

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 30V and can select how much of the 30V 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)

test 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
- Timing Resolution of 40ns
- Current Range: 0.1A to 200A, 0.1A Steps
- Avalanche Voltage to 2500V
- Bipolar Gate Drive with 30V swing
- New High Efficiency Kelvin Circuit
- Conventional UIL mode (via GPIB)
- Touch-Screen Program Entry/Control
- Waveform Capture/Display
- Internal Test Program Storage (20 files)
- 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.

ITC55100C

unclamped inductive load tester



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 (Patent Pending): 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 some protection for the probe card and the device under test and prevents the avalanche failure from impacting adjacent die.
- External Inductor Boxes
Seven 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)
- ITC55MUX4 Box to allow multiple devices to be tested by the same tester.
- 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.
- ITC55HVD1 (High Voltage Diode Interface Box) - The ITC55HVD1 is a high voltage avalanche interface adapter box option for testing diodes using the ITC55100 at voltages up to 2500v.
- MTSDGEN Generic Test Socket may be used with the ITC55100 tester to provide a convenient method of manual avalanche testing for single or dual devices.

INTEGRATED TECHNOLOGY CORPORATION

1228 North Stadem Drive • Tempe, Arizona 85281 USA • Phone 480-968-3459 • Fax 480-968-3099
Sales@IntTechCorp.com