Chapter 18 Specifications

All the specifications are guaranteed except the parameters marked with "Typical" and the oscilloscope needs to operate for more than 30 minutes under the specified operation temperature.

Sample

Sample Mode	Real-time Sample B E: 2GSa/s x 2 Ch; 1Gs/s 4 Ch
Real Time Sample Rate	Analog channe: 1 GSa/s (single-channel), 500 Msa/s (dual-channel), 250 MSa/s (3/4-channel) Digital channel: 1 GSa/s (8-channel), 500 MSa/s (16-channel)
Peak Detect	Analog channe: 4 ns 2ns B,E Digital channel: 4 ns
Averaging	After all the channels finish N samples at the same time, N can be 2, 4, 8, 16, 32, 64, 128, 256, 512 or 1024 to 256, B,E
High Resolution	12 bit (max) 8 bit purely, B,E
Interpolation	Sin(x)/x (optional) B,E not optional, on with vectors
Min Detect Pulse Width	Digital channel: 10 ns
Memory Depth	Analog channel: standard 12M pts (single-channel), 6M pts (dual-channel), 3M pts (3/4-channel); optional 24 Mpts (single-channel), 12 Mpts(dual-channel), 6 Mpts (3/4-channel) Digital channel: standard 12 Mpts (8-channel)/6 Mpts(16-channel); optional 24 Mpts(8-channel)/12 Mpts(16-channel) 10Mpts all channels, B,E

Input

Number of Channels	MSO1XX4Z/1XX4Z-S: 4 analog channels+16 digital channels DS1XX4Z/1XX4Z-S: 4 analog channels
Input Coupling	DC, AC or GND
Input Impedance	Analog channe: (1 MΩ±1%) || (15 pF±3 pF) Digital channel: (100 kΩ±1%) || (8 pF±3 pF)
Probe Attenuation Coefficient	Analog channe: 0.01X to 1000X, in 1-2-5 step
Maximum Input Voltage (1MΩ)	Analog Channel transient not specified but CAT 1: B, E CAT I 300 Vrms, CAT II 100 Vrms, Transient Overvoltage 1000 Vpk With RP2200 10:1 probe: CAT II 300 Vrms Digital channel: CAT I 40Vrms, Transient Overvoltage 800 Vpk

Horizontal

Timebase Scale	5 ns/div to 50 s/div 1ns/div - 100s/div B,E
Max Record Length	24 Mpts (optional) 10Mpts on all channels equally
Timebase Accuracy[1]	≤±25 ppm 50 ppm B,E
Clock Drift	≤±5 ppm/year not specified
Max Delay Range	Negative delay: ≥1/2 screen width 1 screen B,E Positive delay: 1 s to 5000 s 2,000,000 sec B,E
Timebase Mode	YT, XY, Roll ✓ B,E does calcs, measures in all as well as buffer
Number of X-Y	1 2 in B,E
Waveform Capture Rate[2]	30,000 wfms/s (dots display) ~120,000 wfms/s B,E dot or vector

Vertical

Bandwidth (-3dB)	MSO/DS 1104Z/1104Z-S: DC to 100 MHz ✓ MSO/DS 1074Z/1074Z-S: DC to 70 MHz ✓ DS1054Z: DC to 50 MHz ✓
Single-shot Bandwidth	MSO/DS 1104Z/1104Z-S: DC to 100 MHz ✓ MSO/DS 1074Z/1074Z-S: DC to 70 MHz ✓ DS1054Z: DC to 50 MHz ✓
Vertical Resolution	Analog channe: 8 bit ✓ Digital channel: 1 bit
Vertical Scale	1 mV/div to 10 V/div ✓
Offset Range (Probe ratio is 1X)	1 mV/div to 499 mV/div: ±2 V ✓ 500 mV/div to 10 V/div: ±100 V ✓
Bandwidth Limit[1]	20 MHz ✓
Low Frequency Response (AC Coupling, -3dB)	≤5 Hz (on BNC) ✓
Calculated Rise Time[1]	MSO/DS 1104Z/1104Z-S: 3.5 ns ✓ MSO/DS 1074Z/1074Z-S: 5 ns ✓ DS1054Z: 7 ns 5ns, B,E
DC Gain Accuracy[3]	<10 mV: ±4% full scale 5% to 1 mV, B,E ≥10 mV: ±3% full scale 2mV, B,E
DC Offset Accuracy	±0.1 div ±2 mV ±1% offset value 3% B,E
Channel to Channel Isolation	DC to maximum bandwidth: >40 dB not specified

Vertical (Digital Channel) not applicable

Threshold	Adjustable threshold of 8 channels per group
Threshold Selection	TTL (1.4 V)
	5.0 V CMOS (+2.5 V), 3.3 V CMOS (+1.65 V)
	2.5 V CMOS (+1.25 V), 1.8 V CMOS (+0.9 V)
	ECL (-1.3 V)
	PECL (+3.7 V)
	LVDS (+1.2 V)
	0 V
	User
Threshold Range	±15.0V, 10 mV step
Threshold Accuracy	±(100 mV+3% threshold setting)
Dynamic Range	±10.0 V + threshold
Minimum Voltage Swing	500 mVpp
Vertical Resolution	1 bit

Trigger

Trigger Level Range	± 5 div from center of the screen ✓
Trigger Mode	Auto, Normal, Single ✓
Holdoff Range	16 ns to 10 s 4ns to 10ns B,E
High Frequency Rejection[1]	75 kHz 70kHz B,E
Low Frequency Rejection[1]	75 kHz 70kHz B,E
Trigger Sensitivity[1]	1.0 div (below 5 mV or noise rejection is enabled) ✓ 0.3 div (above 5 mV and noise rejection is disabled) ✗
Edge Trigger	
Edge Type	Rising, Falling, Rising/Falling ✓
Pulse Trigger	
Pulse Condition	Positive Pulse Width (greater than, lower than, within specific interval) ✓ Negative Pulse Width (greater than, lower than, within specific interval) ✓
Pulse Width	8 ns to 10 s 4ns to 10s, B,E
Runt Trigger (Option)	
Pulse Width Condition	None, >, <, <> ✓
Pulse Polarity	Positive, Negative ✓