

**DLA Land and Maritime - VQ**  
**Supplemental Information Sheet for Electronic QML-38534**

Date: 5/17/2023

**Specification Details:**

Specification: MIL-PRF-38534  
Title: Hybrid Microcircuits  
Federal Supply Class (FSC): 5962  
Conventional: No  
Specification contains quality assurance program: Yes  
MIL-STD-790 Established Reliability & High Reliability: No  
MIL-STD-690 Failure Rate Sampling Plans & Procedures: No  
Weibull Graded: No  
Specification contains space level reliability requirements: Yes  
Specification allows test optimization: Yes

**Contact Information:**

Office of Primary Involvement: Hybrid Devices Branch, DLA Land and Maritime - VQH  
Primary Qualifying Activity Contact: 614-692-2908, e-mail: vqh.dm@dla.mil  
Secondary Qualifying Activity Contact: 614-692-0582, e-mail: vqh.esr@dla.mil

**Notes:**

In order for a manufacturer to have test data considered for qualification, the manufacturer must perform all required qualification tests; produce the qualification sample with DLA Land and Maritime-VQ certified materials and manufacturing construction techniques; and comply with the requirements specified in MIL-PRF-38534.

Custom hybrid microcircuit materials and manufacturing construction techniques in this listing applies only to products produced on the MIL-PRF-38534 certified line(s) at the plant(s) specified in this listing.

Custom hybrid microcircuits manufactured, assembled, and tested in accordance with MIL-PRF-38534 shall bear the "certification mark" for SMD controlled hybrid Microcircuits, or the "compliant hybrid" certification mark for non-SMD controlled hybrid microcircuits as follows:

SMD product, for all classes, shall have the certification mark "QML" or "Q" for small devices.  
Non-SMD product dated after MIL-PRF-38534D, for Class K shall have the certification mark "CK."  
Non-SMD product dated after MIL-PRF-38534D, for Class H shall have the certification mark "CH."  
Non-SMD product dated after MIL-PRF-38534D, for Class G shall have the certification mark "CG."  
Non-SMD product dated after MIL-PRF-38534D, for Class E shall have the certification mark "CE."  
Non-SMD product dated after MIL-PRF-38534D, for Class D shall have the certification mark "CD."  
Non-SMD dated prior to MIL-PRF-38534D, for all classes, shall have the certification mark "CH" or "C" for small devices.

These certification marks or the abbreviations "Q" or "C" shall not be used on product that does not meet all requirements of MIL-PRF-38534 except as allowed in 3.7.5 of MIL-PRF-38534.

Products manufactured, assembled, and tested for Class K, Class H, Class G, Class E, or Class D, with all the provisions of MIL-PRF-38534, and with DLA Land and Maritime-VQ qualified materials and manufacturing construction techniques, can be represented as being compliant to the appropriate product assurance levels as listed herein. The information contained in this listing reflects the general material and manufacturing techniques of the particular test sample(s). In order to protect the manufacturers' proprietary processes and materials, only the generic process and material are listed. The user must contact the manufacturer for any detail information on specific materials (i.e., such as epoxy, getter, solder-type), or process details. Processes and materials, not listed, may be considered qualified by similarity to those demonstrated for the qualification (e.g., different wire, package, or die sizes). See Appendix E of MIL-PRF-38534, Class I, major changes paragraph, for a baseline of qualification limits.

Any product represented as being compliant to MIL-PRF-38534 must be built using qualified processes and materials. The user shall be responsible for determining if the qualification baseline for a given class level is adequate to demonstrate capability for the intended application.

To obtain MIL-PRF-38534 qualified hybrid microcircuits, the user should specify in the procurement document that the product be manufactured to MIL-PRF-38534, and be comprised of materials and manufacturing construction techniques listed herein. Acquisition requirements are contained in paragraph 6.2 of MIL-PRF-38534. Microcircuit devices represented as being built, tested and shipped under the QML provision of MIL-PRF-38534 must be built using qualified manufacturing materials and construction in this listing.

Contractor acquiring activities, military program offices, and other government representatives can determine if hybrid microcircuits meet the requirements of MIL-PRF-38534 by:

- a. For SMD controlled product: Product listed in the product eligibility section herein and marked with "QML" or "Q".
- b. For non-SMD controlled Product: The part will not be listed herein. However, the part will be marked with "C" plus the Class Level designator".

WARNING! If products were not purchased to, and identified as MIL-PRF-38534 compliant, do not assume they have been manufactured on the DLA Land and Maritime-VQ certified line, with qualified materials and processes, or that all other MIL-PRF-38534 requirements were performed. To determine whether new SMD controlled products are in accordance with MIL-PRF-38534, or to verify any new process/material qualifications, you may call the qualifying activity (DLA Land and Maritime-VQ).

DLA Land and Maritime-VQ ISO Registrations are also listed herein. However, QML listed manufacturers may have ISO registrations from other registrars.

1/ This listing can be expanded provided appropriate qualification testing is performed and passed. Therefore the manufacturer may accept an order for compliant product not covered by his listing, but shall not ship the compliant product until the testing has been successfully completed.

2/ Package seal perimeter is listed by largest perimeter successfully tested in inches.

3/ Package lead counts are listed by maximum number of leads covered by qualification.

4/ Caution. Do not use this number for item acquisition. Item acquired to this number may not satisfy the performance requirements of the listed SMD.

5/ Inactive for new design, no longer available from manufacturer.

6/ Class E devices are devices which meet all of the requirements of one of the other classes (K, H, or G), with some exceptions taken. Therefore any manufacturer qualified to G, H or K is eligible to produce and mark product as compliant to class E.

**Part Configuration:**

Standardized Microcircuit Drawing (SMD)					
5962	99616	01	H	X	A
Federal Stock Class	SMD Number	Device Number	Class	Package Type	Lead Finish

**Process/Material Listings:**

**Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH**

**DLA Land and Maritime - VQ**

**MIL-PRF-38534 QML Program Status**

**Analog Devices Incorporated (CAGE Code: 34031)**

Assembled Products Division, 7910 Triad Center Drive, Greensboro, NC 27409-9605, US

**Company Contact:** Mr. Al McEvoy, Phone: 781-937-2673, Fax: 336-605-4347, E-mail: al.mcevoy@analog.com

**DSCC Contact:** Mr. Dan Miller, Phone: 614-692-2908, Fax: 614-692-6942, E-mail: vqh.dm@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** AD/DA Converters, Buffer, Op-Amp, Track and Hold, Voltage Reference, Signal Processor, Data Acquisition Systems, DC/DC Converters

**Sub: API Microelectronics Ltd. (Cage: U4388)**

**Qualification Letters:** VQ(VQH-04-006510), VQ(VQH-04-007022), VQ(VQH-04-007023), VQ(VQH-05-008727), VQ(VQH-06-010144), VQ(VQH-09-017847)

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Ceramic Co-fire; Thick Film, 4 Conductor Level(s)

**Assembly Information: See Note 1/**

**Assembly Flows:** FCES 6301:15

**Substrate Attach:** Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors, Ceramic Tabs, Transformers

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Co-fire Package, Dual-in-line, Seam Weld, 2.53 Inch Seal Perimeter, 24 Leads, Gold Lead Finish; Ceramic Package, Dual-in-line, Seam Weld, 5.38 Inch Seal Perimeter, 32 Leads, Gold Lead Finish; Ceramic Package, Quad Flat Pack, Seam Weld, 3.48 Inch Seal Perimeter, 68 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Apex Microtechnology Incorporated (CAGE Code: 60024)**

5980 North Shannon Road, Tucson, AZ 85741-5230, US

**Company Contact:** Mr. Jim Thompson, Phone: 520-690-8676, Fax: 520-888-3329, E-mail: Jim.Thompson@apexanalog.com

**DSCC Contact:** Mr. Edward Raybould, Phone: 614-692-0582, Fax: 614-692-6942, E-mail: vqh.esr@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** Yes

**Technologies:** Power Op-Amp

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**Qualification Letters:** EQ(EQC-91-347), EQ(EQC-92-410), EQ(EQC-92-416), EQ(EQC-93-028), EQ(EQC-93-595), ELS(ELSH-94-0354), ELS(ELSH-95-0070), VQ(VQH-17-030832), VQH-19-033822, VQ(VQH-20-034739), VQ(VQH-21-035839), VQH-23-037859

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** Flow 01

**Substrate Fabrication:** Thick Film on Beryllia, 1 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** Flow 10, Flow 99

**Substrate Attach:** Solder

**Element Attach:** Conductive Epoxy, Solder

**Add-on Elements:** Unpackaged Die, Chip Capacitors

**Wire Bonding:** Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, TO can, Projection Weld, 2.67 Inch Seal Perimeter, 8 Leads, Gold/Solder Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

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MIL-PRF-38534 QML Program Status

**Avago Technologies (CAGE Code: 50434)**

No. 1 Yishun Avenue 7, Singapore, 768923

**Company Contact:** Ms. Debbi Beauchesne, Phone: 408-433-8310, Fax: , E-mail: debbi.beauchesne@broadcom.com

**DSCC Contact:** Mr. Dan Miller, Phone: 614-692-2908, Fax: 614-692-6942, E-mail: vqh.dm@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Optocoupler

