**QD-1040**

**Product Highlights**

**Advanced IDDQ Instrument with Sense Line Control Supporting Various Measurement Approaches**

### FEATURES

- Wide DUT Supply range: $V_{DUT} = 0.5V$ to 7V
- Wide measurement range: $\text{IDDQ} = 0 – 30\text{mA}$
- Typical measurement time: 100 µs
- High capacitive driving capability: up to 10µF
- High single sample resolution: 20nA_{RMS}
- 16-bits IDDQ Value Read Out
- 3-Wire Serial Configuration/Read out Interface
- On-board data processing capabilities
- Supply sense line switching capability

### APPLICATIONS

- ATE Probe Card Applications
- ATE Interface Board Applications
- Delta IDDQ Measurements
- Pre & Post Stress Delta IDDQ
- IDDQ Pass/Fail Measurements
- IDDQ Read Out Measurements
- IDDQ Window Comparisons

### DESCRIPTION

The QD-1040 is a full featured, configurable quiescent supply current (IDDQ) instrument, serving both probe and final test, eliminates voltage droops over probe needles and designed for probe card and interface board applications. The instrument has on-board memory and data processing capabilities, supports a wide range of IDDQ test and measurements applications and provides digital measurement values as well as a pass/fail info.

The QD-1040 embeds automated supply sense line switching, avoiding switching delays when using external sense line switching relays, avoiding influence of sense line leakage on the measurement results and enabling a setup that compensates for voltage droops caused by contact and probe needle resistances when the QD-1040 operates in bypass mode.

The QD-1040 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 on-pin decoupling capacitors as the unit can drive high capacitive loads (up to several µF). Its unique design ensures transparency to both the ATE and DUT, under all conditions.

The QD-1040 offers accurate, highly repeatable high speed (10kHz max) IDDQ measurement results with nA resolution/repeatability. The instrument is offered for various measurement ranges. The digital output provides the Pass/Fail flag and/or the measured/processed IDDQ values with a 16-bit resolution. The QD-1040 requires only a single positive supply, and allows a user programmable (0.5 to 7V) DUT supply level.

The QD-1040 has a dedicated fast switching on-board compensated bypass switch 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.

By default the QD-1040 is optimised to make an IDDQ measurement in 100µs for a 100nF to 10µF capacitive load. The processing and read out time is function of the application and takes typically 20µs. The default measurement range of the QD-1040 is set to 0-1mA with a single sample resolution of 50nA_{RMS}. Other possible fixed measurement ranges are 0-100µA, 0-10mA, 0-30mA with a single sample resolution of 20nA_{RMS}, 360nA_{RMS} and 2.2µA_{RMS}. All these parameters can be customised for optimal performance in function of desired measurement speed/resolution and actual loading conditions.
Due to continuous pursuit of innovation, the technical specifications listed are subject to change without notice.