Component & Device Parameter Test Instruments

Ⅰ. TH510 Series Semiconductor C-V Characteristic Analyzer

Features

- integrated design:
  LCR+gate voltage V_{GS}+drain voltage V_{DS}+channel switching+host computer software
- Gate voltage V_{GS}: 0 - ±40V
- Drain voltage V_{DS}: 0 - ±200V/±1500V/±3000V
- Single tube device (spot test), module device (list scan), curve scan (optional)
  Three testing methods
- Four parasitic parameters (Ciss,Coss,Crss,Rg or Cies,Coes,Cres,Rg)
  One-click measurement and display on the same screen
- Standard 2 channels, expandable to 6 channels, capable of testing single tube, multi-core or module devices (TH511E/TH513 only has 1 channel)
- CV curve scan, Ciss-Rg curve scan
- Capacitor fast charging technology enables fast testing
- Contact Check Cont
- Continuity test OP_SH
- Automatic delay setting
- Crss Plus function: solve the problem of negative Crss value at high frequency
- High-voltage breakdown protection: DS instantaneous short circuit to protect the instrument
- Interlock safety lock function: add high-voltage protective wall (TH513 only)
- Cs-V function: test and analysis of diode junction capacitance CV characteristics
- Equivalent mode conversion function, optional Cs or Cp mode
- 10 levels of sorting

RS232	LAN	HANDER	USB HOST	USB DEVICE	RS485
standard	standard	standard	standard	standard	option

TH510 Series

Dimension：430(W)x177(H)x265(D)
Weight ：about 16kg

Applications

- Semiconductor components/Power components

Parasitic capacitance test and C-V characteristic analysis of diodes, triodes, MOSFETs, IGBTs, thyristors, integrated circuits, optoelectronic chips, etc.

- Semiconductor material

Wafer dicing, C-V characteristic analysis

- Liquid crystal material

Elastic constant analysis

Specifications

Model		TH511		TH512	TH513
Channel		2（4/6 Ch Optional）			1
Display	Display	10.1-inch capacitive touchscreen			
	Ratio	16:9			
	Resolution	1280×RGB×800			
Test Parameter		C_{ISS}, C_{OSS}, C_{RSS}, R_g. Four parameter selectable arbitrarily			
Test Frequency	Range	10kHz-2MHz			
	Accuracy	0.01%			
	Resolution	10mHz	1.00000kHz-9.99999kHz		
		100mHz	10.0000kHz-99.9999kHz		
		1Hz	100.000kHz-999.999kHz		
		10Hz	1.00000MHz-2.00000MHz		
Test Level	Voltage Range	5mVrms-1Vrms			
	Accuracy	± (10% x Setting Value+2mV)			
	Resolution	1mVrms	5mVrms-1Vrms		
		10mVrms	1Vrms-2Vrms		
V_{GS}	Range	0 - ±40V			
	Accuracy	1% x Setting Voltage+8mV			
	Resolution	1mV	0V - ±10V		
V_{DS}	Range	0 - ±200V		0 - ±1500V	0 - ±3000V
	Accuracy	1%×Setting Voltage + 100mV			
Output Impedance		100Ω，±2%@1kHz			
Computation		Absolute deviation Δ from nominal value, percent deviation from nominal value Δ%			

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Calibration Function			OPEN, SHORT, LOAD
Measure Average			1-255 times
AD Conversion Time (ms/time)			Fast+: 2.5ms (> 5kHz), Fast: 11ms, Middle: 90ms, Slow: 220ms.
Basic Accuracy			0.1%
C_{ISS},C_{OSS},C_{RSS}			0.00001pF - 9.99999F
Rg			0.001mΩ - 99.9999MΩ
Δ%			±（0.000% - 999.9%）
Multi-Function Parameter List Scan	Spots		20 spots, the average number can be set for each spot, and each spot can be sorted separately
	Parameter		Test Frequency, Vg, Vd, Channel
	Trigger Mode		Sequence SEQ: After one trigger, measure at all sweep points, /EOM/INDEX output only once.
			Step: perform a sweep point measurement per trigger, each point outputs /EOM/INDEX, but the list scan comparator result is only output at the last /EOM
Graphic Scan	Scanning Spots		Any Spot is optional, up to 1001 Spots
	Result Display		Multiple curves with the same parameter and different Vg; multiple curves with the same Vg and different parameters.
	Display Range		Real-time automatic, locked
	Coordinate ruler		Logarithmic, linear
	Parameter		Vg,Vd
	Trigger Mode	Single	Manual trigger once, complete one scan from the start spot to the end spot, and start a new scan with the next trigger signal
		Continuous	Infinite loop scan from the start spot to the end spot
	Result Storage		Graphics, files
Comparators	Bin		10Bin,PASS,FAIL
	Bin Deviation Setting		Deviation, Percent Deviation, Off
	Bin Mode		Tolerance, continuous
	Bin Count		0-99999
	Bin Judgement		A maximum of four parameter limit ranges can be set for each bin. The corresponding bin number will be displayed within the setting range of the four test parameter results. If it exceeds the set maximum bin number range, FAIL will be displayed. Test parameters without upper and lower limits will be automatically ignored.
	PASS/FAIL indication		Satisfy Bin1-10, the PASS light on the front panel is on, otherwise the FAIL light is on.
Data Storage			201 measurement results can be read in batches
Storage File	Internal		About 100M non-volatile memory test setup file
	External USB		Test setup files, screenshots, log files
Keyboard Lock			Lockable front panel buttons, other functions to be expanded
Interface	USB HOST		2 USB HOST interfaces, which can be connected to the mouse and keyboard at the same time, and only one U disk can be used at the same time
	USB DEVICE		Universal Serial Bus socket, small type B (4 contact positions); compliant with USB TMC-USB488 and USB2.0, female connector for connecting external controllers.
	LAN		10/100M Ethernet, 8 pins, two speed options
	HANDLER		Used for Bin signal output
	RS232C		Standard 9-pin, crossed
	RS485		Can receive modification or external RS232 to RS485 module
Boot Warm-up Time			60 Minutes
Power consumption			100-120VAC/198-242VAC Option, 47-63Hz
Power consumption			More than 130VA
Dimensions（WxHxD）mm			430x177x405
Weight			16kg