**Qualification Letters:** EQ(EQM-87-2594), EQ(EQM-88-1265), EQ(EQC-90-0754), EQ(EQC-93-271), EQ(EQC-93-591), ELS(ELSH-95-271), VQ(VQH-97-047), VQ(VQH-00-0109), VQ(VQH-01-0164), VQ(VQH-02-000432), VQ(VQH-02-001278), VQ(VQH-04-006618), VQ(VQH-04-006839), VQ(VQH-18-031820), VQH-19-033652, VQH-19-033976, VQH-21-036458, VQH-21-036527, VQH-22-036692, VQH-22-037043

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thick Film

**Assembly Information: See Note 1/**

**Assembly Flows:** ICPI-9001-3

**Substrate Attach:** Eutectic, Solder, Silver Glass

**Element Attach:** Eutectic, Silver Glass

**Add-on Elements:** Unpackaged Die

**Wire Bonding:** Gold, Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Package, Dual-in-line, Solder Seal, 1.28 Inch Seal Perimeter, 16 Leads, Gold/Solder Lead Finish; Ceramic Package, Leadless Chip Carrier, Solder Seal, .92 Inch Seal Perimeter, 20 Leads, Solder Lead Finish; Ceramic Package, Peripheral Leads, Solder Seal, 1.32 Inch Seal Perimeter, 16 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**CMC Electronics Incorporated (CAGE Code: 90073)**

600 Dr. Frederik Philips Boulevard, Ville Saint Laurent, Quebec, H4M 2S9, Canada

**Company Contact:** Mr. Luc-Albert Laroche, Phone: 514-748-3000 x4136, Fax: 514-748-3100, E-mail: Luc-Albert.Laroche@cmcelectronics.ca

**DSCC Contact:** Ms. Clare Jaquish, Phone: 614-692-6826, Fax: 614-692-6942, E-mail: vqh.cj@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Voltage Regulator

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**Qualification Letters:** EQ(EQC-91-720), EQ(EQC-92-427), VQ(VQH-98-0133), VQ(VQH-04-005582), VQ(VQH-17-031465)

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** 411-146425-000

**Substrate Fabrication:** Thick Film on Alumina, 7 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** 411-146426-000

**Substrate Attach:** Nonconductive Epoxy, Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Axial Leads, Seam Weld, 3.61 Inch Seal Perimeter, 16 Leads, Gold Lead Finish; Metal Package, Bathtub, Seam Weld, 4.3 Inch Seal Perimeter, 24 Leads, Gold Lead Finish; Metal Package, Flatpack, Seam Weld, 1.56 Inch Seal Perimeter, 44 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Cobham Advanced Electronic Solutions Inc. (CAGE Code: 65628)**

9404 Chesapeake Drive, San Diego, CA 92123-1388, US

**Company Contact:** Mr. Jake Michaels, Phone: 888-310-0010, Fax: 858-560-0291, E-mail: Jake.Michaels@CobhamAES.com

**DSCC Contact:** Ms. Clare Jaquish, Phone: 614-692-6826, Fax: 614-692-6942, E-mail: vqh.cj@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** Microwave Amplifier, Microwave Filter, Microwave Custom (IMAs)

**Qualification Letters:** ELS(ELSH-94-199), VQ(VQH-96-226), VQ(VQH-96-227), VQ(VQH-97-0180), VQ(VQH-97-0181), VQ(VQH-00-0104)

**Class Level Information: See Note 6/**

Class H, Class D, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thin Film; Purchased Duriod; Purchased Polyimide/PWB Copper

**Assembly Information: See Note 1/**

**Assembly Flows:** 001775

**Substrate Attach:** Conductive Epoxy, Eutectic, Solder

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors, Toroids, Coils, Thermcon, Inductors, Attenuators, IC Package

**Wire Bonding:** Gold, Copper, Ribbon

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Peripheral Leads, Seam Weld, 4 Inch Seal Perimeter, 16 Leads, Gold Lead Finish; Aluminum/Stainless Steel Package, DC/Microwave Leads, Laser Weld, 12.5 Inch Seal Perimeter, 6 Leads; Aluminum/Stainless Steel Package, DC/Microwave Leads (Dual-Sided, Multi-Cavity), Laser Weld, 24 Inch Seal Perimeter, 4 Leads

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

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MIL-PRF-38534 QML Program Status

**Crane Aerospace and Electronics (CAGE Code: 50821)**

No. 198, Xinseng Rd., Qianzhen Dist., Kaohsiung, Taiwan, R.O.C 80672

**Company Contact:** Mr. Peter Henrich, Phone: 425-895-5034, Fax: 425-743-8113, E-mail: Peter.Henrich@CraneAE.com

**DSCC Contact:** Ms. Clare Jaquish, Phone: 614-692-6826, Fax: 614-692-6942, E-mail: vqh.cj@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** DC-DC Converter, EMI Filters

**Qualification Letters:** VQ(VQH-97-0266), VQ(VQH-99-0070), VQ(VQH-99-0134), VQ(VQH-99-0175), VQ(VQH-99-0200), VQ(VQH-01-0017), VQ(VQH-01-0060), VQ(VQH-02-001187), VQ(VQH-03-004414), VQ(VQH-04-006128), VQ(VQH-04-006855), VQ(VQH-05-008873), VQ(VQH-06-010206), VQ(VQH-06-011675), VQ(VQH-07-012130), VQ(VQH-07-012468), VQ(VQH-10-019428), VQ(VQH-10-019429), VQ(VQH-10-020020), VQ(VQH-11-021213), VQ(VQH-11-021614), VQ(VQH-11-021809), VQ(VQH-11-021810), VQ(VQH-11-021879), VQ(VQH-11-021880), VQ(VQH-14-028435), VQ(VQH-16-029837), VQ(VQH-16-030733), VQH-19-033616, VQH-19-033939, VQ(VQH-19-034242), VQ(VQH-20-034966), VQ(VQH-20-035363), VQ(VQH-20-035559), VQH-21-035921, VQH-22-036594

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** QA-039

**Substrate Fabrication:** Thick Film on Alumina, 3 Conductor Level(s), Resistors; Thick Film on Beryllia, 3 Conductor Level(s), Resistors; Purchased Direct Bonded Copper

**Assembly Information: See Note 1/**

**Assembly Flows:** QA-039

**Substrate Attach:** Solder, Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, Eutectic, Nonconductive RTV

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tantalum Capacitors, Tabs, Chip Resistors, Inductors, Toroids, Daughter Board

**Wire Bonding:** Gold, Aluminum, Copper

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Axial Leads, Projection Weld, 5.14 Inch Seal Perimeter, 8 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 8 Inch Seal Perimeter, 20 Leads, Gold Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Crane Electronics, Inc. (CAGE Code: 50821)**

16700 13th Avenue West, Lynnwood, WA 98037, US

**Company Contact:** Mr. Peter Henrich, Phone: 425-895-5034, Fax: 425-743-8113, E-mail: Peter.Henrich@CraneAE.com

**DSCC Contact:** Ms. Clare Jaquish, Phone: 614-692-6826, Fax: 614-692-6942, E-mail: vqh.cj@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Linear Amplifier, Signal Processor, Data Converters, DC/DC Converters, Analog, Digital, EMI Filters

**Qualification Letters:** EQ(EQM-87-2838), EQ(EQM-89-0439), EQ(EQC-92-174), EQ(EQC-92-300), EQ(EQC-93-031), EQ(EQC-93-056), EQ(EQC-93-196), EQ(EQC-93-221), EQ(EQC-93-280), EQ(EQC-93-550), EQC-93-624, EQ(EQM-94-043), EQ(EQM-94-0111), ELS(ELSH-94-0297), ELS(ELSH-94-0336), ELS(ELSH-94-0364), ELS(ELSH-95-0036), ELS(ELSH-95-0375), ELS(ELSH-96-0095), ELS(ELSH-96-0139), VQ(VQH-96-0214), VQ(VQH-98-0253), VQ(VQH-99-0013), VQ(VQH-00-0131), VQ(VQH-00-0188), VQ(VQH-03-003336), VQ(VQH-03-003760), VQ(VQH-04-006128), VQ(VQH-05-007236 AMENDED), VQ(VQH-05-008263), VQ(VQH-05-008516), VQ(VQH-05-008820), VQ(VQH-07-012129), VQ(VQH-07-012467), VQ(VQH-07-013397), VQ(VQH-13-026724), VQ(VQH-14-028435), VQ(VQH-16-030645), VQ(VQH-17-030801), VQ(VQH-17-031099), VQ(VQH-17-031269), VQ(VQH-17-031528), VQH-19-033160, VQH-19-033393, VQH-19-033438, VQH-21-035753, VQH-22-036664, VQH-22-037365

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** QA-039

**Substrate Fabrication:** Thick Film on Alumina, 3 Conductor Level(s), Resistors; Thick Film on Beryllia, 3 Conductor Level(s), Resistors; Thick Film on Beryllia, 3 Conductor Level(s), Resistors; Purchased Direct Bonded Copper

**Assembly Information:** See Note 1/

**Assembly Flows:** QA-039

**Substrate Attach:** Solder, Nonconductive Epoxy, Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, Eutectic, RTV

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tantalum Capacitors, Tabs, Chip Resistors, Inductors, Toroids, Daughter Board

**Wire Bonding:** Gold, Aluminum, Copper

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Axial Leads, Projection Weld, 4.26 Inch Seal Perimeter, 8 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 4 Inch Seal Perimeter, 32 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 8.75 Inch Seal Perimeter, 12 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 6.4 Inch Seal Perimeter, 5 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 6 Inch Seal Perimeter, 38 Leads, Gold/Solder Lead Finish, Getter Qualified



Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Data Device Corporation (CAGE Code: 19645)**

