

EXPERIENCE RELIABILITY

Powerex has Group A, B and C testing capabilities allowing for efficient evaluation of customer-defined specifications



Global

Power-Semiconductor

Solution

Provider

POWEREX®

On the

Leading Edge of

Research and

Manufacturing

Technology

Powerex High Reliability Testing Experience Includes:

- Environmental
- Performance Specification Semiconductor Devices
- Soldering
- Packaging
- Calibration
- Highly Accelerated Stress Testing (H.A.S.T.)
- Test Method Standard, Electronic & Electrical Component Parts
- Electrostatic Discharge Test Methods Hybrid Semiconductor Modules

Testing Capabilities Exist for Group A, B and C Testing

Powerex has performed the following 1000, 2000, 3000, 3100, 3400, 4000 and 4200 series tests:

ENVIRONMENTAL TESTS (1000 SERIES)

- 1001.1 Barometric pressure (reduced)
- 1011 Immersion
- 1021.2 Moisture resistance
- 1022.5 Resistance to solvents
- 1026.5 Steady-state operation life
- 1027.3 Steady-state operation life (sample plan)
- 1031.5 High temperature life (non-operating)
- 1032.2 High temperature (non-operating) life (sample plan)
- 1036.3 Intermittent operation life
- 1037.2 Intermittent operation life (sample plan)
- 1038.3 Burn-in (for diodes, rectifiers and zeners)
- 1039.4 Burn-in (for transistors)
- 1040 Burn-in (for thyristors (controlled rectifiers))
- 1041.3 Salt atmosphere (corrosion)
- 1042.3 Burn-in and life test for power MOSFETs or insulated gate bipolar transistors (IGBT)
- 1046.2 Salt spray (corrosion)
- 1048 Blocking life
- 1049 Blocking life (sample plan)
- 1051.5 Temperature cycling (air to air)
- 1056.7 Thermal Shock (liquid to liquid)
- 1071.5 Hermetic seal

MECHANICAL CHARACTERISTICS TESTS (2000 SERIES)

- 2005.2 Axial lead tensile test
- 2006 Constant acceleration
- 2016.2 Shock
- 2026.10 Solderability
- 2036.4 Terminal strength
- 2037 Bond strength
- 2046.1 Vibration fatigue
- 2056 Vibration, variable frequency
- 2057.1 Vibration, variable frequency (monitored)
- 2066 Physical dimensions
- 2069 Pre-cap visual, power MOSFETs
- 2071.3 Visual and mechanical examination
- 2072.5 Internal visual transistor (pre-cap) inspection
- 2073 Visual inspection for die (semiconductor diode)
- 2075 Decap internal visual design verification
- 2076.2 Radiography

ELECTRICAL CHARACTERISTICS TESTS FOR BIPOLAR TRANSISTORS (3000 SERIES)

- 3001.1 Breakdown voltage, collector to base
- 3011.2 Breakdown voltage, collector to emitter
- 3026.1 Breakdown voltage, emitter to base
- 3030 Collector to emitter voltage
- 3036.1 Collector to base cutoff current
- 3041.1 Collector to emitter cutoff current

CIRCUIT-PERFORMANCE AND THERMAL RESISTANCE MEASUREMENTS (3100 SERIES)

- 3101.2 Thermal impedance testing of diodes
- 3103 Thermal impedance measurement for insulated gate bipolar transistor (delta gate-emitter on voltage method)
- 3181 Thermal resistance for thyristors

ELECTRICAL CHARACTERISTICS TESTS FOR MOS FIELD-EFFECT TRANSISTORS (3400 SERIES)

- 3401.1 Breakdown voltage, gate to source
- 3403.1 Gate to source voltage or current
- 3404 MOSFET threshold voltage
- 3405.1 Drain to source on-state voltage
- 3407.1 Breakdown voltage, drain to source
- 3411.1 Gate reverse current
- 3413.1 Drain current
- 3415.1 Drain reverse current

ELECTRICAL CHARACTERISTICS TESTS FOR DIODES (4000 SERIES)

- 4011.4 Forward voltage
- 4016.3 Reverse current leakage
- 4021.2 Breakdown voltage (diodes)
- 4023 Scope display
- 4066.3 Surge current

ELECTRICAL CHARACTERISTICS TESTS FOR THYRISTORS (CONTROLLED RECTIFIERS) (4200 SERIES)

- 4201.2 Holding current
- 4206.1 Forward blocking current
- 4211.1 Reverse blocking current
- 4216 Pulse response
- 4219 Reverse gate current
- 4221.1 Gate-trigger voltage or gate-trigger current
- 4223 Gate-controlled turn-on time
- 4224 Circuit-commutated turn-off time
- 4225 Gate-controlled turn-off time
- 4226.1 Forward "on" voltage
- 4231.2 Exponential rate of voltage rise



Call the Power Line at
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