



## High Performance Sampling Heads

SD14 \* SD20 \* SD22/24/26 \* SD32 \* SD42/44 \* ORR24

### Characteristics

**Acquisition System** - SD14, SD22, SD24, SD26: dual channel; SD20, SD32: single channel.

**Rise Time** - SD14: 140 ps; SD20, SD24, SD26: 17.5 ps; SD22: 28 ps, all from 10% to 90%.

**Bandwidth** - 3 GHz (typical) for the SD14; 20 GHz for the SD20, SD24, and SD26; 12.5 GHz for the SD22; 50 GHz for the SD32.

**Dynamic Range** - 1  $V_{p-p}$  within a  $\pm 1.6$  V range for the SD20, SD22, SD24, SD32; 7  $V_{p-p}$  within a  $\pm 3.5$  V offset range for the SD14.

**Dot Transient Response** - Accuracy after calibration at operating temperature is  $\pm 5\%$  for signals up to 0.5  $V_{p-p}$ . Adjustable to unity for signals up to 1.0  $V_{p-p}$ .

**Input Impedance** - SD22, SD24, SD26, SD32: 50 Ohm  $\pm 0.5$  Ohm. SD14 is 100 kilohm and 0.5 pF (0.55 pF for Opt. 01). SD20 is not terminated and not rated.

### Displayed Noise -

	Maximum	Typical
<b>With unity dot response:</b>		
SD20, SD24, SD26	1.2 mV	750 $\mu$ V
SD22	800 $\mu$ V	450 $\mu$ V
SD14	8 mV	7 mV
SD32	2.3 mV	1.8 mV
<b>With smoothing:</b>		
SD20, SD24, SD26	550 $\mu$ V	350 $\mu$ V
SD22	400 $\mu$ V	180 $\mu$ V
SD32	1 mV	700 $\mu$ V

**Aberrations (typical) (SD20, SD22, SD24, SD26 only)** - The following are acquisition aberrations. 10 ns to 20 ps before step:  $\pm 3\%$  or less. <300 ps after step: +10%, -5% or less. 300 ps to 5 ns after step:  $\pm 3\%$  or less. 300 ps to 5 ns after step:  $\pm 4$  or less (SD20 only). 5 ns to 100 ns after step:  $\pm 1\%$  or less. Elsewhere:  $\pm 0.5\%$  or less.

**Aberrations (typical) (SD14 only)** - <1.5 ns after step: +12%, -25%, 1.5 ns to 4 ns after step: +1%, -3%, 4 ns to 30 ns after step:  $\pm 2\%$ . Elsewhere:  $\pm 1\%$ .

**Maximum Input Voltage** -  $\pm 3$  V. SD14:  $\pm 15$  V; SD32:  $\pm 2$  V.



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**Isolation Between Channels** - 1% p-p voltage transmission from the channel driven by the 067-1338-00, to the quiescent channel (see Multi-channel Unit/Delay Line/Static Isolation Unit/Calibration Step Generator, DL11 \* SIU800).

**Time Coincidence Between Channels** - 10 ps accuracy; <0.2 ps/°C stability.

### TDR System (SD24 Only)

Displayed Rise Time

**Incident** - 28 ps typical, 10% to 90%, at +250 mV or -250 mV output, elsewhere  $\pm 1\%$ .

**Reflected** - 35 ps or less, 10% to 90%, at +250 mV or -250 mV output.

**TDR Step Amplitude** - Adjustable to  $\pm 250$  mV (polarity of either step may be inverted).

**Time Coincidence Between TDR steps** - Adjustable to less than 1 ps.

**Source Resistance** - 50 Ohm  $\pm 0.5$  Ohm.

**Aberrations (at  $\pm 250$  mV amplitude)** - The following are TDR aberrations. 10 ns to 20 ps before step:  $\pm 3\%$  or less. <300 ps after step: +10%, -5% or less. 300 ps to 5 ns after step:  $\pm 3\%$  or less. Elsewhere:  $\pm 1\%$  or less.

### Environmental Characteristics

(11801C, CSA803C, SD-Series Heads)

**Temperature** - Operating: 0°C to +50°C; nonoperating: -40°C to +75°C.

**Altitude, Vibration, Shock, Bench Handling** - Operating and nonoperating: meets MIL-T-28800C, Type III, Class 5.

**Electromagnetic Compatibility (not SD14)** - Meets the following requirements of MIL-STD-461C: CE-03 Pt 4 Curve 1, CS-01 Pt 7, CS-02 Pt 4, CS-06 Pt 5, RE-02 Pt 7, RS-01 Pt 4, RS-02 Pt 5, RS-03 Pt 7 (limited to 1 GHz). Meets FCC Part 15, subpart J, Class A. For Germany: Meets VDE 0871/6.78 Class B. (Not all for SD14.)

**Humidity** - To 95% RH at up to 50°C.