SN74LVC2G74QDCURQ1

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 12/08/2025

Assembly site: **Ext-Mfg**

RoHS	Yes
REACH	Yes
Device marking	C74R
Lead finish/Ball material	NiPdAu
MSL rating/Peak reflow	Level-1-260C-UNLIM
Rating	Automotive

Material content

				Homogeneous Material Level		Component Level	
Component	**Substance**	**CAS Number**	**Amount (mg)**	**Percentage %**	**ppm**	**Percentage %**	**ppm**
Bond Wire							
Precious Metals	Gold	7440-57-5	0.025148	100.000000	1000000	0.254567	2546
Sub-total	—	—	0.025148	100	1000000	0.254567	2546
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.065521	72.999833	729998	0.663253	6633
Thermoplastics	Epoxy	85954-11-6	0.024234	27.000167	270002	0.245315	2453
Sub-total	—	—	0.089755	100	1000000	0.908568	9086
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	3.68752	97.040000	970400	37.327849	373278
Copper and Its Alloys	Iron	7439-89-6	0.0988	2.600000	26000	1.000128	10001
Copper and Its Alloys	Phosphorus	7723-14-0	0.0057	0.150000	1500	0.057700	577
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.00038	0.010000	100	0.003847	38
Zinc and Its Alloys	Zinc	7440-66-6	0.0076	0.200000	2000	0.076933	769
Sub-total	—	—	3.80000	100	1000000	38.466456	384665
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.072291	95.119737	951197	0.731784	7318
Precious Metals	Gold	7440-57-5	0.000593	0.780263	7803	0.006003	60
Precious Metals	Palladium	7440-05-3	0.003116	4.100000	41000	0.031542	315
Sub-total	—	—	0.076000	100	1000000	0.769329	7693
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	4.717458	84.999994	850000	47.753655	477537
Other Organic Materials	Carbon Black	1333-86-4	0.01665	0.300003	3000	0.168544	1685
Thermoplastics	Epoxy	85954-11-6	0.815843	14.700004	147000	8.258576	82586
Sub-total	—	—	5.549951	100	1000000	56.180775	561808
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.337883	100.000000	1000000	3.420306	34203
Sub-total	—	—	0.337883	100	1000000	3.420306	34203
Total	—	—	9.878737	—	—	100	1000000

MTBF/FIT estimates

MTBF / FIT		MTBF / FIT supporting data							
MTBF	**FIT**	**Usage temp (°C)**	**Conf level (%)**	**Activation energy (eV)**	**Test temp (°C)**	**Test duration (hours)**	**Sample size**	**Fails**	**Additional comments**
2.21×10^9	0.5	55	60	0.7	125	1000	25789	0	—

Qualification summary

Type	AEC Q100 test #	Test spec	Min lot qty	SS / lot	Test name	Condition	Result	Notes
Test group A - accelerated environment stress test								
THB/HAST	A2	JESD22-A101/JESD22-A110	3	77	Biased HAST	130C/85%RH 96 hours	Pass	Or equivalent Q100 condition
AC/UHAST	A3	JESD22-A102/JESD22-A118	3	77	Unbiased HAST	130C/85%RH for 96 hours	Pass	Or equivalent Q100 condition
TC	A4	JESD22-A104	3	77	Temperature cycle	Per grade requirements. See data sheet.	Pass	—
TC-WBP	A4	MIL-STD883 method 2011	1	30	Post temp cycle bond pull	Per requirements	Pass	As applicable per die configuration
HTSL	A6	JESD22-A103	1	45	High temp storage bake	Per grade requirements. See data sheet.	Pass	—
Test group B - accelerated lifetime simulation test								
HTOL	B1	JESD22-A108	3	77	High temperature operating life	Per grade requirements. See data sheet.	Pass	—
ELFR	B2	AEC Q100-008	3	800	Early life failure rate	Per grade requirements. See data sheet.	Pass	—
Test group C - package assembly integrity tests								
WBS	C1	AEC Q100-001	1	30	Wire bond shear	Cpk > 1.67	Pass	As applicable per die configuration
WBP	C2	MIL-STD883 method 2011	1	30	Wire bond pull	Cpk > 1.67	Pass	As applicable per die configuration
SD	C3	JEDEC J-STD-002	1	15	Solderability	>95% lead coverage	Pass	—
PD	C4	JESD22-B100 and B108	3	10	Physical dimensions	Cpk > 1.67	Pass	—
SBS	C5	AEC Q100-010	3	5 balls from 10 devices	Solder Ball Shear	Cpk > 1.67	Pass	As applicable per die configuration
Test group D - die fabrication reliability tests								
EM	D1	—	—	—	Electromigration	Per technology requirements	Pass	—
TDDB	D2	—	—	—	Time dependent dielectric breakdown	Per technology requirements	Pass	—
HCI	D3	—	—	—	Hot carrier injection	Per technology requirements	Pass	—
BTI	D4	—	—	—	Bias temperature instability	Per technology requirements	Pass	—
SM	D5	—	—	—	Stress Migration	Per technology requirements	Pass	—
Test group E - electrical verification								
HBM	E2	AEC Q100-002	1	3	Electrostatic discharge - human body model	Per AEC Q100-002	See data sheet	—
CDM	E3	AEC Q100-011	1	3	Electrostatic discharge - charged device model	Per AEC Q100-011	See data sheet	—
LU	E4	AEC Q100-004	1	3	Latch-up	Per AEC Q100-004	Pass	As applicable per Q100-004
ED	E5	AEC Q100-009	3	30	Electrical distributions	Per AEC Q100-009	Pass	—

Ongoing reliability monitoring

FAB process reliability data

Fab Process	Reliability Test	Cumulative Sample Size	Disposition
CMOS	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	53613	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (4Q2024 - 3Q2025) Sample Size	Cumulative Sample Size	Disposition
VSSOP	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	1001	33389	Pass
VSSOP	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	1438	20832	Pass
VSSOP	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	3080	58394	Pass
VSSOP	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	1309	46448	Pass

Additional resources

General quality guidelines

Certifications

Conflict minerals specialized disclosure report

Restricted chemical test report

For additional component information, please visit Material content search

For additional information, please contact TI customer support center

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