105 Wilbur Place, Bohemia, NY 11716-2482, US

**Company Contact:** Mr. Jake Ranneklev, Phone: 631-563-5237, Fax: 631-244-8252, E-mail: ranneklevj@ddc-web.com

**DSCC Contact:** Ms. Sema Kazemi, Phone: 614-692-9549, Fax: 614-692-6942, E-mail: vqh.sk@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** 1553 Bus, Data Converters, Power

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**Bohemia Line**

**Qualification Letters:** EQ(EQC-90-220), EQ(EQC-90-657), EQ(EQC-91-104), EQ(EQC-91-306), EQ(EQC-91-308), EQ(EQC-91-386), EQ(EQC-91-606), EQ(EQC-91-667), EQ(EQC-93-055), EQ(EQC-93-199), EQ(EQC-93-599), EQ(EQC-93-625), ELS(ELSH-94-0327), ELS(ELSH-94-0392), ELS(ELSH-94-0399), ELS(ELSH-95-0140), ELS(ELSH-95-0266), VQ(VQH-96-0203), VQ(VQH-98-0101), VQ(VQH-99-0033), VQ(VQH-99-0129), VQ(VQH-99-0222), VQ(VQH-02-0969), VQ(VQH-03-3982), VQ(VQH-04-5821), VQ(VQH-04-6876), VQ(VQH-06-010110), VQ(VQH-07-013396), VQ(VQH-10-019748)

**Class Level Information: See Note 6/**

Class K, Class H, Class D, Class G, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** 41638, 41639, 45552

**Substrate Fabrication:** Thick Film on Alumina, 4 Conductor Level(s), Resistors; Thin Film on Alumina, 1 Conductor Level(s); Thick Film on Beryllia, 1 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** 41634, 41635, 45552

**Substrate Attach:** Nonconductive Epoxy, Solder, Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tabs, Transformers, Chip Resistors, Tantalum Capacitors, Ceramic Capacitors

**Wire Bonding:** Gold, Aluminum, Copper/Tin Solder

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Peripheral Leads, Seam Weld, 8.8 Inch Seal Perimeter, 16 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 10.26 Inch Seal Perimeter, 94 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 7.58 Inch Seal Perimeter, 82 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, Axial Leads, Seam Weld, 7.34 Inch Seal Perimeter, 78 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, Axial Leads, Seam Weld, 7.34 Inch Seal Perimeter, 78 Leads, Gold Lead Finish, Getter Qualified; Ceramic Co-fire Package, Axial Leads, Seam Weld, 5.8 Inch Seal Perimeter, 70 Leads, Gold Lead Finish, Getter Qualified; Ceramic Co-fire Package, Axial Leads, Seam Weld, 5.8 Inch Seal Perimeter, 70 Leads, Gold Lead Finish, Getter Qualified; Ceramic Co-fire Package, Peripheral Leads, Seam Weld, 4 Inch Seal Perimeter, 81 Leads, Gold Lead Finish, Getter Qualified; Ceramic Co-fire Package, Peripheral Leads, Seam Weld, 4 Inch Seal Perimeter, 81 Leads, Gold Lead Finish, Getter Qualified; Ceramic Co-fire Package, J-Leads, Solder Seal, 2.12 Inch Seal Perimeter, 40 Leads, Gold Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Data Device Corporation (CAGE Code: 19645)**

105 Wilbur Place, Bohemia, NY 11716-2482, US

**Company Contact:** Mr. Jake Ranneklev, Phone: 631-563-5237, Fax: 631-244-8252, E-mail: ranneklevj@ddc-web.com

**DSCC Contact:** Ms. Sema Kazemi, Phone: 614-692-9549, Fax: 614-692-6942, E-mail: vqh.sk@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** 1553 Bus, Data Converters, Power

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**sub: API Technologies Corp. RF2M UK (CAGE: U4388)**

**Qualification Letters:** EQ(EQC-91-835), EQ(EQC-92-084), EQ(EQC-93-139), ELS(ELSH-96-0054), ELS(ELSH-96-0161), VQ(VQH-98-0227), VQ(VQH-99-0192), VQ(VQH-99-0196), VQ(VQH-04-006510), VQ(VQH-04-007022), VQ(VQH-04-007023), VQ(VQH-05-008727), VQ(VQH-05-008978), VQ(VQH-06-010730), VQ(VQH-06-011795), VQ(VQH-09-017847), VQ(VQH-10-020173), VQ(VQH-10-020296), VQ(VQH-13-025883), VQ(VQH-14-028390)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** FCES 6301:15

**Substrate Fabrication:** Purchased Ceramic Co-fire; Thick Film on Alumina, 4 Conductor Level(s), Resistors; Purchased Direct Bonded Copper on Beryllia

**Assembly Information: See Note 1/**

**Assembly Flows:** FCES 6301:15

**Substrate Attach:** Conductive Epoxy, Solder, Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Eutectic, Nonconductive Epoxy

**Add-on Elements:** Chip Capacitors, Ceramic Tabs, Unpackaged Die, Transformers, Chip Resistors

**Wire Bonding:** Aluminum, Gold, Aluminum Ribbon

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Axial Leads, Projection Weld, 4.37 Inch Seal Perimeter, 24 Leads, Gold/Solder Lead Finish; Ceramic Co-fire Package, Dual-in-line, Seam Weld, 2.53 Inch Seal Perimeter, 24 Leads, Gold Lead Finish; Ceramic Package, Pin Grid Array, Seam Weld, 5 Inch Seal Perimeter, 101 Leads, Gold Lead Finish; Metal Package, TO can, Projection Weld, 1.13 Inch Seal Perimeter, 10 Leads, Gold/Solder Lead Finish; Ceramic Package, Dual-in-line, Seam Weld, 5.38 Inch Seal Perimeter, 32 Leads, Gold Lead Finish; Metal Package, Peripheral Leads, Seam Weld, 5.3 Inch Seal Perimeter, 36 Leads, Gold/Solder Lead Finish; Metal Package, Peripheral Leads, Seam Weld, 5.3 Inch Seal Perimeter, 36 Leads, Gold/Solder Lead Finish; Ceramic Package, Quad Flat Pack, Seam Weld, 3.48 Inch Seal Perimeter, 68 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Frontgrade Technologies Inc. (CAGE Code: 88379)**

35 South Service Road, Plainview, NY 11803-4193, US

**Company Contact:** Mr. Carmine Namorato, Phone: 516-752-5620, Fax: 516-694-6715, E-mail: Carmine.Namorato@Frontgrade.com

**DSCC Contact:** Ms. Jacqueline Cunningham, Phone: 614-692-0584, Fax: 614-692-6942, E-mail: vqh.jc@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Linear, Analog, Digital, Power, Voltage Regulator, Databus, Multiplexer

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**Cirtek Electronics Corp. Philippines Plant**

**Qualification Letters:** VQ(VQH-03-003903), VQ(VQH-03-004625), VQH-23-037584

**Class Level Information:** See Note 6/

Class H

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** N/A

**Assembly Information:** See Note 1/

**Assembly Flows:** QAP21-241

**Substrate Attach:** Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Eutectic, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tabs, Chip Resistors

**Wire Bonding:** Gold

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** N/A

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**Frontgrade Technologies**

**Qualification Letters:** EQ(EQC-90-616), EQ(EQC-91-896), EQ(EQC-92-001), EQ(EQC-93-019), EQ(EQC-94-032), ELS(ELSH-94-0342), ELS(ELSH-95-0042), ELS(ELSH-95-0395), ELS(ELSH-96-0130), ELS(ELSH-96-176), VQ(VQH-98-0001), VQ(VQH-99-0028), VQ(VQH-01-0070), VQ(VQH-01-0081), VQH-02-000431, VQ(VQH-02-001027), VQ(VQH-04-5086), VQ(VQH-04-005472), VQ(VQH-04-006026), VQ(VQH-04-006367), VQ(VQH-05-008607), VQ(VQH-05-009404), VQ(VQH-06-010542), VQ(VQH-07-012806), VQ(VQH-11-022595), VQ(VQH-13-025566), VQ(VQH-15-029253), VQ(VQH-17-031080), VQ(VQH-17-031572), VQ(VQH-18-032921), VQH-23-037434, VQH-23-037464, VQH-23-037466, VQH-23-037585

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thick Film on Beryllia, 1 Conductor Level(s); Purchased Thick Film on Alumina, 7 Conductor Level(s), Resistors

**Assembly Information:** See Note 1/

**Assembly Flows:** QAP21-241, QAP21-337

**Substrate Attach:** Solder, Nonconductive Epoxy, Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tantalum Capacitors, Tabs, Chip Resistors, Daughter Board, Transformers, Optocoupler Assembly, Inductors

