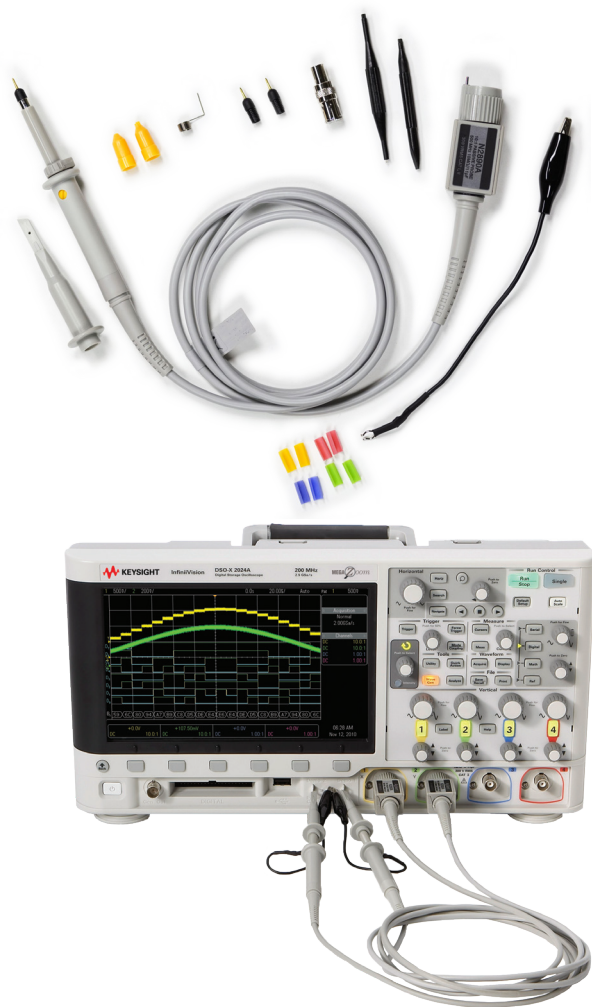


N28xxA/B Passive Probes



Introduction

The Keysight 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 BNC 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 | N2840A | N2862B/N2841A | N2863B /N2842A/N2853A | N2889A | N2890A/N2843A |
|---|--|---|---|--|---|
| Bandwidth (-3 dB) | 50 MHz | 150 MHz | 300 MHz (N2863B, N2842A), 350 MHz (N2853A) | 350 MHz (at 10:1), 10 MHz (at 1:1) | 500 MHz |
| Rise time (10 to 90%) | 7 nsec | 2.33 nsec | 1.16 nsec (N2863B, N2842A), 1 nsec (N2853A) | 1 nsec (at 10:1), 35 nsec (at 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 (at 10:1), 1 M Ω (at 1:1) | 10 M Ω |
| Input capacitance | 15 pF | 15 pF | 11 pF | 11 pF (at 10:1), 60 pF (at 1:1) | 11 pF |
| Maximum input voltage | 300 V RMS (or < 400 Vpk) mains isolated and CAT II | 300 V RMS (or < 400 Vpk) mains isolated and CAT II | 300 V RMS (or < 400 Vpk) mains isolated and CAT II | 300 VRMS (or < 400 Vpk) mains isolated/II (at 10:1), 150 V RMS CAT I/II (at 1:1) | 300 V RMS (or < 400 Vpk) mains isolated and CAT II |
| Scope compensation range | 5-30 pF | 5-30 pF | 5-30 pF | 5-30 pF (at 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 (N2890A), 1.2 m (N2843A) |
| Safety | Conformance to IEC-61010-031:2015 | | | | |
| Operating temperature | 0 to +50 °C (N2862B/63B, N2889A, N2890A), 0 to +55 °C (N2840A/41A/42A/43A) | | | | |
| Storage temperature | 0 to +50 °C (N2862B/63B, N2889A, N2890A), -40 to +70 °C (N2840A/41A/42A/43A) | | | | |
| Humidity | 80% RH for non-condensing | | | | |

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. Low-frequency compensation should be performed before performing high-frequency 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).

