

Agilent Technologies N3280A Component Test dc Source

Data Sheet

*Increase system
throughput and save
rack space with this
affordable, quad output,
bipolar dc source.*



Minimize cost per pin

RF and mixed signal semi-conductors can easily be tested using the quad-output N3280A Component Test dc Source. Because this power source is optimized specifically for low power IC manufacturing test systems, which always require multiple channel dc power, it gives you the performance and features that you need in an extremely compact package. The price is amazingly affordable, and the rack space reduction achieved by using this 4-in-1 dc source, rather than four separate sources, further enhances your potential cost savings. For those systems that support multi-site testing, the density of this dc source will provide even more dramatic savings in cost and rack space.

Increase system throughput

The N3280A Component Test dc Source provides at least five times faster performance than any previous Agilent dc source, because of reduced command processing time both for setting output levels and for acquiring measurements.

The bipolar nature of this dc source means a fast transition to, and through, zero volts. Programming a bipolar output is a faster method of obtaining a negative voltage than using a polarity reversal relay.

The power supply offers the built-in capability to set a delay time following an output change and before a measurement begins, which eliminates the need to use an external timer. This enables more accurate timing and a shorter delay time further reducing overall test time.

Programming all four outputs, or any combination of outputs, can be grouped in one programming command. This simplifies the software program, and reduces the GPIB transaction time. Significant time can also be saved, by making measurements on all four channels simultaneously.

Measurements can also be triggered from an external input, eliminating computer interaction.

Four 16-bit precision bipolar outputs take the space of one

The Agilent N3280A has four identical, isolated, precision bipolar outputs. Each output can be operated either in the voltage priority mode or the current priority mode. The voltage priority mode provides a ± 10.25 volt precision voltage source, with an adjustable ± 0.5125 amp current limit. In the voltage priority mode, up to 5.25 watts per output is available. In the current priority mode, the precision current source provides ± 0.5125 mA with non-programmable voltage limits. This small precision current source allows for continuity testing of sensitive devices like input diodes without overdriving its circuits.

Precision 16-bit current measurement

Each output has its own 16-bit precision voltmeter and ammeter measurement for full current characterization and fault analysis. Additional accuracy in current measurements is provided by three measurement ranges. Current consumption of your device under test can be easily characterized with the digitizing measurement capability.

For each device being tested, you can optimize the measurement system of the power supply

for either speed or accuracy, by specifying the number of measurement samples averaged (up to 4096 samples) to produce a measurement and by varying the sample rate in steps of 30.4 μ s, as shown in figure 1.

Active guard connections are provided at the output connectors, to eliminate the effects of any leakage current. The guard connections can be extended to the test fixture to eliminate the effects of leakage current when testing high-impedance devices.

Increase production yield

Oscillation detection is one of the unique features that the Agilent N3280A provides to protect your device under test. In the unlikely event of an oscillation due to difficult load characteristics, the output is shut down in less than 10 ms, avoiding any damage to fixturing or the device under test.

Also, the bandwidth is programmable, so that the transient response can be matched to the load characteristics.

Other protection features to guard your valuable DUT include: positive and negative overvoltage protection (in voltage priority mode), output disconnect relays, and overtemperature protection.