**Wire Bonding:** Gold, Aluminum

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Axial Leads, Seam Weld, 7.94 Inch Seal Perimeter, 90 Leads, Gold Lead Finish; Ceramic Package, Dual-in-line, Seam Weld, 3.72 Inch Seal Perimeter, 24 Leads, Gold Lead Finish; Metal Package, Peripheral Leads, Seam Weld, 7.01 Inch Seal Perimeter, 88 Leads, Gold/Solder Lead Finish; Metal Package, Platform, Projection Weld, 3.93 Inch Seal Perimeter, 24 Leads, Gold Lead Finish; Ceramic Co-fire Package, Axial Leads, Seam Weld, 7.66 Inch Seal Perimeter, 90 Leads, Gold Lead Finish; Metal Package, Flatpack, Seam Weld, 5 Inch Seal Perimeter, 96 Leads, Gold Lead Finish; Ceramic Package, Leadless Chip Carrier, Seam Weld, 1.39 Inch Seal Perimeter, 5 Leads, Gold Lead Finish; Metal Package, Flatpack, Seam Weld, 7.4 Inch Seal Perimeter, 12 Leads, Gold Lead Finish, Getter Qualified; Ceramic Co-fire Package, Axial Leads, Solder Seal, 1.43 Inch Seal Perimeter, 16 Leads, Gold Lead Finish; Metal Package, Peripheral Leads, Seam Weld, 11 Inch Seal Perimeter, 30 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Flatpack, Seam Weld, 7.58 Inch Seal Perimeter, 82 Leads, Gold Lead Finish; Ceramic Co-fire Package, Peripheral Leads, Seam Weld, 5.2 Inch Seal Perimeter, 96 Leads, Gold Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**IR HiRel an Infineon Technologies Company (CAGE Code: 69210)**

205 Crawford Street, Leominster, MA 01453-2353, US

**Company Contact:** Ms. Abbie Hartmaier, Phone: 978-466-5577, Fax: , E-mail: Abbieann.Hartmaier@infineon.com

**DSCC Contact:** Ms. Jacqueline Cunningham, Phone: 614-692-0584, Fax: 614-692-6942, E-mail: vqh.jc@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Voltage Regulator, Power

**Qualification Letters:** EQ(EQC-91-408), EQ(EQC-91-807), EQ(EQC-91-838), EQ(EQM-94-0029), ELS(ELSH-94-0388), VQ(VQH-98-0014), VQ(VQH-01-0034), VQ(VQH-03-003838), VQ(VQH-08-016688), VQ(VQH-10-019960), VQ(VQH-10-020180), VQ(VQH-11-022643), VQ(VQH-12-024352), VQ(VQH-13-026659), VQ(VQH-13-026696)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** D050015G

**Substrate Fabrication:** Thick Film on Alumina, 3 Conductor Level(s), Resistors; Thick Film on Beryllia, 3 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** D050015G

**Substrate Attach:** Solder, Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tabs, Chip Resistors, Encapsulated Hybrid

**Wire Bonding:** Gold, Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Peripheral Leads, Seam Weld, 2.47 Inch Seal Perimeter, 8 Leads, Solder Lead Finish; Metal Package, Peripheral Leads, Seam Weld, 8.8 Inch Seal Perimeter, 43 Leads, Gold Lead Finish; Metal Package, Axial Leads, Seam Weld, 4.08 Inch Seal Perimeter, 24 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, Peripheral Leads, Seam Weld, 2.14 Inch Seal Perimeter, 19 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Kyocera International, Inc. (CAGE Code: 59096)**

8611 Balboa Avenue, San Diego, CA 92123, US

**Company Contact:** Mr. Michael Flanders, Phone: 858-576-2669, Fax: , E-mail: Michael.Flanders@kyocera.com

**DSCC Contact:** Ms. Juli Marcum, Phone: 614-692-3131, Fax: 614-692-6942, E-mail: vqh.jm@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 2

**Approved ISO 9000 System:** No

**Technologies:** D/A Converter

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**Qualification Letters:** VQ(VQH-22-036804)

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Ceramic co-fire

**Assembly Information: See Note 1/**

**Assembly Flows:** WI2401

**Substrate Attach:** N/A

**Element Attach:** Nonconductive Epoxy, Conductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors

**Wire Bonding:** gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Co-fire Package, Flatpack, Seam Weld, 4.15 Inch Seal Perimeter, 24 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Lockheed Martin Missiles and Fire Control (CAGE Code: 04939)**

5600 Sand Lake Road MP189, Orlando, FL 32819-8907, US

**Company Contact:** Mr. Christopher Adams, Phone: 407-356-0512, Fax: 407-356-6808, E-mail: christopher.adams@lmco.com

**DSCC Contact:** Ms. Sema Kazemi, Phone: 614-692-9549, Fax: 614-692-6942, E-mail: vqh.sk@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** Digital, Analog

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**Qualification Letters:** VQ(VQH-12-024704)

**Class Level Information:** See Note 6/

Class D

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thick Film

**Assembly Information:** See Note 1/

**Assembly Flows:** 861 Process Flow

**Substrate Attach:** Solder

**Element Attach:** Conductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors

**Wire Bonding:** Gold

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Axial Leads, Projection Weld, 1.88 Inch Seal Perimeter, 16 Leads, Gold Lead Finish

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**Qualification Letters:** EQ(EQC-91-402), EQ(EQC-91-764), EQ(EQC-92-112), EQ(EQC-92-312), EQ(EQC-92-412), VQ(VQH-99-0164), VQ(VQH-10-020356)

**Class Level Information:** See Note 6/

Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thick Film

**Assembly Information:** See Note 1/

**Assembly Flows:** 72301772

**Substrate Attach:** Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tantalum Capacitors, Chip Resistors, Inductors

**Wire Bonding:** Gold, Aluminum

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Ceramic Package, Leadless Chip Carrier, Solder Seal, 3.8 Inch Seal Perimeter, 68 Leads, Gold Lead Finish; Ceramic Package, Dual-in-line, Solder Seal, 2.88 Inch Seal Perimeter, 18 Leads, Gold/Solder Lead Finish; Metal Package, Platform, Projection Weld, 5.76 Inch Seal Perimeter, 44 Leads, Gold Lead Finish; Metal Package, Axial Leads, Seam Weld, 11.8 Inch Seal Perimeter, 140 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Mercury Corp. - Memory and Storage Solutions (CAGE Code: 54230)**

3601 East University Drive, Phoenix, AZ 85034-7217, US

**Company Contact:** Mr. Charles Mertz, Phone: 602-458-3461, Fax: 602-437-9120, E-mail: Charles.Mertz@mrcy.com

**DSCC Contact:** Ms. Jacqueline Cunningham, Phone: 614-692-0584, Fax: 614-692-6942, E-mail: vqh.jc@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Digital Memory

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**Qualification Letters:** EQ(EQC-90-019), EQ(EQC-92-070), EQ(EQC-92-138), EQC-93-457, EQ(EQC-93-508), ELS(ELSH-94-0256), ELS(ELSH-95-0107), ELS(ELSH-95-0365), ELS(ELSH-96-0014), ELS(ELSH-96-0184), ELS(ELSH-96-0186), VQ(VQH-96-0210), VQ(VQH-96-0211), VQ(VQH-97-0016), VQ(VQH-97-0170), VQ(VQH-98-0172), VQ(VQH-99-0258), VQ(VQH-00-0079)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thick Film; Purchased Ceramic Co-fire

**Assembly Information: See Note 1/**

**Assembly Flows:** 035A00001

**Substrate Attach:** Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Co-fire Package, Brazed Leads, Seam Weld, 5.36 Inch Seal Perimeter, 68 Leads, Gold/Solder Lead Finish, Getter Qualified; Ceramic Co-fire Package, Axial Leads, Seam Weld, 4.58 Inch Seal Perimeter, 66 Leads, Gold/Solder Lead Finish, Getter Qualified; Ceramic Package, Pin Grid Array, Seam Weld, 4.1 Inch Seal Perimeter, 66 Leads, Gold Lead Finish, Getter Qualified

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**Amertron Inc. (Philippines)**

**Qualification Letters:** VQ(VQH-12-024754)

**Class Level Information: See Note 6/**

Class H

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Ceramic Co-fire

**Assembly Information: See Note 1/**

**Assembly Flows:** 035A00001

**Substrate Attach:** N/A

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors

**Wire Bonding:** N/A

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Co-fire Package, Brazed Leads, Seam Weld, 3.32 Inch Seal Perimeter, 68 Leads, Gold/Solder Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Micropac Industries, Incorporated (CAGE Code: 31757)**

905 East Walnut Street, Garland, TX 75040-6696, US

**Company Contact:** Mr. Ken Hall, Phone: 972-272-3571, Fax: 972-494-2281, E-mail: kenhall@micropac.com

**DSCC Contact:** Mr. Jonathan Stone, Phone: 614-692-1566, Fax: 614-692-6942, E-mail: vqh.js@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Custom, Power, Optocouplers

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**Micropac Custom Line, Garland TX**

**Qualification Letters:** EQ(EQC-91-178), EQ(EQC-91-647), EQ(EQC-92-183), EQ(EQC-92-258), VQ(VQH-04-006232), VQ(VQH-05-008704), VQ(VQH-05-009200), VQ(VQH-05-009466), VQ(VQH-06-011928), VQ(VQH-07-012661), VQ(VQH-07-013773)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** 90138

**Substrate Fabrication:** Thick Film on Alumina, 5 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** 90138

**Substrate Attach:** Nonconductive Epoxy, Solder

**Element Attach:** Eutectic, Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Axial Leads, Seam Weld, 5 Inch Seal Perimeter, 28 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 5 Inch Seal Perimeter, 46 Leads, Gold/Solder Lead Finish, Getter Qualified

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**Micropac Opto Line, Garland TX**

**Qualification Letters:** EQ(EQC-90-624), EQ(EQC-91-188), EQ(EQC-91-466), EQ(EQC-92-120), ELS(ELSH-95-0057), ELS(ELSH-95-0444), VQ(VQH-04-006232), VQ(VQH-05-008721), VQ(VQH-12-025123), VQ(VQH-15-028695), VQ(VQH-16-029930), VQ(VQH-18-032683), VQH-21-036269