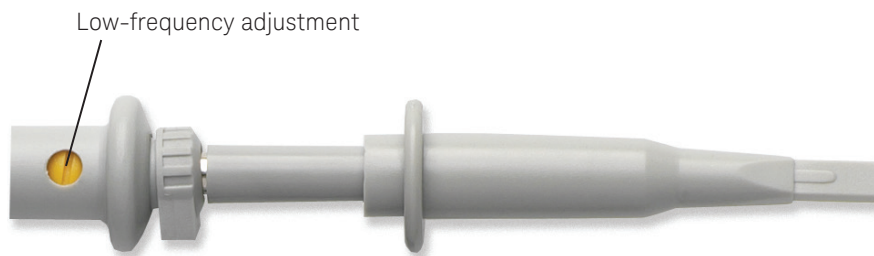


Figure 1. Low-frequency compensation adjustment (for N2862B/63B/89A/90A).



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

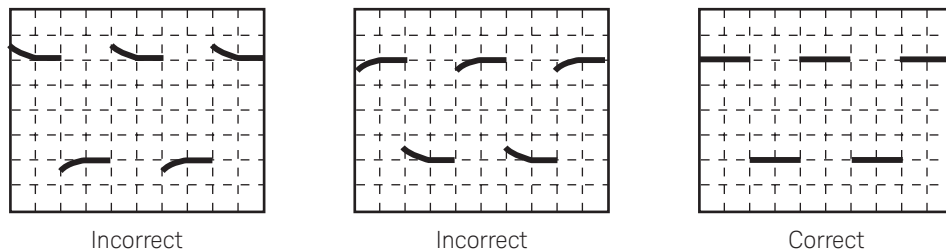


Figure 3.

Compensation Adjustments (Continued)

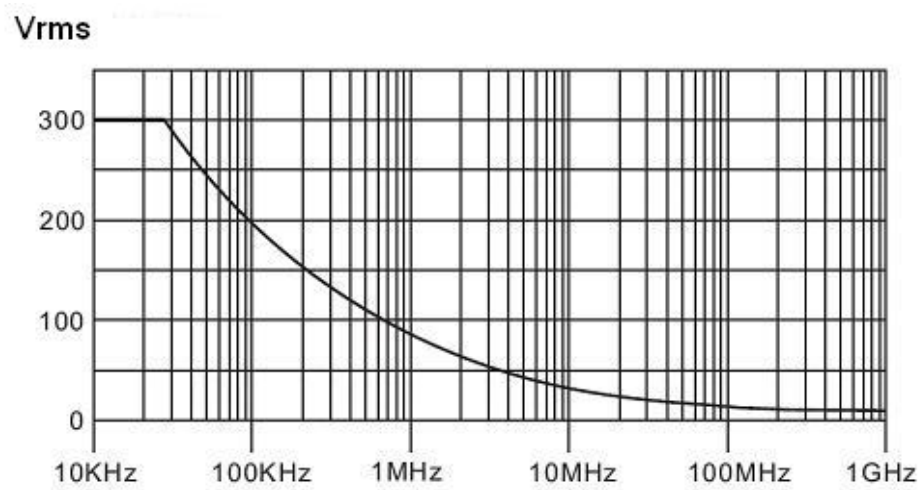


Figure 4. Voltage derating curve @10:1 attenuation ratio.

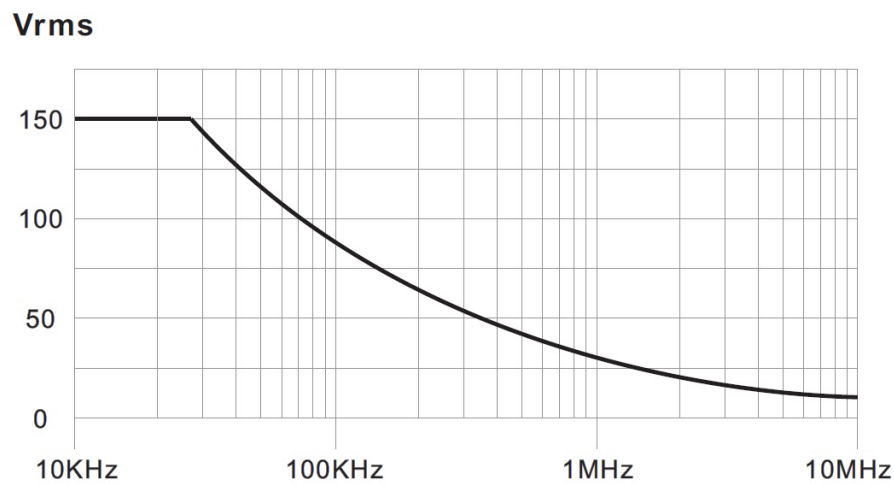


Figure 5. Voltage derating curve @1:1 attenuation ratio (N2889A)

Accessories



Figure 6. With standard accessories included in the probe

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 |

N2856A passive probe accessory kit

The N2856A passive probe accessory kit includes all of the standard accessories for the N2840A, N2841A, N2842A, N2843A, and N2853A passive probes.

