, total of 10% P-P within the first 1.8 ns of the step edge with the reference level at 1.8 ns from the step edge; +2%, -2%, total of 4% P-P after the first 2.5 ns with the reference level at 3.0 $\mu$ s from the step edge.	
Pulse Duration	At least 350 ns	
Period	16 $\mu$ s within 2 $\mu$ s for SN B070390 and up. 8.3 $\mu$ s within 0.8 $\mu$ s for SN B070389 and below.	
Baseline Level	55 mV to 120 mV terminated in 50 $\Omega$	
Source Impedance		50 $\Omega$ , nominal
<b>PRETRIG OUT (Front Panel)</b>		
Amplitude into 50 $\Omega$	At least 1.0 V, positive-going	
Rise Rate	600 mV/ns	
Pulse Duration	4 ns within 2 ns	

Specification—S-52

Characteristic	Performance Requirement	Supplemental Information
Pretrigger to Pulse Output Time	85 ns within 5 ns	
Pretrigger to Pulse Output Jitter	10 ps or less (With 7S11, 7T11, and 7000-series oscilloscope system, excluding the sampling oscilloscope jitter)	
Pretrigger Out (Rear Panel)		
Amplitude into 50 $\Omega$	At least 1.0 V, positive-going	
Rise Rate	600 mV/ns	
Pulse Duration	4 ns within 2 ns	
PULSE OUTPUT Display Jitter	10 ps or less (With 7S12, S-6, and 7000-series oscilloscope system)	

ENVIRONMENTAL CHARACTERISTICS

Temperature		
Non-operating		-40°C to +65°C
Operating		0°C to +35°C
Altitude		
Non-operating		To 50,000 feet
Operating		To 15,000 feet
Vibration (Non-operating)		15 minutes along each axis at 0.015 inch. Vary the frequency from 10 to 55 to 10 Hz in 1-minute sweeps. Three minutes at any resonant point or at 55 Hz.
Shock (Non-operating)		Two shocks each of 500 g's (2 ms duration), 750 g's (1 ms duration) and 1000 g's (0.5 ms duration), in each direction and along each major axis for a total of 36 shocks.
Transportation		Meets National Safe Transit Committee type of test when packaged as shipped by factory.

## MECHANICAL CHARACTERISTICS

Characteristics	Description
Finish	Anodized aluminum front panel, extruded aluminum blue-vinyl painted cabinet with aluminum castings front and rear.
Weight	Approximately 8 oz.
Dimensions	
Height	About 2 inches
Width	About 1 3/4 inches
Length	About 4 inches

## STANDARD ACCESSORIES

The accessories supplied with the S-52 Pulse Generator Head are listed in Section 8 Mechanical Parts List.