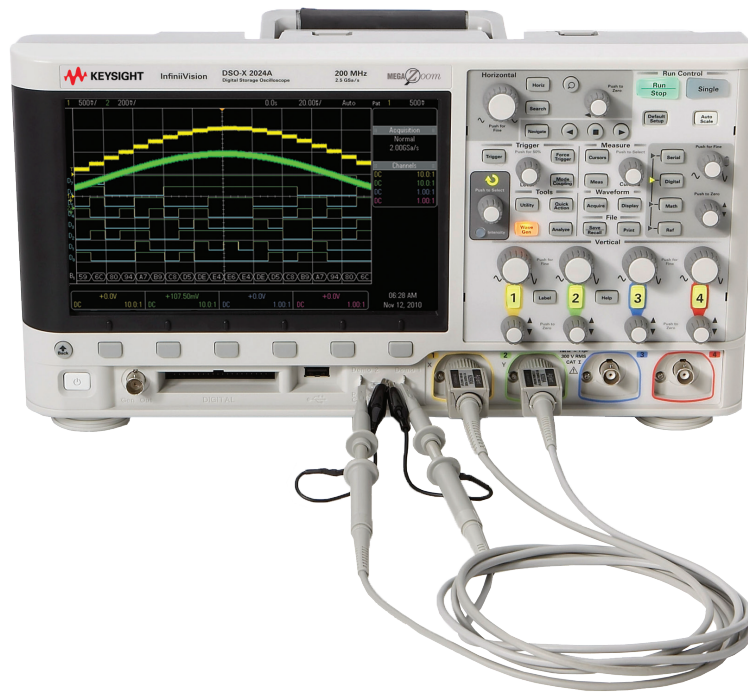


Keysight Technologies

N28xxA/B Passive Probes



Data Sheet



Introduction

The Keysight Technologies, Inc. N28xxA/B low-cost, general-purpose passive probes provide up to 500 MHz bandwidth and feature a high input resistance of 10 M Ω for low probe loading. These probes provide a 10:1 attenuation ratio except for the N2889A which provides a switch in the probe handle for switching the attenuation ratio between 1:1 and 10:1.

The probes are compatible with Keysight InfiniiVision and Infiniium Series oscilloscopes with 1 M Ω input.

The N284xA Series passive probes are the frequency tuned versions of the N2862B/63B/89A/90A, offering more linear frequency response with Keysight oscilloscopes.



N2840A/41A/42A/43A/53A

Characteristics

| Probe characteristics | N2862B /N2840A | N2862B/N2841A | N2863B /N2842A/N2853A | N2889A | N2890A |
|---|--|---|--|--|---|
| Bandwidth (-3 dB) | 50 MHz | 150 MHz | 300 MHz (N2863B, N2842A), 350 MHz (N2853A) | 350MHz (@10:1), 10MHz (@1:1) | 500 MHz |
| Rise time (10% - 90%) | 7 nsec | 2.33 nsec | 1.16 nsec (N2863B, N2842A), 1 nsec (N2853A) | 1 nsec (@10:1), 35 nsec (@1:1) | 700 psec |
| Attenuation ratio | 10:1 | 10:1 | 10:1 | 1:1/10:1 (switchable) | 10:1 |
| Input resistance (when terminated into 1 M Ω) | 10 M Ω | 10 M Ω | 10 M Ω | 10 M Ω (@10:1), 1 M Ω (@1:1) | 10 M Ω |
| Maximum input voltage | 300 V RMS (or >400Vpk) CAT I and CAT II | 300 V RMS (or >400Vpk) CAT I and CAT II | 300 V RMS (or >400Vpk) CAT I and CAT II | 300 VRMS (or >400Vpk) CAT I/II (@10:1), 150 V RMS CAT I/II (@1:1) | 300 V RMS (or >400Vpk) CAT I and CAT II |
| Scope compensation range | 5 - 30 pF | 5-30 pF | 5-30 pF | 5-30 pF (@10:1) | 5-30 pF |
| Probe ID | Yes | Yes | Yes | No | Yes |
| Cable length | 1.2 m | 1.2 m | 1.2 m (N2863B, N2842A), 2 m (N2853A) | 1.3 m | 1.3 m |
| Safety | Conformance to IEC-61010-031:2002 | | | | |
| Operating Temperature | 0 to 50 °C, 80% RH | | | | |
| Storage Temperature | 0 to 50 °C, 80% RH | | | | |

Compensation Adjustments

These probes can be adjusted for low-frequency and high-frequency compensation. For the best measurement results you should compensate your probe to match its characteristics to the oscilloscope. A poorly compensated probe can introduce measurement errors. Lowfrequency compensation should be performed before performing highfrequency compensation.