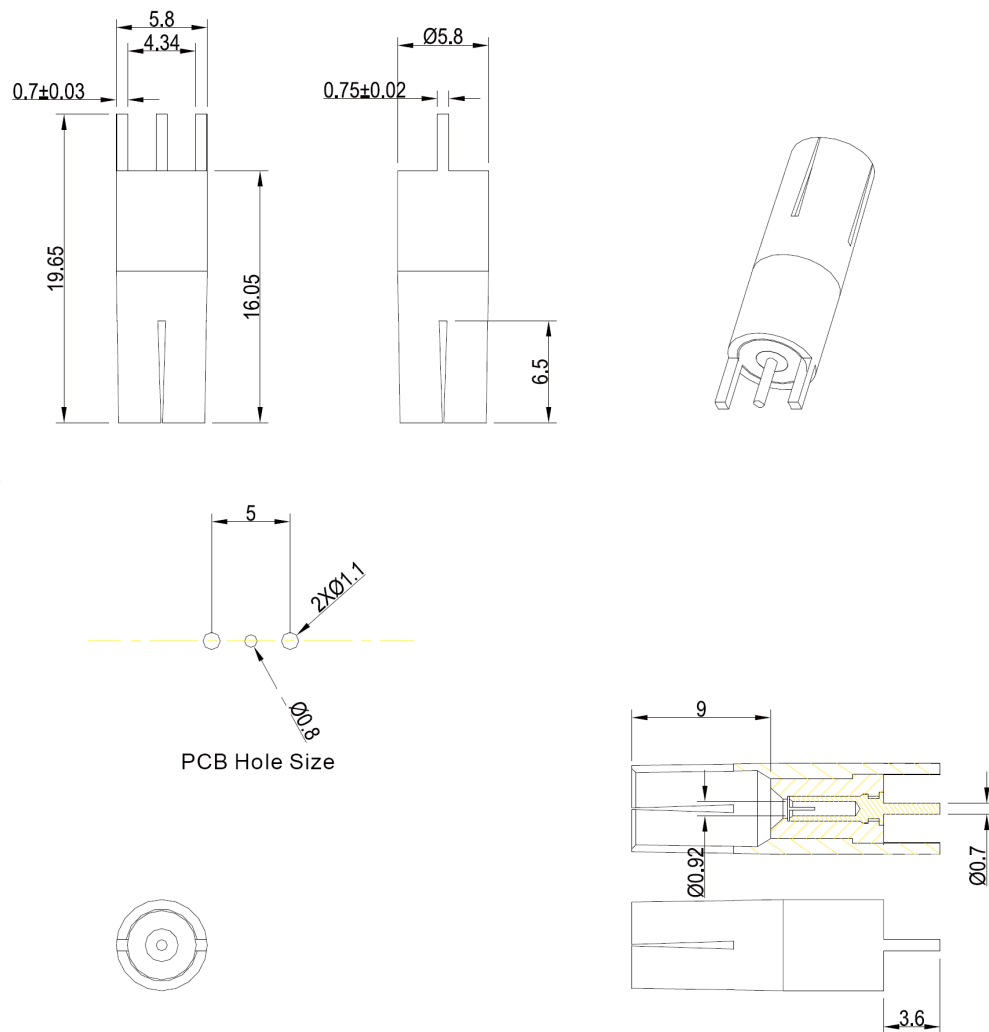
Contents:

- Retractable hook
- Adjustment Tools
- Insulating cap
- IC insulating cap
- Identification tags (green, yellow, purple, and pink) (2 each)
- Probe tips
- Ground spring
- BNC adapter
- Ground lead (12 cm)

Accessories (Continued)

Replacement accessories

- N2857A alligator ground lead (qty 1)
- N2858A retractable hook tip adapter (qty 1)
- N2859A replaceable probe tip (qty 1)
- N4826A dual lead adapter (qty 2)
- N4827A PCB socket adapter (qty 2)
- N4828A ground spring, 5 mm (qty 2)



unit : mm

Figure 7. N4827A PCB socket adapter dimension and foot print information.

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