

TEKTRONIX

TDS684A

The Tektronix TDS684A is a high-performance 1 GHz, 4-channel digital real-time oscilloscope designed for high-speed digital design and analysis. Featuring a real-time sample rate of 5 GS/s simultaneously across all four channels, it offers precise signal acquisition, advanced DSP-based waveform math, and a NuColor liquid crystal shutter color display. It is equipped with GPIB, RS-232, and Centronics interfaces for seamless automation and documentation.

SPECIFICATIONS

General

Interfaces	GPIB, RS-232, Centronics Parallel, VGA
Display	7-inch Color CRT (NuColor liquid crystal shutter display)

Physical

Power Supply	90 to 250 V RMS, 45 to 440 Hz, max 350 W
Operating Temperature	4 to +50 °C °C
Dimensions (W×H×D)	448 mm × 193 mm × 547 mm mm

Vertical System

Analog Bandwidth (-3 dB)	1 GHz
Number of Input Channels	4
Vertical Resolution	8 bits (>11-bits with averaging)
Calculated Rise Time (10% to 90%)	350 ps
Input Impedance	50 Ω
Input Coupling	DC, GND
Maximum Input Voltage	5 V RMS
Bandwidth Limit Filters	20 MHz and 250 MHz
Vertical Sensitivity Range	1 mV/div to 10 V/div
DC Gain Accuracy	±1.5%
Offset Range	±1 V (1 mV/div to 99.5 mV/div), ±10 V (100 mV/div to 10 V/div)
Vertical Position Range	±5 divisions
Channel-to-Channel Deskew Range	±8 ns
Channel Isolation	≥ 100:1 at 100 MHz, ≥ 30:1 at 1 GHz

Acquisition System

Maximum Real-Time Sample Rate	5 GS/s on all channels simultaneously
Maximum Record Length	15,000 pts per channel
Maximum Waveform Capture Rate	Up to 100,000 wfms/s (InstaVu mode)
Acquisition Modes	Sample, Envelope, Average, Single Sequence

Horizontal System

Timebase Range	200 ps/div to 10 s/div
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Trigger System

Trigger Modes	Auto, Normal, Single
Trigger Sources	CH1, CH2, CH3, CH4, Aux, AC Line

Waveform Measurements and Analysis Limiting

Waveform Math Operators	Advanced Waveform DSP/Math
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Physical Characteristics

Disk Drive	3.5-inch Floppy Drive
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Connectivity and Interfaces

GPIO Interface	IEEE-488.2 Port
External Video Output	VGA I/O Port
Printer Interface	Centronics Printer Port
Serial Interface	RS-232 Port

Display

Display Type	7-inch Color Liquid Crystal Shutter CRT
Display Graticules	Full, Grid, Crosshair, Frame

Environmental

Operating Altitude	Up to 4,572 m (15,000 ft)
Non-Operating Altitude	Up to 12,192 m (40,000 ft)
Operating Humidity	20% to 80% RH (non-condensing) at up to +32 °C; decreases to 30% RH at +40 °C
Operating Vibration	0.31 g RMS, 5 Hz to 500 Hz, 10 min per axis
Non-Operating Vibration	2.46 g RMS, 5 Hz to 500 Hz, 10 min per axis
Non-Operating Shock	50 g, 11 ms, half-sine

Accessories

Standard Probes Shipped	Four P6243 active probes (1 GHz bandwidth, 1 pF, 1 MΩ)
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Triggering

Trigger Types	Edge, Logic (Pattern, State, Setup/Hold), Pulse (Glitch, Width, Runt, Slew Rate, Timeout), Video (with Option 05)
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Available Options

Option 05	Video Trigger (NTSC, PAL, SECAM, and Custom formats)
Option 2F	Advanced DSP Math (FFT, Integration, Differentiation)
Option 13	Adds RS-232 and Centronics (Parallel) interfaces

Storage & Connectivity

Waveform Storage Formats	TIFF, BMP, PCX, EPS, Mathcad, MATLAB, Spreadsheet
Non-volatile Setup Storage	10 front-panel setups
Non-volatile Waveform Storage	4 reference waveforms (Ref1 to Ref4)

Control & Software

Programmatic Control	Fully programmable via GPIB (IEEE-488.2)
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TECHNOLOGY

Digital Real-Time Oscilloscope

APPLICATIONS

High-speed digital design, characterization, and debugging

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