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** 90138

**Substrate Fabrication:** Thick Film on Alumina, 2 Conductor Level(s), Resistors; Thick Film on Alumina, 2 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** 90138

**Substrate Attach:** Conductive Epoxy, Nonconductive Epoxy

**Element Attach:** Eutectic, Conductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Resistors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Package, Dual-in-line, Solder Seal, 1.89 Inch Seal Perimeter, 16 Leads, Gold/Solder Lead Finish, Getter Qualified; Ceramic Package, Leadless Chip Carrier, Solder Seal, 1.6 Inch Seal Perimeter, 24 Leads, Solder Lead Finish, Getter Qualified; Metal Package, TO Can (dual base), Projection Weld, .54 Inch Seal Perimeter, 7 Leads, Gold/Solder Lead Finish, Getter Qualified; Ceramic Package, Dual-in-line, Seam Weld, 1.33 Inch Seal Perimeter, 8 Leads, Gold/Solder Lead Finish, Getter Qualified



Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Micropac Industries, Incorporated (CAGE Code: 31757)**

905 East Walnut Street, Garland, TX 75040-6696, US

**Company Contact:** Mr. Ken Hall, Phone: 972-272-3571, Fax: 972-494-2281, E-mail: kenhall@micropac.com

**DSCC Contact:** Mr. Jonathan Stone, Phone: 614-692-1566, Fax: 614-692-6942, E-mail: vqh.js@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Custom, Power, Optocouplers

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**Micropac Power Line, Garland TX**

**Qualification Letters:** EQ(EQC-90-625), EQ(EQC-91-328), EQ(EQC-91-338), EQ(EQC-92-183), EQ(EQC-92-258), ELS(ELSH-94-0496), VQ(VQH-04-006232), VQ(VQH-05-007911), VQ(VQH-05-009200), VQ(VQH-06-011765), VQ(VQH-07-013121), VQ(VQH-08-015994), VQ(VQH-12-025067), VQ(VQH-14-027805)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** 90138

**Substrate Fabrication:** Thick Film on Alumina, 1 Conductor Level(s), Resistors; Thick Film on Beryllia, 2 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** 90138

**Substrate Attach:** Nonconductive Epoxy, Solder

**Element Attach:** Conductive Epoxy, Solder, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors

**Wire Bonding:** Gold, Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, TO Can, Projection Weld, 2.27 Inch Seal Perimeter, 8 Leads, Gold/Solder Lead Finish, Getter Qualified; Ceramic Package, Dual-in-line, Seam Weld, 1.36 Inch Seal Perimeter, 8 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Micro-Precision Technologies, Inc. (CAGE Code: 0F962)**

10 Manor Parkway, Salem, NH 03079-2841, US

**Company Contact:** Mr. David Doherty, Phone: 603-893-7600, Fax: 603-893-9110, E-mail: dd@micropt.com

**DSCC Contact:** Ms. Sema Kazemi, Phone: 614-692-9549, Fax: 614-692-6942, E-mail: vqh.sk@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** Yes

**Technologies:** Linear, Digital, Analog

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**Qualification Letters:** VQ(VQH-00-0004), VQ(VQH-10-019928)

**Class Level Information: See Note 6/**

Class H, Class G, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** CP9146-Screening Rev. -

**Substrate Fabrication:** Thick Film on Alumina, 3 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** CP9146Q-Assembly Traveler Rev. -

**Substrate Attach:** Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Add-on Elements:** Unpackaged Die, Chip Resistors, Chip Capacitors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Peripheral Leads, Seam Weld, 6.32 Inch Seal Perimeter, 65 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Microsemi HRG (CAGE Code: 43611)**

6 Lake Street, Lawrence, MA 01841, US

**Company Contact:** Ms. Beth Parker, Phone: 978-620-2636, Fax: 978-774-0939, E-mail: beth.parker@microchip.com

**DSCC Contact:** Ms. Juli Marcum, Phone: 614-692-3131, Fax: 614-692-6942, E-mail: vqh.jm@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 2

**Approved ISO 9000 System:** No

**Technologies:** Point of Load Regulator

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**Qualification Letters:** VQ(VQH-12-025103), VQ(VQH-13-027082), VQ(VQH-15-028926), VQ(VQH-15-029474), VQ(VQH-15-029477), VQ(VQH-15-029572), VQ(VQH-16-029949), VQ(VQH-17-031105), VQ(VQH-20-034899)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Plated Up Copper on BeO, 1 Conductor Level(s); Purchased Direct Bonded Copper on BeO, 1 Conductor Level(s)

**Assembly Information: See Note 1/**

**Assembly Flows:** T3-HPG-FC001

**Substrate Attach:** Solder

**Element Attach:** Conductive Epoxy, Solder, Nonconductive Epoxy

**Add-on Elements:** Chip Capacitors, Unpackaged Die, Chip Resistors, Inductors

**Wire Bonding:** Aluminum, Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Flatpack, Seam Weld, 3.64 Inch Seal Perimeter, 16 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Microcross Components (CAGE Code: 57300)**

7725 North Orange Blossom Trail, Orlando, FL 32810, US

**Company Contact:** Mr. Allen Wares, Phone: 407-296-5642, Fax: , E-mail: Allen.Wares@microcross.com

**DSCC Contact:** Ms. Juli Marcum, Phone: 614-692-3131, Fax: 614-692-6942, E-mail: vqh.jm@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** Memory

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**Microchip Technology (Thailand) Co., Ltd.**

**Qualification Letters:** VQ(VQH-17-031114), VQ(VQH-17-031169), VQ(VQH-17-031290), VQ(VQH-18-032109), VQH-20-035487

**Class Level Information:** See Note 6/

Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Ceramic Co-fire

**Assembly Information:** See Note 1/

**Assembly Flows:** AS8S128K32PN-SAD, AS8S512K32QFP, AS8F128K32Q1

**Substrate Attach:** N/A

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors

**Wire Bonding:** Aluminum

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Ceramic Co-fire Package, Pin Grid Array, Seam Weld, 4.06 Inch Seal Perimeter, 66 Leads, Gold Lead Finish; Ceramic Co-fire Package, Quad Flat Pack, Seam Weld, 3.32 Inch Seal Perimeter, 68 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Micros Hi-Rel Power Solutions (CAGE Code: 52467)**

2520 Junction Avenue, San Jose, CA 95134-1902, US

**Company Contact:** Mr. Granville 'Bo' Rains, Phone: 408-434-5086, Fax: 408-434-5220, E-mail: grains1@irf.com

**DSCC Contact:** Mr. Dan Miller, Phone: 614-692-2908, Fax: 614-692-6942, E-mail: vqh.dm@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** DC/DC Converters

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**Advanced Semiconductor Engrg Inc, Nantou Branch**

**Qualification Letters:** VQ(VQH-02-1624), VQ(VQH-05-009379)

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** N/A

**Assembly Information:** See Note 1/

**Assembly Flows:** 8002-0044

**Substrate Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tantalum Capacitors, Tabs, Chip Resistors, Transformers

**Wire Bonding:** Gold, Aluminum, Copper

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Axial Leads, Seam Weld, 6.58 Inch Seal Perimeter, 10 Leads, Gold/Solder Lead Finish

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**San Jose Facility**

**Qualification Letters:** EQ(EQC-89-065), EQ(EQC-90-652), EQ(EQC-92-103), EQ(EQC-93-204), EQ(EQC-93-403), EQ(EQC-93-553), EQ(EQC-93-658), ELS(ELSH-94-0173), ELS(ELSH-94-0211), ELS(ELSH-94-0212), ELS(ELSH-94-0272), ELS(ELSH-94-0482), ELS(ELSH-94-0483), VQ(VQH-98-0100), VQ(VQH-98-0231), VQ(VQH-03-003517), VQ(VQH-05-9326), VQ(VQH-06-011051), VQ(VQH-07-013935), VQ(VQH-08-015552), VQ(VQH-12-023788), VQ(VQH-13-026800), VQ(VQH-14-027466), VQ(VQH-14-027974), VQ(VQH-15-029435), VQ(VQH-18-032741), VQ(VQH-18-033604), VQ(VQH-19-033816), VQH-19-034319, VQH-19-034320, VQH-19-034346, VQH-21-035754

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** 8002-0044

**Substrate Fabrication:** Thick Film on Alumina, 5 Conductor Level(s), Resistors; Thick Film on Beryllia, 4 Conductor Level(s), Resistors; Purchased Direct Bonded Copper

**Assembly Information:** See Note 1/

**Assembly Flows:** 8002-0044

**Substrate Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, RTV, Elastomer

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tantalum Capacitors, Tabs, Chip Resistors, Transformers, Inductors, Wires, Terminals

**Wire Bonding:** Gold, Aluminum, Copper

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Ceramic Package, Dual-in-line, Seam Weld, 3.69 Inch Seal Perimeter, 24 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 6.58 Inch Seal Perimeter, 10 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 10.1 Inch Seal Perimeter, 58 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 8 Inch Seal Perimeter, 12 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 11 Inch Seal Perimeter, 13 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Laser Weld, 4.3 Inch Seal Perimeter, 9 Leads, Gold/Solder Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Oncore Manufacturing LLC (CAGE Code: 0ANM4)**

400 Hot Springs Road, Carson City, NV 89706-1609, US

**Company Contact:** Mrs. Kathy Cano, Phone: 775-883-0820, Fax: 775-883-0827, E-mail: Kathy.Cano@neotech.com

**DSCC Contact:** Mr. Edward Raybould, Phone: 614-692-0582, Fax: 614-692-6942, E-mail: vqh.esr@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Active Delay Line, Linear, Custom Hybrid

