QD-1011HCLite

Product Highlights

Wide Range, High Current, High Performance
Digital IDDQ Measurement Instrument

**FEATURES**

- Wide DUT Supply range: \( V_{DUT} = 0.5V \) to 7V
- Wide measurement range: \( I_{DDQ} = 0 \) – 1A
- Typical measurement time: 150 µs
- High capacitive driving capability: up to 100µF
- High resolution: \( 2µA_{RMS} \)
- 16-bits IDDQ Value Read Out
- 3-Wire Serial Configuration/Read out Interface

**APPLICATIONS**

- ATE Probe Card Applications
- ATE Interface Board Applications
- IDDQ Pass/Fail Measurements
- IDDQ Read Out Measurements

**DESCRIPTION**

The QD-1011HCLite is a member of the QD-10xxHC product family offering basic high quiescent current measurement functionality and serving both probe and final test. The QD-1011HCLite is designed for probe card and interface board applications and supports high speed highly repeatable IDDQ measurements. The instrument provides 16-bit digital measurement values as well as a pass/fail output signal. In contrast with the full-featured family members, the QD-1011HCLite has no on-board memory and data processing capabilities that support advanced measurement strategies.

The QD-1011HCLite is designed to be inserted between the Automated Test Equipment (ATE) device power supply and the supply pin(s) of the Device Under Test (DUT). There is no need to remove the local decoupling capacitors. Its unique design ensures transparency to both the ATE and DUT, under all conditions, and can drive high capacitive loads (up to several tens of µF).

The QD-1011HCLite offers the capability to perform accurate and highly repeatable high speed (up to 6.7kHz) quiescent supply current measurements with µA resolution/repeatability (better than \( 2µA \) @ 50mA range). The instrument provides digital measurement results and offers in addition an analog output VIDDQ that can be measured by the ATE.

The instrument has a wide measurement range (0-1A). The serial output provides the Pass/Fail flag and the measured IDDQ value with a 16-bit resolution. The QD-1011HCLite requires only a single positive supply and assures, under all conditions, a stable and user programmable (0.5 to 7V) DUT supply level.

The QD-1011HCLite has an on-board compensated bypass switch, which minimise charge transfers and is capable of transferring large transient currents. To assure DUT supply stability, the bypass switch is automatically activated when the measured current is out of the instrument’s measurement range.

The QD-1011HCLite’s Current Measurement Unit (CMU) is optimised to perform an IDDQ measurement in 150µs for a 100nF to 100µF capacitive load. The default measurement range of the QD-1011HCLite is set to 0-500mA with a measurement resolution of \( 20µA_{RMS} \). Other possible fixed measurement ranges are 0-50mA, 0-250mA and 0-1A with measurement resolutions of 2, 10 and 40µA_{RMS} respectively.

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