

ITC55100C

unclamped inductive load tester



overview

Model ITC55100C is the latest generation of the industry standard series of ITC55100 testers. The system has been designed around a very powerful micro-controller that gives it a timing resolution of 40ns, twenty times faster than the previous model. Its response time to the peak and zero current is improved ten times. Combined this gives greater accuracy for the charging and avalanche times and for the reported peak drain current.

Model ITC55100C has a bipolar gate drive as a standard feature. The user can set a total gate drive of up to 28V and can select how much of the 28V is positive and how much of it is negative. This feature ensures that the device is held off during avalanche as required for certain devices.

The ITC55100C performs several types of tests that conform to MIL-STD-750E Method 3470. Method 3470 tests the capability of P- and N-Channel MOSFETs and IGBTs by stressing them to controlled energy levels. This is accomplished by the devices driving an unclamped inductive load.

test modes

- Single-Pulse Unclamped Inductive Switching (UIS)
- Single-Pulse Avalanche Stress (EAS)
- Repetitive Avalanche Energy (EAR)
- Repetitive Pulse to Failure (RPF)

tests performed

- Continuity test of device socket and/or contacts
- DC zero gate bias Drain-to-Source leakage test
- pre and post avalanche
- Functional device test
- Avalanche test

features

- Single/Dual Device Testing
- N channel, P channel, Mixed
- All Solid State Switching – No Relays
- EAR 1 Million pulses
- Timing Resolution of 40ns
- Current Range: 0.1A to 200A, 0.1A Steps
- Avalanche Voltage to 2500V
- Bipolar Gate Drive with 28V swing
- New High Efficiency Kelvin Circuit
- Touch-Screen Program Entry/Control
- Waveform Capture/Display
- Internal Test Program Storage (20 files)
- Network capable software
- High Speed Inductor Charging, Reduces Test Time
- Programmable Leakage Test Voltage
- Pre/Post Avalanche Leakage Test
- Avalanche Collapse Test
- Versatile Test Handler Control
- Up to 15 Hardware Sort Bins
- Improved Voltage/Current Accuracy
- Software Updates via Flash Download
- Password Control of Parameter Entry
- Operates with all ITC Inductor Load Boxes
- Interfaces with ITC55MUX4 & ITC55-RSF
- Simple, Complete User Calibration
- Built-in Self Test

safety features

- Test time-out
- Excessive leakage shutdown
- External safety lockout
- Two parallel connected Manual Start push buttons
- Device currents are constantly monitored.
- Testing is terminated if currents exceed or fail to reach
- Programmable levels in a specified or calculated time.

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available interfaces

- Serial communication and control interface
- IEEE 488 GPIB control interface
- ITC5510 compatible 5-bin handler control interface
- 15 bin handler control interface for improved sorting of failures for process control analysis

available options

- ITC55100C-CROWBAR (Patented): This option provides a parallel energy path that in the event of an avalanche failure can be configured to take the energy away from the device under test. In most cases with a packaged device this will allow for greater capability to perform failure analysis. In a wafer probe application it provides protection for the probe card and the device under test, prevents the avalanche failure from impacting adjacent die and prevents debris scatter from the failed device.
- ITC55X00C-WSS: The option provides the remote sensing that's sensing connections which are directly connected to the DUT and can measure the Avalanche Voltage accurately.
- External Inductor Boxes
Several models of External Inductor Boxes are available:
 - ITC5514A: Manually selected inductance: 0.01 to 159.9mH (200A/2500V)
 - ITC5514B: Automatically selected inductance: 0.01 to 159.9mH (200A/2500V)
 - ITC5515: Automatically selected inductance: 0.1, 0.3, 1.0, 3.0 and 10mH (200A/2500V)
 - ITC5516: Automatically selected inductance: 0.001 to 0.300mH (400A/2500V)
 - ITC55140: Automatically selected, high speed switching, inductance: 0.01 to 159.9mH (200A/1500V)
 - ITC5517: Automatically selected inductance: 0.01 to 79.9mH (200A/2500V)
 - ITC55170: Automatically selected, high speed switching, inductance: 0.01 to 79.9mH (200A/1500V)
 - ITC55190: Automatically selected, Customize 10 Fix Inductances (400A/1500V)
- ITC55-RSF Output Selector Box allows the ITC55100 Testers to test various configurations of MOSFETs, IGBTs, and dual and single diodes without having to replacing the DUT fixture up to 1500V avalanche voltage
- ITC55HVD2 (High Voltage Diode Interface Box) - The ITC55HVD2 is a high voltage avalanche interface adapter box option for testing diodes using the ITC55100 at voltages up to 2500v, 50A
- ITC55X00-DTF DUT Test Fixture with a known good "golden" DUT installed and with ITC factory test results so the ITC55x00 tester can be verified for correct and accurate operation.
- ITC Multiplexers Dual and Quad Die Testing
- ITC59/55MUX-D Dual Die Test Site Multiplexer that combine ITC59100 Rg/Qg and ITC55100 UIS to one test site (100A,1000V)
- ITC55X00 HNDIF Interface between ITC55X00 UIS Tester and handlers test contacts or Manual test fixtures
- ITC-MTF-55HV-2017- Manual Test Fixture, Dual Die with plug-in socket boards

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