QML Microcircuit Qualification Report

Device Type/Device Family:	SNJ54HC11W
Standard Microcircuit Drawing or JAN Slashsheet:	8404801DA
Package Type:	CFP (W) | 14
Wafer Fabrication Facility:	TI SFAB (USA)
Assembly Facility:	Subcontractor MMT (Thailand)
Test Facility:	Subcontractor MMT (Thailand)
ESD Classification HBM:	2000 Volts

Texas Instruments (TI) is certified and listed by the Defense Logistic Agency – Land and Maritime (DSCC) as a manufacturer of QML Class Q and Class V microcircuits (integrated circuits) in accordance with MIL-PRF-38535 (General Specification For Manufacturing Integrated Circuits). The Quality System utilized by Texas Instruments in the manufacture of these microcircuits is fully compliant to the requirements of MIL-PRF-38535 and ISO9001. Qualification, processing, screening, and Quality Conformance Inspection (QCI) of QML products is performed in compliance with the test methods of MIL-STD-883 (Microcircuits Test Method Standard) with exceptions (optimizations) as allowed by MIL-PRF-38535 and the applicable Standard Microcircuit Drawing (SMD), TI military data sheet if an SMD does not exist, or JAN Slash Sheet as appropriate.

TI QML Microcircuits are certified as having successfully completed qualification testing listed below. Please note that under MIL-PRF-38535 Qualification by Similarity (e.g., use of Technology Characterization Vehicles) is allowed.

Test Type	Conditions/Duration	Specification	Sample Size	Rejects
Electrical Characterization	N/A	TI QSS 009-304	30	0
Latch-up	Per JESD78	TI QSS 009-004	5	0
ESD HBM	N/A	MIL-STD-883 / TM 3015	5	0
Current Density	Maximum Recommended Operating Conditions	TI Design Rules	N/A	N/A
Terminal Capacitance	N/A	MIL-STD-883 / TM 3012	1	0
Thermal Impedance	N/A	TI QSS 009-112	5	0
Radiography (X-ray)	Top Side Only	MIL-STD-883 / TM 2012	5	0
Manufacturability	Per Manufacturing Site	TI QSS 009-301	N/A	N/A
C1 Life Test	125°C 1000 to 4000 Hours	MIL-STD-883 / TM 1005	45	0
B2 Resistance to Solvents	N/A	MIL-STD-883 / TM 2015	3	0
B3 Solderability	245°C +/-5% minimum of 3 devices	MIL-STD-883 / TM 2003	22	0
B5 Bond Strength	C or D Min 4 Devices	MIL-STD-883 / TM 2011	22	0
B5 Die Attach Strength	N/A	MIL-STD-883 / TM 2019 or TM 2027	3	0
D1 Physical Dimensions	Package Outline	MIL-STD-883 / TM 2016	15	0
D2 Lead Integrity	Condition B2	MIL-STD-883 / TM 2004	45	0
D3 Temperature Cycle	100 Cycles Condition C	MIL-STD-883 / TM 1010	15	0
D3 Thermal Shock	Condition B 15 Cycles	MIL-STD-883 / TM 1011	15	0
D3 Moisture Resistance	N/A	MIL-STD-883 / TM 1004	0	0
D4 Mechanical Shock	Condition B	MIL-STD-883 / TM 2002	15	0
D4 Vibration	Condition A	MIL-STD-883 / TM 2007	15	0
D4 Constant Acceleration	Condition E	MIL-STD-883 / TM 2001	15	0
D5 Salt Atmosphere	Condition A	MIL-STD-883 / TM 1009	15	0
D6 Internal Water Vapor	5000 PPM @100°C	MIL-STD-883 / TM 1018	3	0
D7 Adhesion of Lead Finish	N/A	MIL-STD-883 / TM 2025	15	0
D9 Soldering heat	Where Applicable	MIL-STD-883 / TM 2036	3	0
E1 Radiation Lot Accept	RHA devices only per SMD / TI Datasheet	MIL-STD-883 / TM 1019	22	0
Wafer Lot Acceptance	Class V only per QM Plan	MIL-STD-883 / TM 5007 & TM2018	N/A	N/A

Technology Family FIT / MTBF Data

Mean Time Between Fails (MTBF) and Failures in Time (FIT) rates are device reliability statistics calculated based on data collected from TI's internal reliability testing (life test).

TI's DPPM/FIT/MTBF Estimator Search Tool reports the generic data based on technology groupings and shows conditions under which the rates were derived. All terms used in the tool and definitions can be found on the TI reliability terminology page. Failure rates are summarized by technology and mapped to the associated material part numbers. The failure rates are highly dependent on the number of units tested, therefore, it is not recommended to compare failure rates.

TI DPPM/FIT/MTBF Estimator Search Tool webpage link:
www.ti.com/quality/docs/estimator.tsp

For additional information or technical support please contact the Texas Instruments Customer Support Center at www.ti.com/support