**Qualification Letters:** EQ(EQC-91-859), EQ(EQM-94-0023), EQ(EQM-94-0102), VQ(VQH-04-006262), VQ(VQH-05-007828), VQ(VQH-06-010743), VQ(VQH-07-012497), VQ(VQH-08-015017), VQ(VQH-08-015553), VQ(VQH-09-016945), VQ(VQH-10-020918), VQ(VQH-14-027901), VQ(VQH-15-029530), VQH-21-035924

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** RN1005-002, 8111663

**Substrate Fabrication:** Thick Film on Alumina, 2 Conductor Level(s), Resistors; Thick Film on Beryllia, 1 Conductor Level(s); Thick Film on Ceramic, 7 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** RN1005-004

**Substrate Attach:** Nonconductive Epoxy, Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Inductors, Chip Resistors, Tabs, Tantalum Capacitors, Quartz Crystal, Ceramic Stand Off, Daughter Board

**Wire Bonding:** Gold, Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Platform, Projection Weld, 2.94 Inch Seal Perimeter, 16 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 6.32 Inch Seal Perimeter, 48 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 5 Inch Seal Perimeter, 56 Leads, Nickel Lead Finish, Getter Qualified; Ceramic Co-fire Package, Brazed Leads, Seam Weld, 2.47 Inch Seal Perimeter, 11 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Robins AFB (CAGE Code: 0RCH2)**

402 EMXSS/MXDEAD, 420 Richard Ray Blvd Ste 100, Robins AFB, GA 31098-1640, US

**Company Contact:** Mr. Jeremy Williams, Phone: 478-926-9472, Fax: 478-926-9234, E-mail: jeremy.williams.2@us.af.mil

**DSCC Contact:** Ms. Juli Marcum, Phone: 614-692-3131, Fax: 614-692-6942, E-mail: vqh.jm@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** I/Q Phase Detector, Digibus

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**Qualification Letters:** VQ(VQH-00-0107), VQ(VQH-07-012450), VQ(VQH-13-025669), VQH-19-034149

**Class Level Information: See Note 6/**

Class H, Class G, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thick Film on Alumina, 4 Conductor Level(s)

**Assembly Information: See Note 1/**

**Assembly Flows:** PCD0200

**Substrate Attach:** Conductive Epoxy, Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Flatpack, Seam Weld, 5.92 Inch Seal Perimeter, 68 Leads, Gold Lead Finish; Ceramic Package, Flatpack, Seam Weld, 4.02 Inch Seal Perimeter, 30 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Sensitron Semiconductor (CAGE Code: 13409)**

100 Engineers Road, Hauppauge, NY 11788, US

**Company Contact:** Mr. James Terracciano, Phone: 631-586-7600 x452, Fax: 631-586-1065, E-mail: James.Terracciano@rsm.com

**DSCC Contact:** Ms. Sema Kazemi, Phone: 614-692-9549, Fax: 614-692-6942, E-mail: vqh.sk@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Power, Transistors

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**Qualification Letters:** N/A

**Class Level Information:** See Note 6/

Class D

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Beryllia; Purchased Alumina

**Assembly Information:** See Note 1/

**Assembly Flows:** 7710-0582

**Substrate Attach:** Solder

**Element Attach:** Solder

**Add-on Elements:** Packaged FET, Chip Resistors, Chip Capacitors

**Wire Bonding:** Copper

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Epoxy Package, Axial Leads, Epoxy Seal, 4.64 Inch Seal Perimeter, 16 Leads, Copper Lead Finish

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**Qualification Letters:** VQ(VQH-00-0119), VQ(VQH-00-0168), VQ(VQH-00-0169), VQ(VQH-03-002777), VQH-21-036273

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Aluminum Nitride

**Assembly Information:** See Note 1/

**Assembly Flows:** 7710-0582

**Substrate Attach:** Solder

**Element Attach:** Conductive Epoxy, Solder, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Resistors

**Wire Bonding:** Gold, Aluminum

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Axial Leads, Seam Weld, 4 Inch Seal Perimeter, 12 Leads, Gold Lead Finish; Metal Package, Solder Seal, 1.96 Inch Seal Perimeter; Metal Package, TO Can, Projection Weld, 1.13 Inch Seal Perimeter, 8 Leads, Gold Lead Finish



Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Solitron Devices, Incorporated (CAGE Code: 21845)**

3301 Electronics Way, West Palm Beach, FL 33407-4697, US

**Company Contact:** Mr. Mike Flood, Phone: 561-848-4311, Fax: 561-863-5946, E-mail: mflood@solitrondevices.com

**DSCC Contact:** Mr. Jonathan Stone, Phone: 614-692-1566, Fax: 614-692-6942, E-mail: vqh.js@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Linear, Power, Voltage Regulator

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**Qualification Letters:** ELS(ELSH-94-0316), ELS(ELSH-94-0433), ELS(ELSH-95-0079), ELS(ELSH-95-0210), VQ(VQH-99-0180), VQ(VQH-99-0195), VQ(VQH-00-0125), VQ(VQH-03-003255), VQ(VQH-03-004107), VQ(VQH-05-007716), VQ(VQH-14-028224)

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** H1043

**Substrate Fabrication:** Thick Film on Alumina, 1 Conductor Level(s), Resistors; Thick Film on Beryllia, 2 Conductor Level(s), Resistors; Thick Film on Beryllia, 2 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** H1040

**Substrate Attach:** Eutectic, Solder

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Eutectic, Solder

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tabs

**Wire Bonding:** Gold, Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, TO Can, Projection Weld, 2.86 Inch Seal Perimeter, 3 Leads, Gold/Solder Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 4.64 Inch Seal Perimeter, 6 Leads, Gold/Solder Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Spectrum Control Ltd. (CAGE Code: U4388)**

South Denes, Great Yarmouth, Norfolk , UK

**Company Contact:** Mr. Mark Whelband, Phone: 1493-743121, Fax: 1493-858536, E-mail: Mark.Whelband@apitech.com

**DSCC Contact:** Mr. Dan Miller, Phone: 614-692-2908, Fax: 614-692-6942, E-mail: vqh.dm@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** 1553 Transceiver, High Voltage Drivers, Power

**Qualification Letters:** EQ(EQC-91-835), EQ(EQC-92-084), EQ(EQC-93-139), ELS(ELSH-96-0054), ELS(ELSH-96-0161), VQ(VQH-98-0227), VQ(VQH-99-0192), VQ(VQH-99-0196), VQ(VQH-04-006510), VQ(VQH-04-007022), VQ(VQH-04-007023), VQ(VQH-05-008727), VQ(VQH-05-008978), VQ(VQH-06-010730), VQ(VQH-06-011795), VQ(VQH-09-017847), VQ(VQH-10-020173), VQ(VQH-10-020296), VQ(VQH-13-025883), VQ(VQH-14-028390), VQ(VQH-15-028729), VQH-22-036998

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** BSM8 Appendix C

**Substrate Fabrication:** Purchased Ceramic Co-fire; Thick Film on Alumina, 4 Conductor Level(s), Resistors; Purchased Direct Bonded Copper on Beryllia

**Assembly Information: See Note 1/**

**Assembly Flows:** BSM8 Appendix C

**Substrate Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors, Transformers, Ceramic Tabs

**Wire Bonding:** Gold, Aluminum, Aluminum Ribbon

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, Axial Leads, Seam Weld, 5.3 Inch Seal Perimeter, 36 Leads, Gold/Solder Lead Finish; Metal Package, Axial Leads, Seam Weld, 5.3 Inch Seal Perimeter, 36 Leads, Gold/Solder Lead Finish; Metal Package, Axial Leads, Projection Weld, 4.37 Inch Seal Perimeter, 24 Leads, Gold/Solder Lead Finish; Ceramic Package, Pin Grid Array, Seam Weld, 5 Inch Seal Perimeter, 101 Leads, Gold Lead Finish; Metal Package, TO can, Projection Weld, 1.13 Inch Seal Perimeter, 10 Leads, Gold/Solder Lead Finish; Ceramic Co-fire Package, Dual-in-line, Seam Weld, 2.53 Inch Seal Perimeter, 24 Leads, Gold Lead Finish; Ceramic Package, Dual-in-line, Seam Weld, 5.38 Inch Seal Perimeter, 32 Leads, Gold Lead Finish; Ceramic Package, Quad Flat Pack, Seam Weld, 3.48 Inch Seal Perimeter, 68 Leads, Gold Lead Finish

**Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH**

**DLA Land and Maritime - VQ**

**MIL-PRF-38534 QML Program Status**

***Spectrum Control, Inc. (CAGE Code: 27851)***

400 Nickerson Road, Marlborough, MA 01752, US

**Company Contact:** Ms. Jody Keller, Phone: 774-410-8919, Fax: 508-251-6401, E-mail: Jody.Keller@am.SpectrumControl.com

**DSCC Contact:** Mr. Edward Raybould, Phone: 614-692-0582, Fax: 614-692-6942, E-mail: vqh.esr@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 2

**Approved ISO 9000 System:** No

**Technologies:** Low Power, Analog, Voltage Reference, Direct Bond Copper Hybrid

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**Marlborough Plant**

**Qualification Letters:** EQ(EQC-89-421), ELS(ELSH-94-0252), ELS(ELSH-94-0253), ELS(ELSH-94-0254), ELS(ELSH-95-0183), VQ(VQH-98-0177), VQ(VQH-98-0232), VQ(VQH-99-0176), VQ(VQH-99-0204), VQ(VQH-01-0102), VQ(VQH-01-0104), VQ(VQH-03-004619), VQ(VQH-04-004898), VQ(VQH-04-005172), VQ(VQH-06-011842), VQ(VQH-07-013689), VQ(VQH-08-014380)

