



DEFENSE LOGISTICS AGENCY
 LAND AND MARITIME
 POST OFFICE BOX 3990
 COLUMBUS, OH 43218-3990

September 28, 2011

Ms. Michele Hebert
 TTM Technologies
 4 Old Monson Rd.
 P.O. Box 145
 Stafford, CT 06075-0145

RE: Notification of Add-On Qualification, Printed Board Thickness and Layer Count (Hybrid Epoxy / Hydrocarbon with Ceramic Fill Base Materials), ENEPIG Finish System (All Base Materials), MIL-PRF-31032, FSC 5998, CAGE Code 5L706; VQ(VQE-11-023287)

Dear Ms. Herbert:

Qualification of your products is granted under the current issue of the specification as a result of successful add-on qualification testing to Military Performance Specification MIL-PRF-31032, Printed Circuit Board/Printed Wiring Board, and associated specification MIL-PRF-31032/1 - /4, and /Custom. This add-on qualification is based on your technical review board (TRB) review and approval of the material and classification indicated below. Your add-on qualification expanded the following capabilities.

| CAPABILITIES BY TECHNOLOGY / PRINTED BOARD TYPE: | | |
|---|--------|--------|
| MIL-PRF-31032/Custom | FROM: | TO: |
| Max. Number of Layers (Hybrid Epoxy / Hydrocarbon with Ceramic Fill Base Materials) | 12 | 24 |
| Max. Board Thickness (Hybrid Epoxy / Hydrocarbon with Ceramic Fill Base Materials) | 0.110 | 0.175 |
| Min. Plated Through Hole (drilled) (Hybrid Epoxy / Hydrocarbon with Ceramic Fill Base Materials) | 0.0197 | 0.0177 |
| Aspect Ratio Plated Through Hole (drilled) (Hybrid Epoxy / Hydrocarbon with Ceramic Fill Base Materials) | 3.3:1 | 9:1 |
| Aspect Ratio Buried Vias (drilled) (Hybrid Epoxy / Hydrocarbon with Ceramic Fill Base Materials) | - | 13:1 |

| CAPABILITIES BY TECHNOLOGY / PRINTED BOARD TYPE: | | |
|--|---|---|
| MIL-PRF-31032/1, /2, /3, /4, /Custom | FROM: | TO: |
| Finish System (All Base Materials) | HASL, Hot Oil Reflow following SnPb plate, ENIG, Electrolytic Soft & Hard Gold, Electrolytic Nickel | HASL, Hot Oil Reflow following SnPb plate, ENIG, Electrolytic Soft & Hard Gold, Electrolytic Nickel, ENEPIG |

Test report number 31032-3354-11 has been assigned to your test data. This qualification is based on your MIL-PRF-31032 certification and is subject to the conditions stated below:

1. A listing on the Qualified Manufacturers List (QML) does not guarantee acceptance of the product(s) in any future purchase.
2. QML listing does not constitute a waiver of any requirements of the specification or of the provisions of any contract.
3. Advertising of qualification information is permitted. Permission to use such information for advertising or publicity purposes is granted provided that such publicity or advertising does not state or imply that the product(s) is the only product of that type qualified or that the Department of Defense in any way recommends or endorses the manufacturer's product.
4. The listing applies only to products produced in the plant(s) specified in this letter of notification of qualification and applies to future amendments or revisions of the specification, unless otherwise notified.
5. The listing applies only to materials and manufacturing construction techniques identical to or covered by that (those) qualified. The qualifying activity must be advised in advance of any change to the materials and manufacturing construction techniques. Failure to notify the qualifying activity of any change to the materials and manufacturing construction techniques is cause for removal from the QML.

Because we are held responsible for the accuracy and currency of this QML, please let us know if your company discontinues production utilizing these materials or processes. If you have any questions, please contact Mr. Lowell Sherman at vqe.ls@dla.mil or 614-692-0627.

Sincerely,

/SIGNED/

JOSEPH GEMPERLINE
Chief
Sourcing and Qualifications Division