Low-frequency compensation

1. Connect the probe from the appropriate oscilloscope channel to the 1-kHz square wave source.
2. Press Autoscale. Adjust the oscilloscope to display two to three cycles of the waveform over two to six vertical divisions.
3. Set the low-frequency (LF) compensation adjustment on the probe for the flattest pulse possible (see Figure 3).

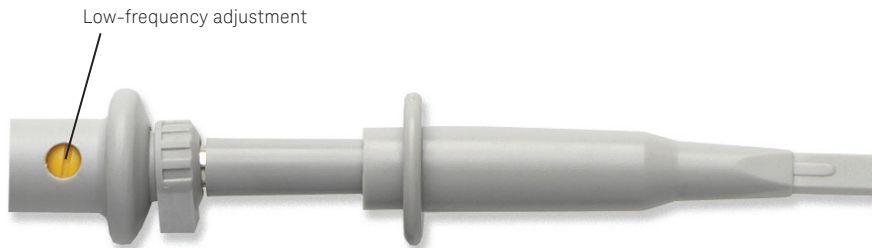


Figure 1. Low-frequency compensation adjustment



Figure 2. Low-frequency compensation adjustment (for N2840A/41A/42A/43A/53A)

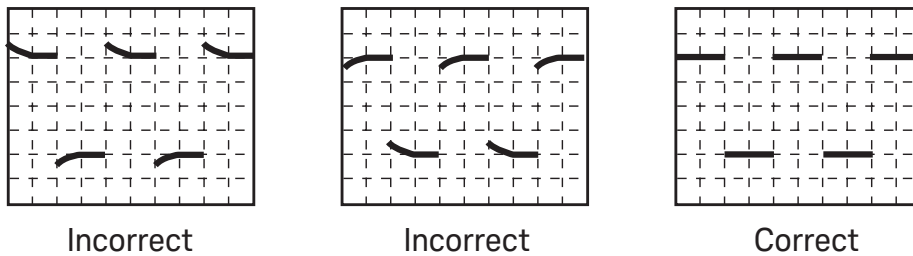


Figure 3.

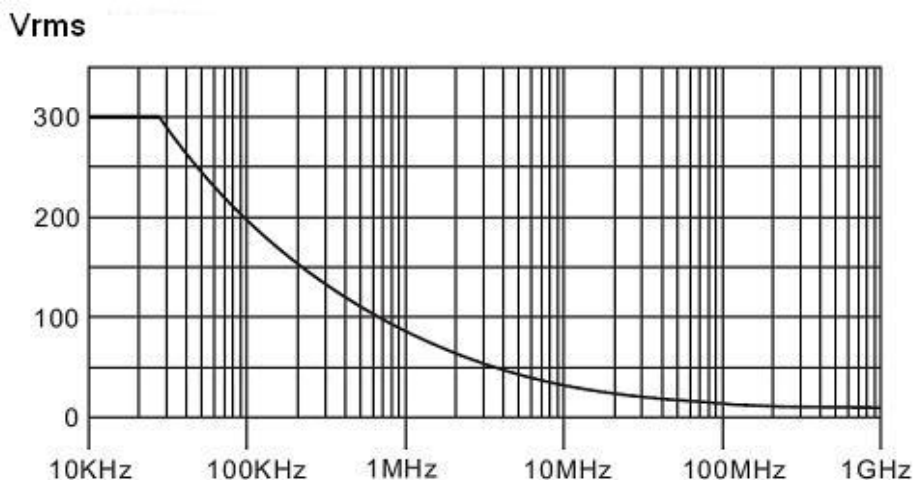


Figure 4. Voltage derating curve

Compensation Adjustments (continued)



Standard Accessories

| Item | Description | Quantity |
|------|---|--|
| 1 | Retractable hook | 1 |
| 2 | Adjustment tools | 2 (with N2889A/90A) 1 (with all others) |
| 3 | Insulating cap | 1 |
| 4 | IC insulating cap | 1 |
| 5 | Identification tags (green,yellow, purple and pink) | 2 each |
| 6 | Probe tip | 2 |
| 7 | Ground spring | 1 |
| 8 | BNC adapter | 1 |
| 9 | Ground lead (black 12 cm) | 1 |

Replacement accessories

- 0960-2900 Retractable hook tips
- 0960-2922 PCB socket adapter
- 0960-2923 Dual-lead adapter
- N2856A Accessory kit (containing all standard accessories)
- N2857A Alligator ground lead
- N2858A Retractable hook tip
- N2859A Replaceable probe tip



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