SPECIFICATIONS

DESCRIPTION

The TEKTRONIX P6122 is a miniature, 10X passive probe for use with dc to 100 MHz oscilloscopes with an input capacitance range of 15 to 35 pF and an input resistance of 1 MΩ.

The compensation box houses a network that provides optimum transient response. The probe can be low-frequency compensated by adjusting the variable capacitor through the opening in the compensation box housing.

The probe is available in three lengths: 1.5 meters, 2 meters, and 3 meters.

The P6122 meets the requirements of UL 1244.

ACCESSORIES

The P6122 is shipped with the following standard accessories:

1 Instruction sheet

1 Carrying pouch

1 Retractable hook tip

2 Ground leads with alligator clips

1 Set of cable markers (2, silver-gray)

1 Ground-Cover Sleeve

1 IC test tip

Use of these accessories is described in the "Operating Considerations" section of this manual. Part numbers are listed in the "Replaceable Parts List" near the back of this manual.

PERFORMANCE CONDITIONS

The electrical characteristics listed in Table 1-1 apply when a calibrated probe is used with a calibrated oscilloscope system operating within the environmental conditions stated in Table 1-2.

Items listed in the "Performance Requirement" column are verifiable qualitative or quantitative limits.

Items listed in the "Supplemental Information" column are not verified in the "Performance Check Procedure" (Section 3); they are either explanatory notes, calibration setup descriptions, performance characteristics for which no absolute limits are specified, or characteristics that are impractical to check.

Physical characteristics are listed in Table 1-3.

Table 1-1

Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Attenuation (system)	10X ±3% at dc.	Oscilloscope input resistance must be 1 MΩ ±2% at dc.
Input resistance (probe)	9 MΩ ±0.3% at dc.	Compensation box shorted, measured from probe tip to ground sleeve. Derate ±100 ppm per degree C deviation from 25° C.
Input resistance (system)	10 MΩ ±2%.	Oscilloscope input resistance must be 1 MΩ ±2% at dc.

Table 1-1 (Cont)
Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Input Capacitance	9.7 pF - 12.3 pF (1.5-m probe).[a] 10.7 pF - 13.3 pF (2.0-m probe).[a] 12.7 pF - 15.3 pF (3.0-m probe).[a]	Probe connected to input and properly compensated. See Figure 1-1 for a graph of input resistance (R_p) and parallel reactance (X_p) versus frequency.
Compensation Range	15 pF - 35 pF	3.0-m probe: 15 pF - 30 pF.
System Bandwidth (−3 dB)	DC to ⩾ 100 MHz (1.5-m and 2.0-m probes). DC to ⩾ 90 MHz (3.0-m probe).	Measured on a Tektronix 2235 or equivalent. Oscilloscope bandwidth: 105 MHz < BW < 115 MHz.
Risetime	< 3.5 ns, calculated from bandwidth: $t_r = 0.35/BW$.	3.0-m probe: ⩽ 3.7 ns.
Aberrations	±3%, 5% p-p, in addition to oscilloscope aberrations.	Oscilloscope bandwidth: 105 MHz < BW < 115 MHz.

[a]**Performance Requirement is not checked in manual.**

Table 1-1 (Cont)

Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Maximum Nondestructive Input Voltage	500V (dc + peak ac) to 1.3 MHz derated to 50 V (dc + peak ac) at 100 MHz.[a]	See Figure 1-2 for derating curve.
Maximum Electrostatic Discharge Withstand Voltage	500 pF in series with 1 KΩ, charged to 20 kv.[a]	

[a]Performance Requirement is not checked in manual.