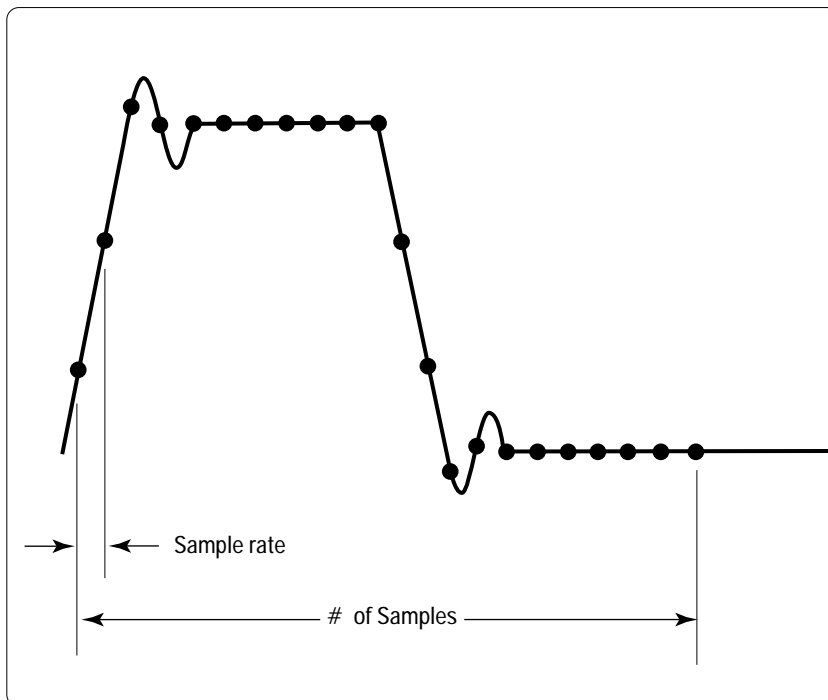


Figure 1. Illustration of both the sample rate and the number of samples

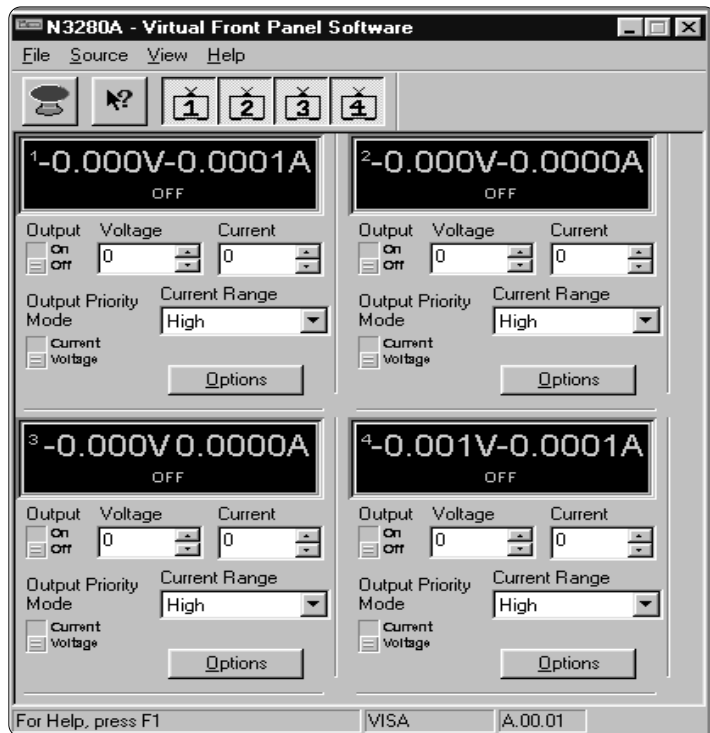


Figure 2. N3280A Virtual Front Panel Software

Easy system integration

This quad-output source is easy to integrate into a test system. The hardware connections are intended for quick configuration and the software is built on a straight-forward standard SCPI command set.

Free Virtual Front Panel Software

The Virtual Front Panel Software is a graphical user interface that allows you to quickly and easily control and configure the instrument. It displays the instrument settings, measurement readback and operating states of each channel. There is no programming required and best of all – it is free.

