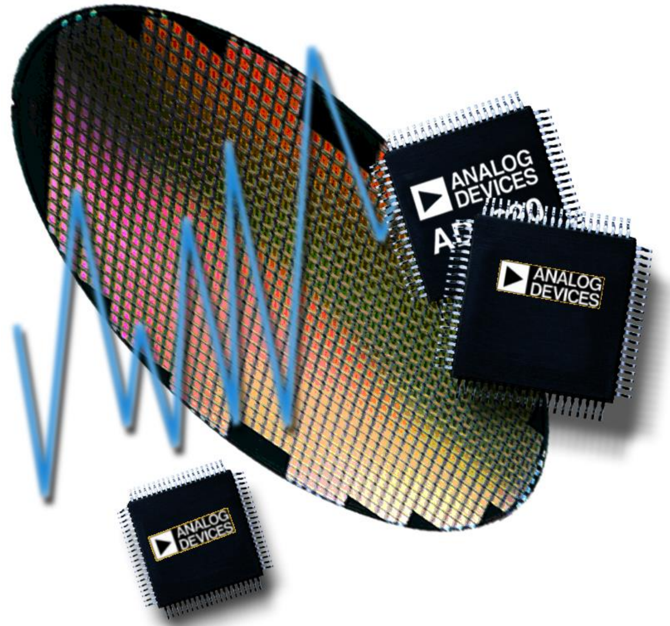

Reliability Report

Report Title: LTM4668 Material Set Change in AEK Qualification

Report Number: 22040

Revision: A

Date: 11 March 2026

Summary

This report documents the successful completion of the reliability qualification requirements for the release of the alternate inductor used in LTM4668/ LTM4668A product in a 49-CSP_BGA package. The LTM4668 is a quad DC/DC step-down µModule (micromodule) regulator with 1.2A DC current per output.

Die/Fab Product Characteristics

Table 1: Die/Fab Product Characteristics- LTM4668

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	LTM4668
Die Id	3644
Die Size (mm)	2.65 x 2.55
Wafer Fabrication Site	Vanguard
Wafer Fabrication Process	0.35um BCD
Die Substrate	Si
Metallization / # Layers	AlCu/3
Polyimide	No
Passivation	oxide/SiN

Die/Fab Test Results

Table 2: Die/Fab Test Results - LTM4668

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125°C, Biased, 1,000 Hours	LTM4668	Q22040.1.HTOL[2]	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST)[1]	JESD22-A110	110C 85%RH 17.7 psia, Biased, 264 hours	LTM4668	Q22040.1.BHAST2[2]	0/32
		130C 85%RH 33.3 psia, Biased, 96 hours		930518.1	0/32

[1] These samples were subjected to preconditioning (per J-STD-020 Level 4) prior to the start of the stress test. Level 4 preconditioning consists of the following: Bake: 48 hrs @ 125°C, Unbiased Soak: 96 hrs @ 30°C, 60%RH, Reflow: 3 passes through an reflow oven with a peak temperature of 260°C.

[2] Alternate inductor and 150um die thickness

Package/Assembly Product Characteristics

Table 3: Package/Assembly Product Characteristics - 49-CSP_BGA at ASE KOREA

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	LTM4668
Package	49-CSP_BGA
Body Size (mm)	6.25 x 6.25 x 2.10
Assembly Location	ASE KOREA
MSL/Peak Reflow Temperature(°C)	4 / 260°C
Mold Compound	Sumitomo G311E
Die Attach	95Sn/5Sb
Substrate Material	BT Resin
Solder Ball Composition	96.5Sn_3.0Ag_0.5Cu
Solder Ball Size (mm)	0.50

Qualified Components

ADI Part Number
SE007672-01

Package/Assembly Test Results

Table 4: Package/Assembly Test Results - CSP_BGA at ASE KOREA

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
Highly Accelerated Temperature and Humidity Stress Test (HAST)[1]	JESD22-A110	110C 85%RH 17.7 psia, Biased, 264 hours	LTM4668	Q22040.1.BHAST2[2]	0/32
		130C 85%RH 33.3 psia, Biased, 96 hours		930518.1	0/32
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	LTM4668	951302.1	0/50
				978784.1	0/50
				985188.1	0/50
Solder Heat Resistance (SHR)	J-STD-020	MSL-4	LTM4668	Q22040.1.MSL4[2]	0/77
Temperature Cycling (TC)[1]	JESD22-A104	-55/125, 1,000 Cycles	LTM4668	Q22040.1.TC3[2]	0/77
				951302.1	0/77
				978784.1	0/77
				985188.1	0/77
Unbiased HAST (UHST)[1]	JESD22-A118	110C 85%RH 17.7 psia, 264 hours	LTM4668	Q22040.1.UHAST[2]	0/77
		130C 85%RH 33.3 psia, 96 hours		951302.1	0/77
				978784.1	0/77
				985188.1	0/77

[1] These samples were subjected to preconditioning (per J-STD-020 Level 4) prior to the start of the stress test. Level 4 preconditioning consists of the following: Bake: 48 hrs @ 125°C, Unbiased Soak: 96 hrs @ 30°C, 60%RH, Reflow: 3 passes through an reflow oven with a peak temperature of 260°C.

[2] Alternate inductor and 150um die thickness

ESD and Latch-Up Test Results

Table 5: ESD Test Result

ESD Model	Generic/Root Part #	Package	ESD Test Spec	RC Network	Highest Pass Level	Class
HBM	LTM4668	49-CSP_BGA	ESDA/JEDEC JS-001- 2011	1.5kΩ, 100pF	±2000V	2

Table 6: Latch Up Test Result

LU Test Spec	Generic/Root Part #	Passing Current	Temperature (T_A)	Class
JESD78	LTM4668	+200mA, -200mA	Ambient	IA

Approvals

Reliability Engineer: Lay Yong Ong