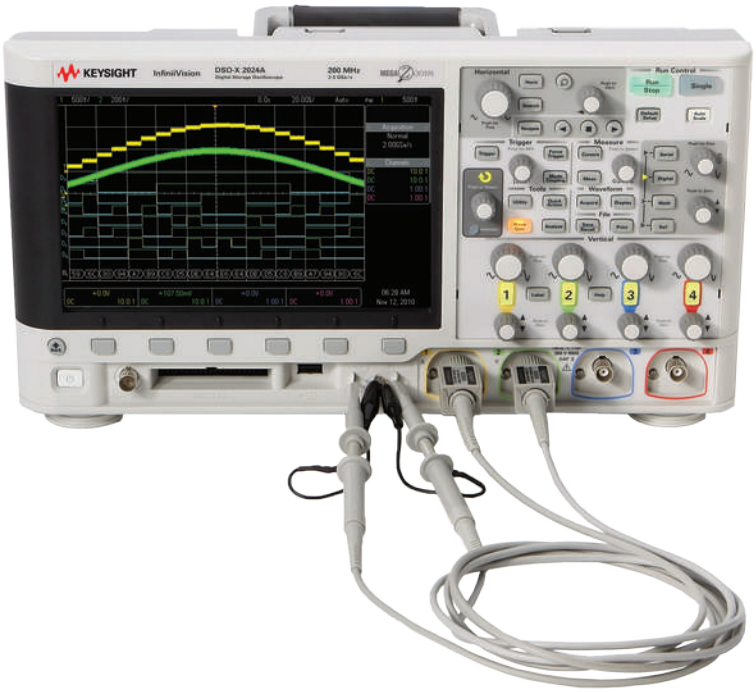
Keysight Technologies
N28xxA/B Passive Probes



Data Sheet



KEYSIGHT TECHNOLOGIES

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 MΩ 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 MΩ 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 MΩ)	10 MΩ	10 MΩ	10 MΩ	10 MΩ (@10:1), 1 MΩ (@1:1)	10 MΩ
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)

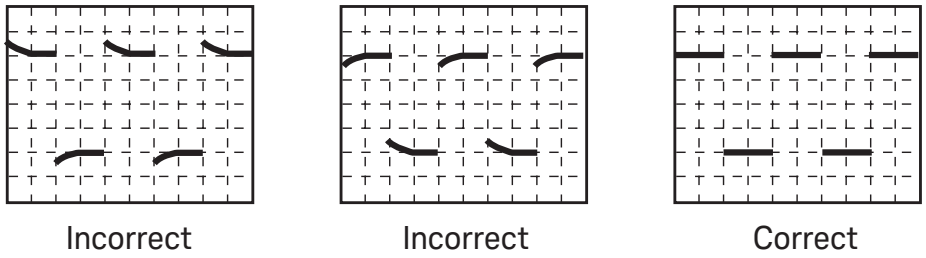


Figure 3.

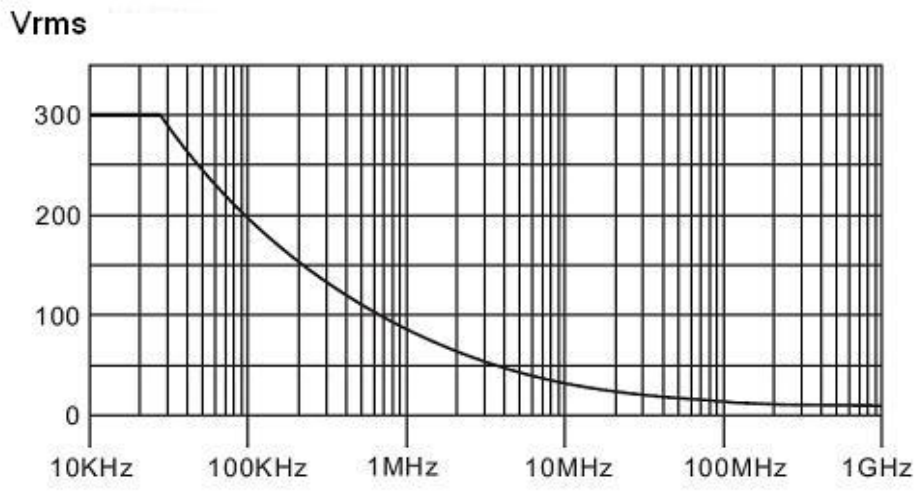


Figure 4. Voltage derating curve

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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