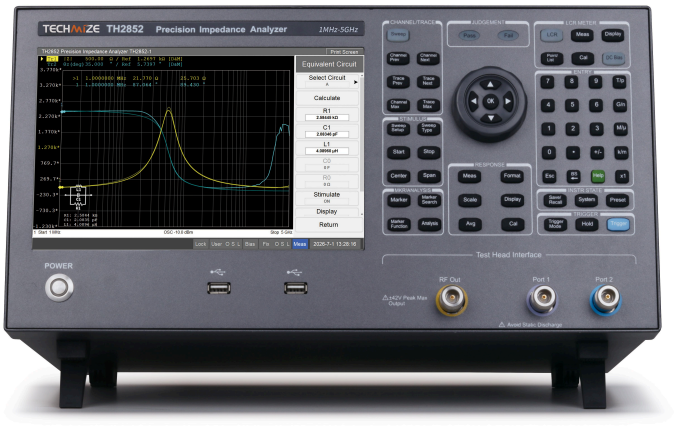
TH2852 / TH2853 Series

RF Precision Impedance Analyzer & RF LCR Tester · 1 MHz – 5 GHz

A new generation of RF impedance test instruments based on the RF-IV measurement method, designed to maintain high accuracy well into the GHz range. An external test head combined with automatic electrical-length measurement and calibration extends RF-IV impedance testing beyond the traditional 3 GHz limit up to 5 GHz, supporting high-precision testing of wafers and PCBs. The TH2852 series is a full-featured precision impedance analyzer with curve sweep, cursor analysis, equivalent-circuit fitting and a built-in Smith chart; the TH2853 series is a streamlined RF LCR tester covering point, list and fixed-grid curve-sweep measurement. Each series is available in five frequency-range models, from 500 MHz up to 5 GHz.



Dimensions (W×H×D): 428 × 220 × 280 mm · Weight: 14 kg

Features

- Test frequency **1 MHz – 5 GHz**, five frequency-range models per series
- **±0.3%** basic accuracy (typical), RF-IV method for stable measurement accuracy at GHz frequencies
- High speed: measurement time as fast as **0.4 ms** per point
- 10.1" capacitive touch screen, 1280×800 resolution
- Four-parameter simultaneous measurement; 8 quick-select parameter-set keys
- Point, list and curve-sweep measurement, with automatic 10-bin sorting
- **1601-point** multi-parameter list sweep (frequency, AC level, DC bias)
- 4-channel graphical sweep, up to 4 curves per channel, 14 split-screen layouts
- Segmented frequency sweep — scan only the relevant bands, e.g. crystal-resonator testing
- External test head with automatic electrical-length calibration for wafer/PCB testing up to 5 GHz

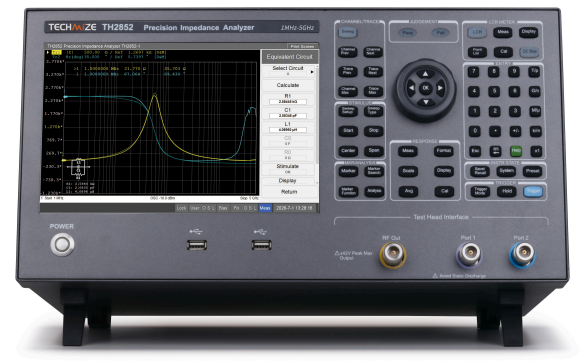
Model line-up

10 individually orderable models — two series, five frequency ranges each. Basic accuracy, AC/DC source ranges and functions are otherwise identical within a series (see page 2).

Model	Test frequency
TH2852-050	1 MHz – 500 MHz
TH2852-100	1 MHz – 1 GHz
TH2852-200	1 MHz – 2 GHz
TH2852-350	1 MHz – 3.5 GHz
TH2852-500	1 MHz – 5 GHz

Model	Test frequency
TH2853-050	1 MHz – 500 MHz
TH2853-100	1 MHz – 1 GHz
TH2853-200	1 MHz – 2 GHz
TH2853-350	1 MHz – 3.5 GHz
TH2853-500	1 MHz – 5 GHz

Two series, one platform



TH2852 Series

Precision Impedance Analyzer — full analysis suite

Adds cursor analysis, curve-sweep statistics, data storage, equivalent-circuit analysis and a built-in Smith chart to the shared measurement core, with 1 mHz frequency resolution. Dielectric-constant and permeability analysis are available as options with the TH26089 / TH26088 fixtures.



TH2853 Series

RF LCR Tester — streamlined point & sweep testing

Covers point measurement, list measurement and fixed-grid curve sweep with 1 kHz frequency resolution — a simplified, cost-effective platform for production and incoming-inspection testing where cursor analysis, curve statistics and equivalent-circuit fitting are not required.