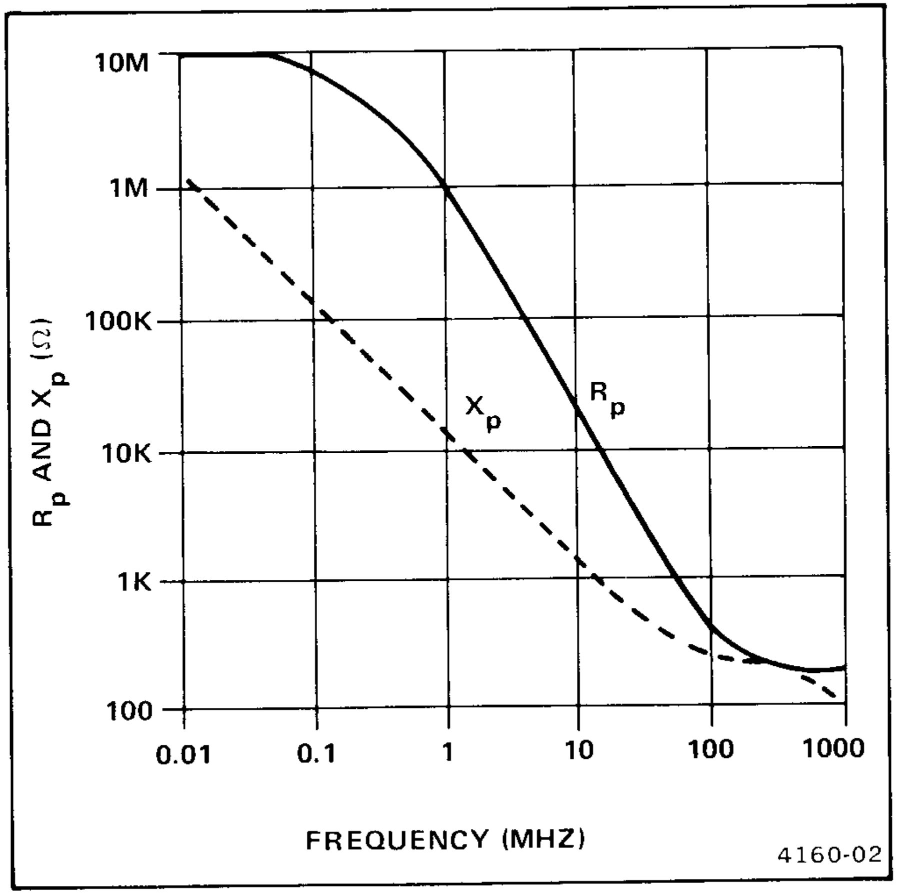

Figure 1-1. Typical Xp and Rp versus fequency.

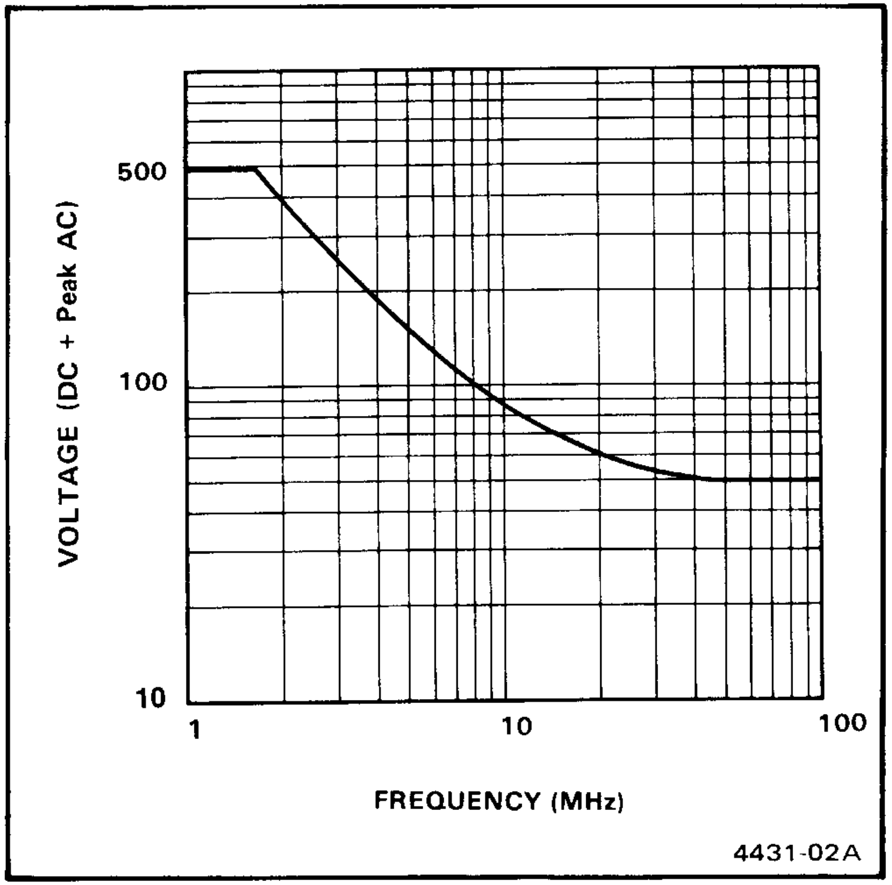

Figure 1-2. Typical voltage derating with frequency.

Table 1-2

Environmental Characteristics

Characteristic	Information
Temperature Range (Operating)	−15°C to +75°C (+5°F to +167°F).
Temperature Range (Nonoperating)	−62°C to +85°C −80°F to +185°F).
Humidity	Five cycles (120 hr.) at 95% to 97% relative humidity.
Altitude (Operating)	To 4,500 m (15,000 ft).
(Nonoperating)	To 15,000 m (50,000 ft).
Transportation	Qualifies under National Safe Transit Test Procedure 1A, 48 inch drop test.

Table 1-3

Physical Characteristics

Characteristic	Information
Net Weight (includes accessories) 1.5-Meter Probe	85 g (3.0 oz).
2.0-Meter Probe	92 g (3.3 oz).
3.0-Meter Probe	105 g (3.7 oz).
Probe Assembly Length 1.5-Meter Probe	1.5 m (4.9 ft).
2.0-Meter Probe	2.0 m (6.6 ft).
3.0-Meter Probe	3.0 m (9.8 ft).