Specifications (applies to each of the four identical outputs)		Voltage Priority Mode	Current Priority Mode
at 25°C ± 5°C			
Output Ratings ¹	Voltage	-10.25 V to +10.25 V	-8 V to +8 V (full load) -11.25 V to +11.25 V (no load)
	Current	-0.5125 A to +0.5125 A	-0.5125 mA to +0.5125 mA
Programming Accuracy	Voltage	0.1% ± 2 mV	N/A
	+Current Limit	0.1% ± 50 µA	N/A
	-Current Limit	0.1% ± 50 µA	N/A
	Current	N/A	0.1% ± 1 µA
Measurement Accuracy ²	Voltage	0.1% ± 2 mV	0.1% ± 2 mV
	0.5 A Current Range	0.1% ± 200 µA	0.1% ± 200 nA
	15 mA Current Range	0.1% ± 5 µA	0.1% ± 200 nA
	0.5 mA Current Range	0.1% ± 200 nA	0.1% ± 200 nA
Ripple and Noise (in the range of 20 Hz to 20 MHz)	Voltage (rms)	0.380 mV	N/A
	Voltage (p-p)	4 mV	N/A
	±Current Limit (rms)	40 µA	N/A
	Current (rms)	N/A	1.5 µA
Load Regulation (A change from no load to full load or full load to no load by varying a resistive load)	Voltage	± 400 µV	N/A
	+Current Limit	± 30 µA	N/A
	-Current Limit	± 30 µA	N/A
	Current	N/A	± 25 nA
Line Regulation (A change in output voltage or current for any line change within ratings)	Voltage	± 200 µV	N/A
	+Current Limit	± 10 µA	N/A
	-Current Limit	± 10 µA	N/A
	Current	N/A	± 10 nA
Output Transient Response	Voltage: ³		
	BW = 10 kHz	60 µs	N/A
	BW = 20 kHz	45 µs	N/A
	BW = 30 kHz	35 µs	N/A
	Current ⁴	N/A	90 µs

Notes:

- ¹ Full current at 40°C. Linearly derated to 50% of full current at 55°C.
- ² Measurement default is 5 measurement samples 30.4 microseconds apart. 0.5 mA range measured with the number of samples equivalent to one power line cycle.
- ³ Time for output voltage to recover to within 40 mV of former value after a change from 0.25 A to 0.5 A or 0.5 A to 0.25 A
- ⁴ Time for output current to recover to within 1 mA of former value after a change from -1 V to +1 V or +1 V to -1 V.

Supplemental Characteristics		Voltage Priority Mode	Current Priority Mode
(Non-warranted characteristics determined by design that are useful in applying the product)			
Programming Resolution	Voltage	312 μ V	N/A
	Current	N/A	16 nA
	\pm Current Limit	8 μ A	N/A
Measurement Resolution	Voltage	312 μ V	312 μ V
	Current:		
	0.5 mA Current Range	16 nA	16 nA
	15 mA Current Range	460 nA	16 nA
0.5 A Current Range	18 μ A	16 nA	
Programming Output Rise/Fall Time (10% to 90% or 90% to 10%) (-80% to +80%)	Voltage	150 μ sec	N/A
	Current	N/A	160 μ s
Measurement Speed ⁵ (with 5 samples)	Voltage/Current	1.3 ms (2.1 ms for all outputs simultaneously)	1.3 ms (2.1 ms for all outputs simultaneously)
Trigger System	Trigger In	Chassis to ground referenced TTL levels	Chassis to ground referenced TTL levels
	Trigger latency	30 μ s maximum	30 μ s maximum

Notes:

⁵ Time from start of bus communication to final byte returned on bus. Assumes the default of 5 points 30.4 μ s apart.

dc Floating Voltage: Output terminals can be floated up to \pm 50 Vdc maximum from chassis ground and \pm 100 Vdc from output to output.

Remote Sensing: Up to 1/2 the maximum output voltage may be dropped across each load lead. Add 1/2 mV to the load regulation for each 1 V change in the HI output lead.