TH2852 vs. TH2853 — function differences

Function	TH2852 Series	TH2853 Series
Minimum frequency resolution	1 mHz	1 kHz
Test functions	Point, List, Curve Sweep, Smith Chart	Point, List, Curve Sweep (fixed-grid display)
Curve-sweep cursor functions	✓	—
Curve-sweep statistical analysis	✓	—
Curve-sweep data storage	✓	—
Equivalent-circuit analysis	✓	—
Smith chart	✓	—
Permeability / dielectric-constant test	Optional	—

All other specifications — basic accuracy, AC/DC source ranges, display, interfaces — are identical between the two series at the same frequency-range suffix.

Applications

Passive & semiconductor components

Capacitors, inductors, PCB inductors, magnetic cores, resistors, wireless-charging and NFC/RFID coils, voice coils, motor coils, crystal oscillators, piezoelectric devices, transformers and chip components; parasitic-parameter analysis of LED driver ICs, varactor diodes and transistors.

Other components

Impedance evaluation of printed circuit boards, relays, switches, cables and batteries.

Materials analysis (optional)

Dielectric constant and loss tangent of plastics, ceramics and PCB materials; permeability and loss tangent of ferrites and amorphous magnetic materials; semiconductor-material C-V characteristics; liquid-crystal-cell C-V characteristics.

Technical specifications

Common to all ten models (TH2852-050/100/200/350/500 and TH2853-050/100/200/350/500) unless noted.

Parameter	-050	-100	-200	-350	-500
Test frequency	1 MHz–500 MHz	1 MHz–1 GHz	1 MHz–2 GHz	1 MHz–3.5 GHz	1 MHz–5 GHz
Display	10.1" TFT LCD, 1280×RGB×800, capacitive touch screen				
Max. frequency resolution	1 mHz (TH2852 series) · 1 kHz (TH2853 series)				
AC measurement parameters	|Z|, |Y|, θ, R, X, G, B, L, C, D, Q, |Γ|, Γx, Γy, θΓ, Vac, Iac, impedance circle, admittance circle, Smith chart[1], dielectric/magnetic material measurement (optional, TH2852 only)				
DC measurement parameters	VDC, IDC, RDC				
AC test level	Voltage −41 dBm – +1 dBm · Current 80 μA – 10.04 mArms				
DC bias source	Voltage 0–±40 V · Current 0–±100 mA				
Measurement speed (5 levels)	0: 0.4 ms 1: 4 ms 2: 26 ms 3: 65 ms 4: 130 ms 5: 650 ms				
Basic accuracy	±0.3% (typical value)				
Impedance test range	100 mΩ – 60 kΩ				
Measurement display range	Cs,Cp: ±9.99999 aF–9.99999 EF · Ls,Lp: ±1.00000 aH–99.9999 EH · D: ±0.00001–9.99999 · Q: ±0.01–99999.9 · R,X,Z: ±1.00000 aΩ–999.999 EΩ · G,B,Y: ±1.00000 aS–99.9999 ES				
Sorting / binning	LCR mode: 10-grade sorting · Scan mode: independent sorting per curve				
Interfaces	RS232C, USB Host, USB Device, LAN, GPIB, HANDLER, VGA, HDMI — all standard; SCPI command set				
Warm-up time	30 minutes				
Input voltage	100–120 V AC / 198–242 V AC selectable, 47–63 Hz				
Power consumption	Max. 150 VA				
Dimensions (W×H×D)	428 × 220 × 280 mm				
Weight	14 kg				

[1] Smith chart and dielectric/magnetic material measurement are TH2852-series capabilities — see page 2 for the full function comparison against TH2853.

Interfaces

RS232C	USB Host	USB Device	LAN	GPIB	HANDLER	VGA	HDMI
standard	standard	standard	standard	standard	standard	standard	standard

SCPI command set supported on all models.

Standard accessories

Item	Description
—	EU power cable (Schuko, CEE 7/7)
TH2852-1	0 m test head (standard with TH2852 models)
TH2852-1A	1 m test head (standard with TH2853 models)

Optional test heads & calibration

Item	Description
TH2852-1	0 m test head
TH2852-1A	1 m test head
TH2852-1B	2 m test head
—	APC7mm to SMA female adapter
—	TH2852 calibration kit (open/short/load/capacitance standards)

Optional test fixtures

Item	Description
TH2852-3A	0805 parallel-electrode fixture
TH2852-3B	0603 parallel-electrode fixture
TH2852-3C	0402 parallel-electrode fixture
TH2852-3D	0201 parallel-electrode fixture
TH2852-4	Low-frequency through-hole / parallel-electrode fixture
TH2852-5	Large parallel-electrode fixture
TH2852-6	Small bottom-electrode fixture
TH26088	Permeability test fixture
TH26089	Dielectric-constant test fixture

More options in preparation — contact your Techmize sales representative or authorized distributor for details.

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