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** 52-0059

**Substrate Fabrication:** Thin Film on Alumina, 2 Conductor Level(s), Resistors; Thin Film on Alumina, 2 Conductor Level(s), Resistors; Thin Film on Beryllia, 1 Conductor Level(s); Purchased Direct Bonded Copper on Alumina Nitride, 2 Conductor Level(s); Purchased Thick Film on Alumina, 5 Conductor Level(s)

**Assembly Information:** See Note 1/

**Assembly Flows:** 12-0902

**Substrate Attach:** Nonconductive Epoxy, Solder

**Element Attach:** Conductive Epoxy, Solder, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Resistors, Chip Capacitors

**Wire Bonding:** Gold, Aluminum

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Peripheral Leads, Seam Weld, 3.58 Inch Seal Perimeter, 16 Leads, Gold Lead Finish, Getter Qualified; Metal Package, TO can, Projection Weld, 1.65 Inch Seal Perimeter, 12 Leads, Gold Lead Finish, Getter Qualified; Metal Package, TO can, Projection Weld, 6 Inch Seal Perimeter, 12 Leads, Nickel Lead Finish, Getter Qualified; Ceramic Package, Dual-in-line, Seam Weld, 2.57 Inch Seal Perimeter, 14 Leads, Gold Lead Finish; Ceramic Package, Leadless Chip Carrier, Seam Weld, 1.62 Inch Seal Perimeter, 28 Leads, Solder Lead Finish; Ceramic Package, Single-in-line, Seam Weld, 2.9 Inch Seal Perimeter, 10 Leads, Gold Lead Finish; Copper Package, Single-in-line, Seam Weld, 4.9 Inch Seal Perimeter, 17 Leads, Nickel Lead Finish

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**Millenium Microtech Thailand Plant**

**Qualification Letters:** VQ(VQH-16-030502)

**Class Level Information:** See Note 6/

Class H

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** 5366-10

**Substrate Fabrication:** Thin Film on Alumina, 2 Conductor Level(s), Resistors

**Assembly Information:** See Note 1/

**Assembly Flows:** 5366-2

**Substrate Attach:** Non-conductive Epoxy

**Element Attach:** Conductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Resistors

**Wire Bonding:** Gold

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, TO Can, Projection Weld, 1.16 Inch Seal Perimeter, 8 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Spectrum Control, Inc. (CAGE Code: 50507)**

400 Nickerson Road, Marlborough, MA 01752, US

**Company Contact:** Ms. Jody Keller, Phone: 774-410-8919, Fax: 508-251-6401, E-mail: Jody.Keller@am.SpectrumControl.com

**DSCC Contact:** Mr. Edward Raybould, Phone: 614-692-0582, Fax: 614-692-6942, E-mail: vqh.esr@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Data Converters, Track and Hold Amp

**Qualification Letters:** EQ(EQM-88-0709), EQ(EQC-91-235), EQ(EQC-91-894), EQ(EQC-92-062), EQ(EQC-93-162), EQ(EQC-94-008), ELS(ELSH-95-0269), VQ(VQH-06-010485)

**Class Level Information: See Note 6/**

Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Ceramic Co-fire

**Assembly Information: See Note 1/**

**Assembly Flows:** FC-25

**Substrate Attach:** Nonconductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors

**Wire Bonding:** Gold

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Ceramic Package, Dual-in-line, Seam Weld, 7.48 Inch Seal Perimeter, 62 Leads, Gold/Solder Lead Finish; Ceramic Package, Leadless Chip Carrier, Solder Seal, 1.13 Inch Seal Perimeter, 22 Leads, Solder Lead Finish; Ceramic Package, Quad Flat Pack, Seam Weld, 6.2 Inch Seal Perimeter, 136 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Teledyne e2V Hirel Electronics (CAGE Code: 0C7V7)**

765 Sycamore Drive, Milpitas, CA 95035, US

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**DSCC Contact:** Mr. Francois Ndiaye, Phone: 614-692-5061, Fax: 614-692-6942, E-mail: vqh.fn@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** Semiconductor Dual High Performance Op Amp

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**Teledyne e2V HIREL - TN (Lewisburg)**

**Qualification Letters:** VQ(VQH-20-035131)

**Class Level Information:** See Note 6/

Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thin Film on Alumina, 3 Conductor Level(s), Resistors

**Assembly Information:** See Note 1/

**Assembly Flows:** 00-SB15-016 revision C

**Substrate Attach:** Non-Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Daughter Board, Chip Capacitors, Tabs

**Wire Bonding:** Gold

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package Package, Flatpack, Seam Seal, 2.58 Inch Seal Perimeter, 14 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Teledyne Microelectronic Technologies (CAGE Code: 26687)**

1425 Higgs Road, Lewisburg, TN 37091, US

**Company Contact:** Mr. John Rabba, Phone: 931-270-2592, Fax: , E-mail: John.Rabba@Teledyne.com

**DSCC Contact:** Mr. Francois Ndiaye, Phone: 614-692-5061, Fax: 614-692-6942, E-mail: vqh.fn@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** Data Converters, Linear, Microwave, Custom, Power, RF Microwave

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**Qualification Letters:** VQ(VQH-14-027666), VQ(VQH-14-027714), VQ(VQH-18-031968), VQ(VQH-23-037800)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thin Film on Alumina, 3 Conductor Level(s), Resistors

**Assembly Information: See Note 1/**

**Assembly Flows:** 7700530

**Substrate Attach:** Conductive Epoxy

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy

**Add-on Elements:** Unpackaged Die, Chip Resistors, Chip Capacitors

**Wire Bonding:** Gold, Aluminum

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal/Ceramic Co-Fire Package, Peripheral Leads, Seam Weld, 3.94 Inch Seal Perimeter, 40 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Dual-in-Line, Seam Weld, 2.6 Inch Seal Perimeter, 14 Leads, Gold Lead Finish, Getter Qualified

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**Teledyne Microwave Solutions (CAGE Code: 24022)**

1274 Terra Bella Avenue, Mountain View, CA 94043, US

**Company Contact:** Mr. Nam Le, Phone: 650-224-9013, Fax: , E-mail: Nam.Le@teledyne.com

**DSCC Contact:** Mr. Edward Raybould, Phone: 614-692-0582, Fax: 614-692-6942, E-mail: vqh.esr@dla.mil

**Quality Management (QM) Program:** TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** RF Cascadable Amplifier, Microwave Cascadable Amplifier, Mixers, Attenuators, Limiters, Switches, Multi-function

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**Qualification Letters:** VQ(VQH-00-0037), VQ(VQH-01-0128), VQ(VQH-13-026904)

**Class Level Information: See Note 6/**

Class K, Class H, Class E

**Substrate Fabrication Information: See Note 1/**

**Substrate Fabrication Flows:** N/A

**Substrate Fabrication:** Purchased Thin Film

**Assembly Information: See Note 1/**

**Assembly Flows:** 351393

**Substrate Attach:** Solder

**Element Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Inductors

**Wire Bonding:** Gold, Copper

**Package Information: See Notes 1/ 2/ 3/**

**Package Information:** Metal Package, TO Can, Projection Weld, 1.37 Inch Seal Perimeter, 4 Leads, Gold Lead Finish; Metal Package, Flatpack, Seam Weld, 2.13 Inch Seal Perimeter, 4 Leads, Gold Lead Finish; Metal/Ceramic Package, SMT0, Seam Weld, 2.13 Inch Seal Perimeter, 4 Leads, Gold Lead Finish

Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**TTM Technologies, Inc. (CAGE Code: 31597)**

6635 Kirkville Road, East Syracuse, NY 13057, US

**Company Contact:** Mr. Terry Kennedy, Phone: 315-362-0205, Fax: 315-701-6752, E-mail: Terrence.Kennedy@ttmtech.com

**DSCC Contact:** Ms. Sema Kazemi, Phone: 614-692-9549, Fax: 614-692-6942, E-mail: vqh.sk@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Options 1 and 2

**Approved ISO 9000 System:** No

**Technologies:** High Power Amplifiers, Amplifiers, PWB H-Bridge, Custom Hybrids/MCMs, Voltage Regulator, Switching Regulator, RAD HARD Hybrids, Motor Controllers, Linear Regulators, DC/DC Converters, Filters, Video Amplifiers

