



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

May 31, 2012

Mr. Matthew Dietz
Universal Circuits Inc.
8860 Zachary Lane North
Maple Grove, MN 55369-4524

Dear Mr. Dietz:

RE: Notification of Add-On Qualification and Acceptance of Capability Verification Inspection Data for GF Listing; Request for Additional Information for GI Add-On Failure CAR; MIL-PRF-31032, FSC 5998, CAGE Code 45032; VQ (VQE-12-024534) / 036343

The information submitted for your biennial Capability Verification Inspection report for the GF base material qualification has been reviewed. The data successfully demonstrates your ability to manufacture printed wiring boards to the currently qualified capabilities. Therefore, qualification is reissued under the current issue of the Department of Defense Performance Specification MIL-PRF-31032, Printed Circuit Board/Printed Wiring Board, and associated specifications MIL-PRF-31032/1 and /2 and your listings will be continued on the Qualified Manufacturers List QML-31032 as indicated in the attached enclosure. The reciprocal listing is also continued on Qualified Products List QPL-55110.

The add-on qualification data submitted for this listing have also been accepted. The listed capabilities shall be expanded based on the manufacturer's revision to add-on qualification test plan GF3-111511, which has been assigned test report number 31032-3414-12. The test plan extends layer count, aspect ratio, and final finishes. Capabilities relating to blind via construction were removed from the test plan by the manufacturer after the approval of the test plan. Universal Circuits must submit the revised process flow showing that immersion silver is marked as a MIL-PRF-31032 certified process.

MIL-PRF-31032 Slash Sheets	Base Materials	Capability	Previous Listing	Current Listing
/1, /2	GF	Layer Count	16	18
/1, /2	GF	Aspect Ratio	7.75:1 (through-hole)	8.88:1 (through-hole)
/1, /2	GF, GI, Hybrid-GF/Woven Glass Reinforced Hydrocarbon with Ceramic Fill	Final Finish	See listings	Add immersion silver

Universal Circuits experienced an issue during a separate add-on qualification attempt using GI base material. A corrective action was submitted for this issue. The corrective actions for insufficient etchback included retraining of inspectors and review / re-measuring of previous

lots to discover the prevalence of the issue. Objective evidence of the retraining and results from the additional review is requested as follow-up to the corrective action.

Your next CVI report for the GF base material listing should cover the period from January 2012 through December 2013, and is due to this office by March 1, 2014. These qualifications are based on your MIL-PRF-31032 certification and are subject to the conditions stated below:

- A listing on the Qualified Manufacturers List (QML) does not guarantee acceptance of the product(s) in any future purchase.
- QML listing does not constitute a waiver of any requirements of the specification or of the provisions of any contract.
- 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.
- The listing applies only to products produced in the plant(s) specified in this letter and applies to future amendments or revisions of the specification, unless otherwise notified.
- 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. A response to the requests for information in this letter is requested by July 6, 2012. If you have any questions, please contact Mr. Jonathan Stone at vqe.js@dla.mil or (614) 692-3022.

Sincerely,

/SIGNED/

JOSEPH GEMPERLINE
Chief
Sourcing and Qualifications Division

Enclosure: QML Listing

**SECTION I
LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY**

MANUFACTURER INFORMATION: Universal Circuits, Inc. 8860 Zachary Lane North, Maple Grove, MN, 55369-4524 US	PLANT LOCATION: Same Address as Manufacturer	CAGE Code: 45032 Phone: 763-315-1702 Fax: 763-425-0999 E-Mail: sbtaika@universalcircuits.com
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CAPABILITIES BY TECHNOLOGY/ASSOCIATED SPECIFICATION

Specification: MIL-PRF-31032/1, MIL-PRF-31032/2
 Qualification Letters: VQE-10-019530, VQE-10-020323
 Rigid Base Material: GF: Woven E-Glass, Epoxy Resin, Flame Resistant
 Max. Panel Size: 18" x 24"
 Max. Number of Layers: 18
 Max. Board Thickness: .125"
 Min. Hole Size: .008" Drilled Plated-Through Hole Before Plating
 Aspect Ratio: 8.88:1 Through-Hole
 Min. Conductor Width/Space: .0032"/.0032"
 Hole Preparation: Permanganate Desmear, Plasma Etchback
 Hole Wall Conductive Coating: Carbon-based
 Copper Plating: Direct Current Plate
 Solder Resist: Liquid Photoimageable
 Finish System: ENIG, Electrolytic Ni / Hard Au, HASL, ImmAg
 Additional Fab Capabilities: Foil Lamination
 Controlled Impedance: Differential, Single-Ended

CAPABILITIES BY TECHNOLOGY/ASSOCIATED SPECIFICATION

Specification: MIL-PRF-31032/1, MIL-PRF-31032/2
 Qualification Letters: VQE-10-019530, VQE-10-020323
 Rigid Base Material: GF: Woven E-Glass, Epoxy Resin, Flame Resistant; Woven Glass Reinforced, Hydrocarbon Resin with Ceramic Fill
 Max. Panel Size: 18" x 24"
 Max. Number of Layers: 18
 Max. Board Thickness: .18"
 Min. Hole Size: .021" Drilled Plated-Through Hole Before Plating
 Aspect Ratio: 8.57:1 Through-Hole
 Min. Conductor Width/Space: .005"/.005"
 Hole Preparation: Permanganate Desmear, Plasma Etchback
 Hole Wall Conductive Coating: Carbon-based
 Copper Plating: Direct Current Plate
 Solder Resist: Liquid Photoimageable
 Finish System: ENIG, Electrolytic Ni / Hard Au, HASL, ImmAg
 Additional Fab Capabilities: Blind Vias, Foil Lamination, Sequential Lamination
 Controlled Impedance: Differential, Single-Ended

CAPABILITIES BY TECHNOLOGY/ASSOCIATED SPECIFICATION

Specification: MIL-PRF-31032/1, MIL-PRF-31032/2
 Qualification Letters: VQE-11-021326
 Rigid Base Material: GI: Glass Base, Woven, Polyimide Resin, Heat Resistant
 Max. Panel Size: 18" x 24"
 Max. Number of Layers: 8
 Max. Board Thickness: .062"
 Min. Hole Size: .0138" Drilled Plated-Through Hole Before Plating
 Aspect Ratio: 4.5:1 Through-Hole
 Min. Conductor Width/Space: .007"/.006"
 Hole Preparation: Permanganate Desmear, Plasma Etchback
 Hole Wall Conductive Coating: Carbon-based
 Copper Plating: Direct Current Plate
 Solder Resist: Liquid Photoimageable
 Finish System: ENIG, Electrolytic Ni / Hard Au, HASL, ImmAg
 Additional Fab Capabilities: Foil Lamination

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Supplemental Information Sheet for Electronic QML-31032

