



# Powerex Reliability Testing & Analytical Capabilities

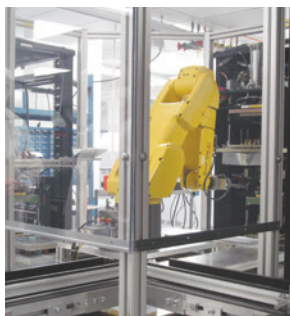
## Reliability Testing Capabilities



Highly Accelerated Stress Testing (HAST)

### ■ Environmental Testing

- Barometric pressure (reduced)
- Immersion
- Moisture resistance
- Resistance to solvents
- Steady-state operation life
- Steady-state operation life (sample plan)
- High temperature life (non-operating)
- Intermittent operation life
- Burn-in (HTRB, HTGB)
- Salt atmosphere (corrosion)
- Salt spray (corrosion)
- Blocking life
- Temperature cycling (air-to-air)
- Thermal shock (liquid-to-liquid)
- Hermetic seal
- Highly Accelerated Stress Testing (HAST)



Electrical Testing

### ■ Electrical Characteristics Testing

- Breakdown voltage
- On-state Voltage
- Leakage
- Cutoff current
- di/dt Testing



Thermal Impedance Testing

### ■ Circuit-Performance & Thermal Resistance Measurements

- Thermal impedance testing
- Thermal impedance measurement for insulated gate bipolar transistor (delta gate-emitter on voltage method)
- Thermal resistance for thyristors



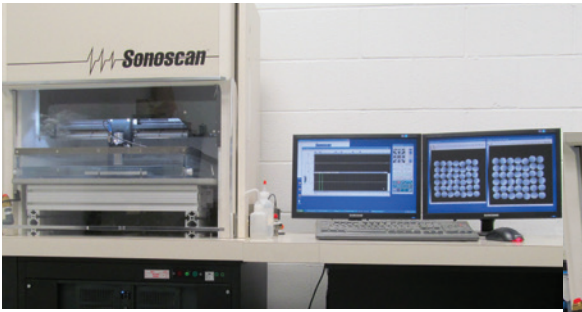
Radiography (X-ray) Testing

### ■ Mechanical Characteristics Testing

- Shock
- Solderability
- Terminal strength
- Bond strength
- Vibration fatigue
- Vibration, variable frequency
- Visual & mechanical examination
- Radiography (x-ray)

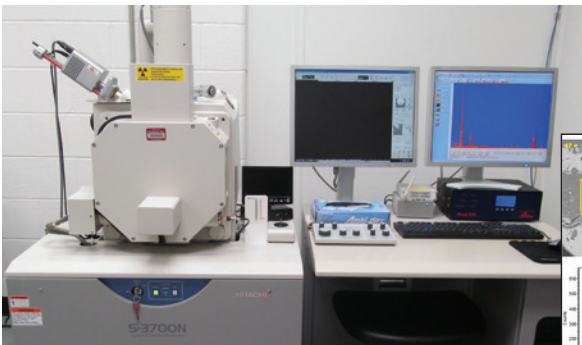
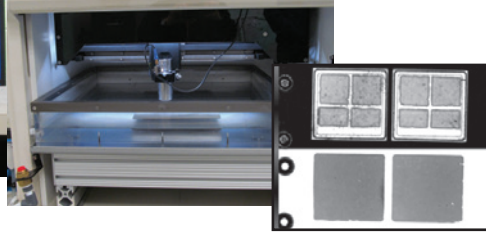


# Analytical Capabilities



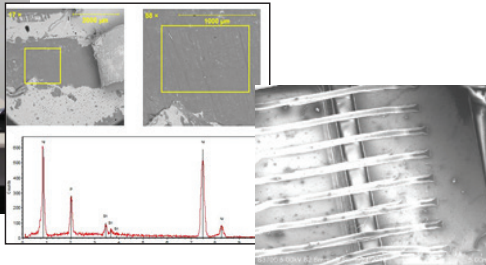
## ■ Acoustic Microscope (CSAM)

- Ultrasound imaging
- Solder void & lamination analysis



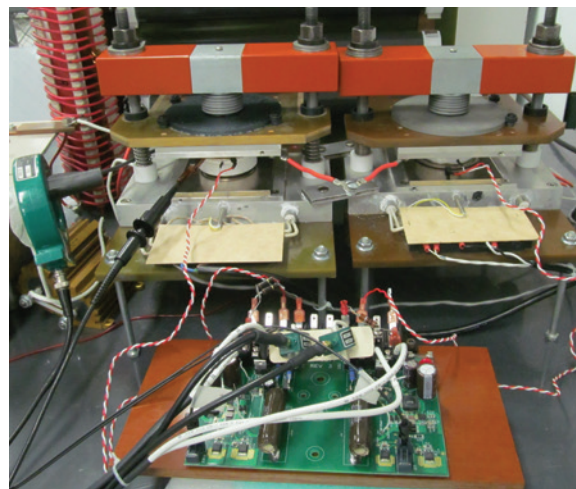
## ■ Scanning Electron Microscope (SEM)

- Micro imaging
- Micro Elemental Analysis (EDS)



## ■ Coordinate Measuring System (CMM)

- Automated mechanical measurements
- Incoming, shipping, & analytical functions
- Baseplate flatness



## ■ di/dt Tester

- Measures di/dt