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

September 25, 2024

Garry Nash
Chief Operating Officer
Vorago Technologies
1501 S. MoPac Expressway, Suite 350
Austin, TX 78746-7673

Dear Mr. Nash:

Re: Full Certification Classes Q & V with Radiation Hardness for MIL-PRF-38535; FSC 5962; VQC-24-038982); Tran

Vorago Technologies has demonstrated to the DLA Land and Maritime that it complies with MIL-PRF-38535, the performance specification used by the Department of Defense for monolithic integrated circuits that operate in severe environments.

In addition, the parts that are manufactured by Vorago Technologies using the certified technology flows will be listed on the Qualified Manufacturers List (QML) once qualification testing has been successfully completed and approved by the Qualifying Activity (DLA-VQC). This will allow Vorago Technologies to mark parts with "Q" or "QML". These designators have been authorized by the Department of Defense for parts that have been produced to a QML specification, (i.e., one which allows less government oversight), the use of world-wide commercial production lines, reduced finished product testing based on statistical process controls (SPC), and other cost advantages.

Testing must be performed using the facilities and methods listed in the Laboratory Suitability letter DLA Land and Maritime-VQC-24-038983, or at facilities approved by the Vorago Technologies' Technical Review Board (TRB) using its MIL-PRF-38535 Quality Management (QM) Plan, QPP-QML-001 (2023), Revision B, dated August 20, 2024. Any deviation or modification to MIL-PRF-38535 requirement, must be approved in writing from the Qualifying Activity (QA) for MIL-PRF-38535, DLA-VQC. This certification letter is effective as of September 03, 2024.

This certification is subject to the conditions in DoD 4120.24-M, Defense Standardization Program and SD-6.

All the facilities mentioned on the enclosure are subject to an audit by the Qualifying Activity at any time. Offshore facilities are subject to all the conditions of MIL-PRF-38535.

QPL/QML manufacturers shall notify the qualifying activity immediately after learning of a potential issuance of a GIDEP alert, problem advisory or major quality/reliability problem on their QPL/QML products. Failure to provide prior notification may be grounds for removal from

Federal Recycling Program Printed on Recycled Paper

QML-38535.

Finally, it is requested that the following activities be reported promptly to DLA Land and Maritime:

1. Changes to certified facilities, process flows, or approved testing subcontractors
2. Problem evaluation and a corrective action when:
   a. A Technology Conformance Inspection (TCI) failure has been validated
   b. The reliability of shipped parts is questionable.
3. Test optimization, including:
   a. Implementation - paragraph J.3.12, Appendix J, MIL-PRF-38535
   b. Changing, suspending or canceling a prior test optimization
4. Additions or deletions of parts in the QML-38535
5. Change of company QML contact or other key QML personnel
6. Quality Conformance Inspection (QCI) failures that may affect the shipping of certified/qualified QML-38535 products.

This certification is valid until terminated by written notice from the qualifying activity. If warranted, it may be withdrawn by this Agency at any time.

If you have any questions, please contact Mr. Vinh V. Tran at 614-692-0606.

Sincerely,

ADAMS.MICHAEL.S.1230230427

Digitally signed by ADAMS.MICHAEL.S.1230230427
Date: 2024.09.26 06:36:09 -04'00'

MICHAEL ADAMS
Chief
Custom Devices Branch

Enclosure

Enclosure to DLA Land and Maritime-VQC-24-038982

Operation	Location	Line/Flow
Design & Mask Design	Vorago Technologies, Austin, TX	Vorago Patented HARDSIL Technology
Mask Creation	TSMC, Taiwan ROC	Fab 6 (last time buy) – Total 175 wafers in inventory
	Infineon (Former Cypress Semiconductor)	(From TI DMOS 5 Fab in Dallas, TX)
Wafer Fab	TSMC, Taiwan ROC	Fab 6 (last time buy) (0.13u CL013LP FSG (1.5V/3.3V process), Copper/Tungsten base metal layer technologies, 8 inches wafers
	Cypress (Infineon) FRAM die buy	Cypress (Infineon die) FRAM die- 5962-18216 (From TI DMOS 5 Fab in Dallas, TX)
Backgrind & Wafer Saw	Golden Altos, Fremont, CA	Golden Altos, Fremont, CA
Wafer Probe	EAG (former CTS)	EAG (former CTS)
Wafer Lot Acceptance (TM 5007)	HiRel Labs, Spokane, WA	HiRel Labs, Spokane, WA
Assembly	Golden Altos, Fremont, CA	Ceramic with Solder seal (the lid is seam seal to the package seal ring). JM7000 Epoxy die attach material, Gold wire, Gold lead finish.
Environmental & Screening	Golden Altos, Fremont, CA	Golden Altos, Fremont, CA

Marking (Top & Bottom)	Golden Altos, Fremont, CA	Golden Altos, Fremont, CA
Electrical Test	Tessolv, iTest, and EAG	Tessolv, Itest, and EAG
QCI Coverage Tracking System & Records	Vorago Technologies, Austin, TX	Vorago Technologies, Austin, TX

Package Family and Lead Finish Matrix (Hermetic)

Package Family	Description	Die attach Material	Wire Bond	Lead Range	Lead Finish
CQFP	Ceramic Quad Flat Package	JM7000 Epoxy	Au	176	Gold

NOTE:

1. Taiwan Semiconductor Manufacturing Company (TSMC) Fab 6 (.13u CL013LP), FSG (1.5V/3.3V process) (approved Vorago for last time buy one time only and currently is using wafers bank in Vorago inventory. No new buy from TSMC wafer foundry).

2. Die purchased from Infineon (Cypress Semiconductor QML qualified CMOS technology/SMD die) wafer is manufactured at TI wafer foundry, DMOS 5 wafer fab line located in Richardson, TX, USA.

3. First Vorago QML products is a stack die with Vorago die on the bottom and Cypress die stack on top assembled in 176 lead, CQFP hermetic package using JM7000 Epoxy as die attach medium, Gold (Au) wire, seam seal, gold lead final finish.