**Qualification Letters:** EQ(EQC-90-451), EQ(EQC-90-507), EQ(EQC-92-417), EQ(EQC-93-141), EQ(EQC-93-242), EQ(EQC-93-346), EQ(EQC-93-488), EQ(EQC-93-554), EQ(EQC-93-682), EQ(EQC-93-687), EQ(EQM-94-084), EQ(EQM-94-093), ELS(ELSH-94-0400), ELS(ELSH-94-0401), ELS(ELSH-94-0402), ELS(ELSH-94-0470), ELS(ELSH-95-0020), ELS(ELSH-95-0216), ELS(ELSH-95-0304), ELS(ELSH-96-0073), ELS(ELSH-96-0086), VQ(VQH-96-0206), VQ(VQH-96-0046), VQ(VQH-97-0073), VQ(VQH-97-0089), VQ(VQH-97-0223), VQ(VQH-97-0228), VQ(VQH-97-0238), VQ(VQH-97-0243), VQ(VQH-98-0246), VQ(VQH-99-0145), VQ(VQH-00-0023), VQ(VQH-00-0242), VQ(VQH-01-0065), VQ(VQH-01-0075), VQ(VQH-02-000095), VQ(VQH-03-002841), VQ(VQH-03-003922), VQ(VQH-03-004192), VQ(VQH-03-004194), VQ(VQH-04-005084), VQ(VQH-04-005148), VQ(VQH-04-005646), VQ(VQH-04-006786), VQ(VQH-04-006941), VQ(VQH-04-007061), VQ(VQH-04-007098), VQ(VQH-05-008546), VQ(VQH-05-008816), VQ(VQH-05-008994), VQ(VQH-05-008995), VQ(VQH-06-009631), VQ(VQH-06-009683), VQ(VQH-06-009742), VQ(VQH-06-010016), VQ(VQH-06-010082), VQ(VQH-06-010086), VQ(VQH-06-010359), VQ(VQH-06-010509), VQ(VQH-06-010846), VQ(VQH-06-011516), VQ(VQH-07-012278), VQ(VQH-07-012548), VQ(VQH-07-013658), VQ(VQH-08-014579), VQ(VQH-08-014909), VQ(VQH-09-016693), VQ(VQH-09-018310), VQ(VQH-09-018313), VQ(VQH-09-018466), VQ(VQH-09-018978), VQ(VQH-10-021073), VQ(VQH-11-022826), VQ(VQH-11-022827), VQ(VQH-11-022828), VQ(VQH-11-023107), VQ(VQH-11-023174), VQ(VQH-11-023234), VQ(VQH-12-024146), VQ(VQH-13-025668), VQ(VQH-13-026264), VQ(VQH-14-027599), VQ(VQH-14-027663), VQ(VQH-15-028968), VQ(VQH-15-029048), VQ(VQH-18-032808), VQ(VQH-20-034693), VQ(VQH-20-034863), VQH-21-035585, VQH-22-036671, VQH-22-036908

**Class Level Information:** See Note 6/

Class K, Class H, Class G, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** 2422-1563

**Substrate Fabrication:** Thick Film on Alumina, 2 Conductor Level(s), Resistors; Thick Film on Alumina, 2 Conductor Level(s), Resistors; Purchased Alumina/Copper; Thick Film on Beryllia, 3 Conductor Level(s), Resistors; Thick Film on Beryllia, 3 Conductor Level(s), Resistors; Purchased Alumina

**Assembly Information:** See Note 1/

**Assembly Flows:** 2422-1518

**Substrate Attach:** Conductive Epoxy, Nonconductive Epoxy, Solder

**Element Attach:** Solder, Conductive Epoxy, Nonconductive Epoxy, Eutectic

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Tabs, Chip Resistors, Inductors, Bonding Block, Daughter Board, Crystal, Ceramic Posts

**Wire Bonding:** Gold, Aluminum

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, TO Can, Projection Weld, 3.14 Inch Seal Perimeter, 12 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Platform, Projection Weld, 2.6 Inch Seal Perimeter, 14 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Axial Leads, Seam Weld, 5 Inch Seal Perimeter, 44 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 6.95 Inch Seal Perimeter, 82 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Peripheral Leads, Seam Weld, 6 Inch Seal Perimeter, 12 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, Braze Leads, Solder Seal, 2.06 Inch Seal Perimeter, 28 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Surface Mount, Seam Weld, 2.15 Inch Seal Perimeter, 3 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, Peripheral Leads, Seam Weld, 4.79 Inch Seal Perimeter, 10 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, Flatpack, Seam Weld, 2.38 Inch Seal Perimeter, 10 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Flatpack, Seam Weld, 5.98 Inch Seal Perimeter, 196 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Flatpack, Solder Seal, 1.33 Inch Seal Perimeter, 14 Leads, Gold Lead Finish, Getter Qualified; Metal Package, Bathtub, Seam Weld, 2.45 Inch Seal Perimeter, 5 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, LCC, Solder Seal, 1.4 Inch Seal Perimeter, 20 Leads, Gold Lead Finish, Getter Qualified; Ceramic Package, LCC, Seam Weld, 2.16 Inch Seal Perimeter, 3 Leads, Gold Lead Finish, Getter Qualified



Sourcing and Qualification Unit, Hybrid Devices Team, DSCC-VQH

DLA Land and Maritime - VQ

MIL-PRF-38534 QML Program Status

**VPT Inc/Delta Electronics (CAGE Code: 0ZBZ6)**

1971 Kraft Dr Ste 1000, Blacksburg, VA 24060, US

**Company Contact:** Mr. Shawn Graham, Phone: 540-552-5000 x7566, Fax: 540-552-5003, E-mail: sgraham@vptpower.com

**DSCC Contact:** Mr. Edward Raybould, Phone: 614-692-0582, Fax: 614-692-6942, E-mail: vqh.esr@dla.mil

**Quality Management (QM) Program:** Non-TRB

**Periodic Inspection System:** Option 1

**Approved ISO 9000 System:** No

**Technologies:** DC/DC Converters, Filters

**Delta Electronics, Inc Taoyuan Shien, Taiwan Plant**

**Qualification Letters:** VQ(VQH-03-3408), VQ(VQH-05-007383), VQ(VQH-06-009911), VQ(VQH-06-010083), VQ(VQH-06-010462), VQ(VQH-06-010463), VQ(VQH-06-010748), VQ(VQH-07-012667), VQ(VQH-08-014580), VQ(VQH-09-017993), VQ(VQH-09-017994), VQ(VQH-11-022477), VQ(VQH-11-022562), VQ(VQH-12-024201), VQ(VQH-12-024839), VQ(VQH-13-025426), VQ(VQH-13-025533), VQ(VQH-13-025534), VQ(VQH-13-025667), VQ(VQH-13-025769), VQ(VQH-13-025866), VQ(VQH-13-025867), VQ(VQH-13-026652), VQ(VQH-13-026658), VQ(VQH-13-026974), VQ(VQH-13-026992), VQ(VQH-14-027651), VQ(VQH-14-027888), VQ(VQH-14-027889), VQ(VQH-14-027890), VQ(VQH-14-027891), VQ(VQH-14-028197), VQ(VQH-14-028377), VQ(VQH-15-028923), VQ(VQH-15-029046), VQ(VQH-15-029047), VQ(VQH-15-029182), VQ(VQH-15-029183), VQ(VQH-15-029184), VQ(VQH-15-029549), VQ(VQH-15-029618), VQ(VQH-15-029619), VQ(VQH-16-029891), VQ(VQH-16-030701), VQ(VQH-16-030703), VQ(VQH-16-030704), VQ(VQH-16-030705), VQ(VQH-17-030840), VQ(VQH-17-031299), VQ(VQH-17-031392), VQ(VQH-17-031586), VQ(VQH-17-031587), VQ(VQH-18-032807), VQ(VQH-18-032928), VQ(VQH-18-032929), VQ(VQH-19-033315), VQ(VQH-19-034028), VQ(VQH-20-034635), VQ(VQH-21-036456), VQ(VQH-21-036530), VQ(VQH-22-036661), VQ(VQH-22-036665), VQ(VQH-22-036681), VQ(VQH-22-036709), VQ(VQH-22-036728, VQ(VQH-22-036738, VQ(VQH-22-036745, VQ(VQH-22-036818, VQ(VQH-22-036846, VQ(VQH-22-037285

**Class Level Information:** See Note 6/

Class K, Class H, Class E

**Substrate Fabrication Information:** See Note 1/

**Substrate Fabrication Flows:** MFG-001

**Substrate Fabrication:** Thick Film on Alumina, 4 Conductor Level(s), Resistors; Thick Film on Alumina, 4 Conductor Level(s), Resistors; Thick Film on Alumina, 4 Conductor Level(s), Resistors

**Assembly Information:** See Note 1/

**Assembly Flows:** MFG-001

**Substrate Attach:** Solder

**Element Attach:** Conductive Epoxy, Solder, Nonconductive Epoxy, RTV

**Add-on Elements:** Unpackaged Die, Chip Capacitors, Chip Resistors, Magnetics, Bonding Chip, Copper Straps, Flexible Circuits, Wirewound Resistor

**Wire Bonding:** Aluminum, Gold

**Package Information:** See Notes 1/ 2/ 3/

**Package Information:** Metal Package, Dual-in-line, Projection Weld, 5.14 Inch Seal Perimeter, 9 Leads, Gold Lead Finish; Metal Package, Dual-in-line, Bathtub, Seam Weld, 6.44 Inch Seal Perimeter, 10 Leads, Gold Lead Finish; Metal Package, Peripheral Leads, Bathtub, Seam Weld, 8 Inch Seal Perimeter, 12 Leads, Gold Lead Finish; Metal Package, Dual-in-line, Projection Weld, 5.14 Inch Seal Perimeter, 10 Leads, Gold Lead Finish; Metal Package, Peripheral Leads, Bathtub, Seam Weld, 4.44 Inch Seal Perimeter, 20 Leads, Gold Lead Finish

**Standardized Microcircuit Drawing (SMD) Approved Sources are available at the following web pages:**  
**Qualification Part Search:** <http://www.landandmaritime.dla.mil/programs/psearch/>  
**Standard Microcircuit Cross-Reference:** <http://www.landandmaritime.dla.mil/Programs/Smcr/>  
**Qualified Products Database:** <http://qpldocs.dla.mil/search/parts.aspx?qpl=1116>