Command Processing Time: The time to set an output parameter is 0.6 ms for a single output (0.7 ms for all outputs simultaneously). Time to query a setting is 1.0 ms (1.5 ms for all outputs simultaneously)

Dynamic Measurement System

Buffer Size = 4096 points
Sampling rate increments = 30.4 μ s

GPIO Interface Capabilities: IEEE-488.2, SCPI command set, AH1, C0, DC1, DT1, E1, L4, PP0, RL1, SH1, SR1, T6

Input Power (full load):

	100 Vac	120 Vac	220 Vac	230 Vac
Current	1.85 A	1.55 A	0.90 A	0.80 A
(max)				
Power	140 W	140 W	140 W	140 W
(max)				

Regulatory Compliance: Complies with EMC directive 89/336/EEC (ISM group 1 Class A)

Warranty Period: 18 months

Size: 212.7 mm W x 88.9 mm H x 497.8 mm D (8.4 in x 3.5 in x 19.6 in)

Weight: 10 kg (22 lbs) net; 11.8 kg (26 lbs) shipping

Ordering Information

Opt 100 87 to 106 Vac, 47 to 63 Hz

Opt 120 104 to 127 Vac, 47 to 63 Hz

Opt 220 191 to 233 Vac, 47 to 63 Hz

Opt 230 207 to 253 Vac, 47 to 63 Hz

Opt 0L1 Standard
documentation package

Opt 0L2 Extra standard
documentation package

Opt 8ZL Add feet – for bench use,
p/n 5041-9167

Opt 1CM Rackmount kit, p/n 5063-9240

Opt AXS Rackmount kit for side-by-side
mounting, Lock-link kit p/n 5061-9694;
Flange Kit p/n 5063-9212; Tie Bracket
Kit p/n 5965-6947

Accessories

p/n N3280A-10001 Virtual Front
Panel Software

p/n 5063-9255, and 1494-0015 Rack
mount with slide for two
side-by-side units

p/n 5063-9255, 1494-0015, and 5002-3999
Rack mount with slide for one unit

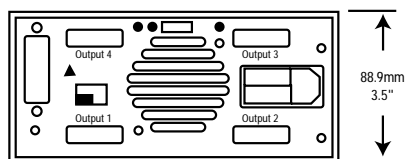
p/n 1253-4893 Output connector – qty 4
(6-terminal output connector plug)

p/n 1252-8670 Trigger connector
(3-terminal digital plug)

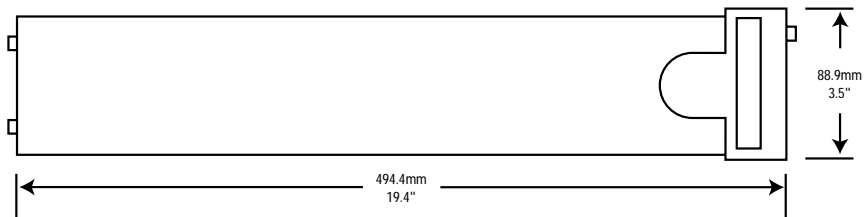
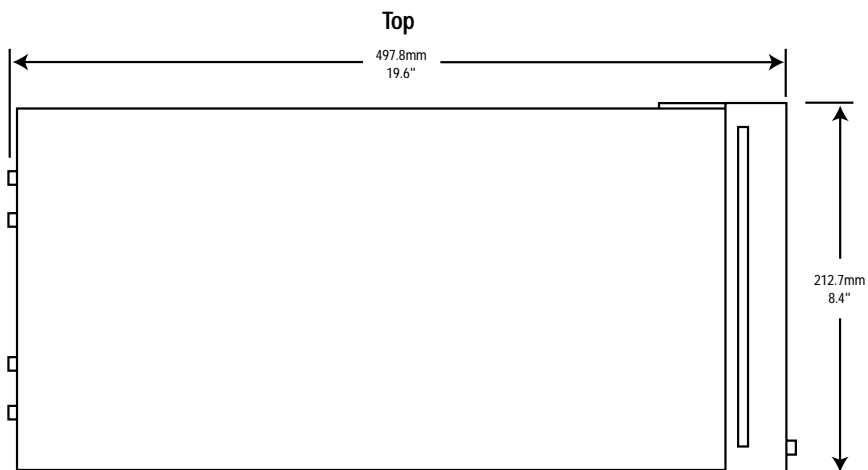
Front Panel



Rear Panel



Rear



Side

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