



Specifications

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NOMINAL CHARACTERISTICS

Nominal characteristics describe parameters and attributes that have are guaranteed by design, but do not have associated tolerances.

| | | |
|-------------------------------|---|----------------------------------|
| Input Configuration: | True Differential (+ and – Inputs); with shield Ground connector. | |
| Effective Gain ¹ : | X10, X1, ÷10, ÷100 ² | |
| Input coupling: | DC. AC Coupling obtained by installing AC Coupling Adapter. | |
| Differential Mode Range | | |
| (with 10X Gain): | ±40 mV | (÷1 Attenuation) |
| | ±400 mV | (÷10 Attenuation) |
| | ±4 V | (÷100 Attenuation ²) |
| (with 1X Gain): | ±400mV | (÷1 Attenuation) |
| | ±4 V | (÷10 Attenuation) |
| | ±40 V | (÷100 Attenuation ²) |
| Common Mode Range: | ±4.2 V | (÷1 Attenuation) |
| | ±42 V | (÷10 Attenuation) |
| | ±42 V | (÷100 Attenuation ²) |
| Maximum Input Voltage: | ±42 V either input from ground. | |

Notes: ¹ From combinations of gain, internal and external attenuation.

² Use external plug-on ÷10 attenuator for ÷100.



WARRANTED ELECTRICAL CHARACTERISTICS

Warranted characteristics are parameters with guaranteed performance. Unless otherwise noted, tests are provided in the Performance Verification Procedure for all warranted specifications.

LF Gain Accuracy: 2% into 50.0 Ω load³,
measured at 1 kHz with 0 volt
offset

Common Mode Rejection Ratio⁴: (Probe head grounded, DC
Coupled, ± 1 Attenuation,
without external attenuator)

| | | |
|---------|---------------|---------|
| 70 Hz | $\geq 3160:1$ | (70 dB) |
| 1 MHz | $\geq 1000:1$ | (60 dB) |
| 250 MHz | $\geq 5:1$ | (14 dB) |

Notes: ³ Output impedance is 50 Ω , intended to drive 50 Ω . Add uncertainty of termination impedance to accuracy.

⁴ LeCroy measures CMRR with a fixture that connects the probe tip ground to the signal source ground. This method is necessary to obtain a reproducible CMRR measurement.

Often, users leave the probe tip ungrounded when measuring high frequency signals. Not grounding the probe tip can actually improve CMRR by allowing some of the common mode signal to be impressed across the entire length of the probe cable instead of from probe tip to probe ground. The CMRR improvement obtained without grounding the probe tip depends on proximity to probe cable ground, and is therefore nonreproducible.

LeCroy has chosen to use a reproducible method of measurement, rather than obtain a more optimistic measurement.

TYPICAL ELECTRICAL CHARACTERISTICS

Typical characteristics are parameters with no guaranteed performance. Tests for typical characteristics are not provided in the Performance Verification Procedure.

Bandwidth, probe only

(-3 dB): DC to ≥ 500 MHz

Risetime, probe only: ≤ 700 ps (± 10 Attenuation)
 ≤ 875 ps (± 1 Attenuation)

Residual Autobalance

Offset (Ref. to input) : ≤ 100 μ V (± 1 Attenuation)
 ≤ 1.5 mV (± 10 Attenuation)

Differential Offset

Range: ± 400 mV (± 1 Attenuation)
 ± 4 V (± 10 Attenuation)
 ± 40 V (± 100 Attenuation⁴)

Input Resistance

(each side to ground): 1 M Ω

Input Capacitance

(between inputs): ≤ 1.6 pF (± 10 Attenuation)
 ≤ 3.1 pF (± 1 Attenuation)

Input Capacitance

(each side to ground): ≤ 3 pF (± 10 Attenuation)
 ≤ 6 pF (± 1 Attenuation)

