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QUALITY THERMISTOR, INC

For over 30 years, Defense and Space subcontractors have relied upon Quality Thermistors' components in their most critical applications.

2108 Century Way | Boise, ID 83709

A major aerospace company has awarded Quality Thermistor a 100% quality rating for 2007 for both quality and on-time delivery stating:

"You have achieved a rating of 100% for both quality and delivery for 2007, an exceptional accomplishment which only the best of the best have realized."

Quality Thermistor's test laboratory can perform a wide range of testing services. Quality Thermistor is ISO:9001:2001 and AS9100 certified and can perform testing and screening to the following specifications:

- MIL-PRF-23648/
- MIL-PRF-32192/1, /2, /3, /4 and /5
- MIL-STD-202
- MIL-STD-883
- GSFC S311-P827
- Customer Source Control Drawings

Testing Capabilities:

- Power Burn-In
- Temperature Cycling
- Moisture Resistance
- Shock and Vibration
- Temperature Characteristics
- Space Level Testing
- QCI Military Requirements
- Cryo-Chamber Conditioning
- Wafer Evaluation
- Die Shear
- Wire Bonding/Evaluation Sectioning

Test Conditions:

- Environmental: 150mTorr to 150 PSI
- -180°C to 1400°C up to 100% Relative Humidity
- DC Power: 0 to 6000 volts
- 0 to 100 amps
- Visual Inspection: 0x to 100x optical
- Digital image capture
- Shock/Vibration: 30g to 1500g 75 Hz to 2000 Hz
- Wire bond pull: 0g to 100g
- Die shear: 0g to 10 Kg
- Solderability: to appropriate MIL. Spec's.
- Density: .001 to 61 g/cm
- Dye penetrant
- Many others, call for details

PHOTO: NASA

ENGINEERING NEWS

in detail: Design Engineers for high-reliability military and aerospace markets are faced with challenges when given the assignment of redesigning legacy applications which have a high count of radial and axial leaded passive components, or generating a new design which needs to incorporate a high percentage of surface mount passive components. Quality Thermistors' high reliability surface mount thermistors are manufactured to meet or exceed the MIL-PRF-32192 military specification, as well as the newly introduced NASA-GSFC S-311-P-827 specifications.

The Defense Supply Center Columbus (DSCC) introduced a new surface mount thermistor specification in November of 2006. MIL-PRF-32192 now gives the design Engineer fully qualified DSCC options for two PTC and three NTC surface mount package styles.

MIL-PRF-32192/1

Bare PTC thermistor die available in resistance values from 10 ohms to 10,000 ohms. This specification should be considered in new designs and for legacy designs which used either MIL-PRF-23648/9 or MIL-PRF-23648/19.

MIL-PRF-32192/2

Basic EIA 0805 PTC surface mount package available in resistance values from 22 ohms to 5,600 ohms. This specification should be considered for new designs as well as an alternative to MIL- PRF-23648/9 and MIL-PRF-23648/19.

MIL-PRF-32192/3

Bare NTC thermistor die available in resistance values from 15 ohms to 20 Mega ohms. This is ideal for new board designs which contain other bare die, wire bondable components could easily integrate this part style. This specification should be considered for legacy replacements which used either MIL- PRF-23648/1 or MIL- PRF-23648/20.

MII-PRF-32192/4

Basic EIA 0805 NTC surface mount package. Any new high reliability application PCB design can take advantage of this part style. This specification should be considered for new designs as well as an alternative to MIL-PRF-23648/1 and MIL-PRF-23648/20.

MII-PRF-32192/5

Basic EIA 1206 NTC surface mount package. Any new high reliability application PCB design can take advantage of this part style. This specification should be considered for new designs as well as an alternative to MIL- PRF-23648/1 and MIL- PRF-23648/20.

New GSFC approved thermistor specification being released Q1 2008. S-311-P-827 gives the Aerospace engineers a cost-effective option and more.

As the Aerospace market continues to thrive and grow; the push for smaller, lighter, more accurate and reliable parts intensifies. While the new DSCC MIL-PRF-32192 Specification is sufficient for Defense/Military requirements, the Aerospace community requires additional screening to qualify parts for space flight.

Many customers have chosen to create their own SCD's that incorporated all or part of the M32192 specification but also added additional 100% screening requirements. This escalates customer costs internally and increases the unit cost due to a lack of standardization.

To meet the demands of our Aerospace customers and help "standardize" the aerospace test regimen, Quality thermistor engineers worked jointly with engineers as NASA/GSFC to create a GSFC approved SMD thermistor specification. This new specification, S-311-P-827, incorporates PTC thermistors(both EIA 0805 and hybrid 0303 die) and NTC thermistors (EIA 0805). All devices procured to this specification will meet the requirements for Level I classification per EEE-INST-002.

There are two NTC thermistors currently listed in the specification. These parts are available in "interchangeable" tolerances of either ±0.5C or ±1.0C over the range of 0c to 70C. The PTC thermistors are all available in 1% or 2% tolerances at the reference temperature of 25C. Qualifications are now underway for the PTC 0805 with the hybrid 0303 and both NTC 0805's soon to follow.

For more information, contact the engineering staff at Quality Thermistor, or see the link below for the complete specification on the NASA NEPP website: nepp.nasa.gov.