Noise

(Referred to input,

5 to 1000 MHz): 6 nV/ $\sqrt{\text{Hz}}$ (± 1 Attenuation, 10X Gain)
 10 nV/ $\sqrt{\text{Hz}}$ (± 1 Attenuation, 1X Gain)
 60 nV/ $\sqrt{\text{Hz}}$ (± 10 Attenuation, 10X Gain)
 115 nV/ $\sqrt{\text{Hz}}$ (± 10 Attenuation, 1X Gain)



AP033 Active Probe

Output Impedance: 50 Ω nominal. Intended to drive 50 Ω

Harmonic Distortion

3rd order distortion: -52 dB below fundamental (200 mV_{p-p} output, at 100 MHz)

3rd order intercept: +15 dBm (at 100 MHz measured at output)

AC Coupling LF Cutoff

(-3dB): 1.6 Hz

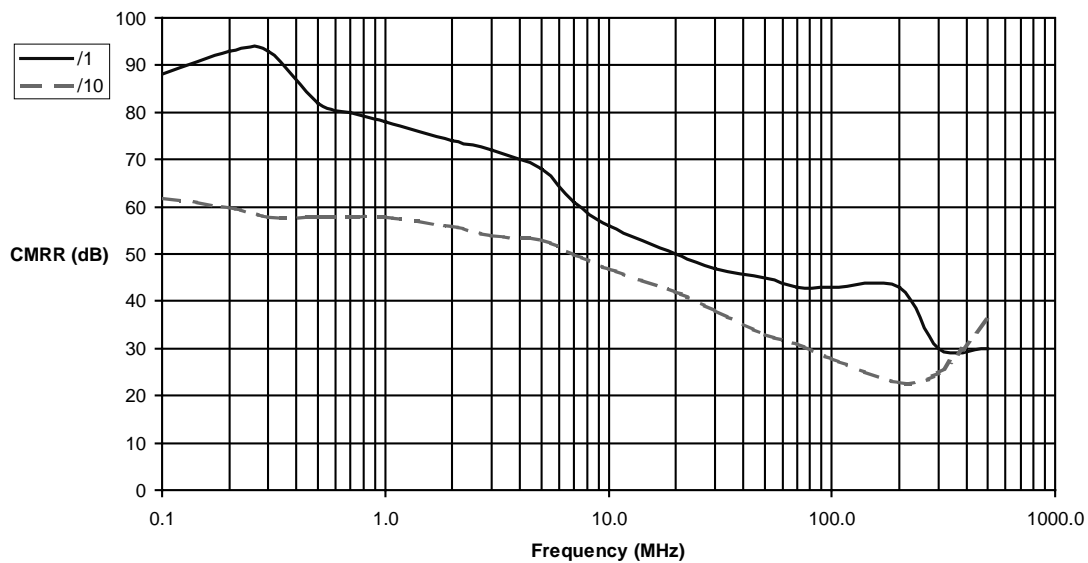


Figure 13 – Typical CMRR Graphs

GENERAL CHARACTERISTICS

Temperature: 0 to 50 °C Operating
-40 to 75 °C storage

Input Connectors: Compatible with 0.025" (0.635 mm) square pins.
0.036" (0.91 mm) maximum diameter (for round pins)

Power Requirements: Powered from oscilloscope through ProBus interface or with ADPPS power supply.

Dimensions:

| | | | |
|------------------|-------------|---------|---------------------------------------|
| Control Housing: | Length: | 9.2 cm | (3.625") |
| | Width: | 3.8 cm | (1.50") |
| | Height: | 2.5 cm | (1.00") |
| Head | Length: | 10.1 cm | (4.0") (W/O Attenuator or AC Coupler) |
| | Width: | 2.25 cm | (2.25") |
| | Height: | 1.6 cm | (0.625") |
| Cable: | Length: | 106 cm | (42") |
| | Diameter: | 7.0 mm | (0.275") |
| Mass: | Probe only: | 0.18 kg | (6.4 oz) |
| | Shipping: | 1.15 kg | (2 lbs., 8.4 oz) |