

INA310A3IDGKR

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 09/13/2024



Assembly site: **TI MALAYSIA A/T**

RoHS	Yes
REACH	Yes
Device marking	2P2B
Lead finish/Ball material	NIPDAU
MSL rating/Peak reflow	Level-2-260C-1 YEAR
Rating	Catalog

Material content

Component	Substance	CAS Number	Homogeneous Material Level			Component Level	
			Amount (mg)	Percentage %	ppm	Percentage %	ppm
Bond Wire							
Copper and Its Alloys	Copper	7440-50-8	0.023329	97.533342	975333	0.053387	534
Not Categorized	Proprietary Materials	—	0.000003	0.012542	125	0.000007	0
Precious Metals	Gold	7440-57-5	0.000012	0.050169	502	0.000027	0
Precious Metals	Palladium	7440-05-3	0.000574	2.399766	23998	0.001314	13
Precious Metals	Silver	7440-22-4	0.000001	0.004181	42	0.000002	0
Sub-total	—	—	0.023919	100	1000000	0.054737	547
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.183969	80.000087	800001	0.421002	4210
Thermoplastics	Epoxy	85954-11-6	0.045992	19.999913	199999	0.105250	1052
Sub-total	—	—	0.229961	100	1000000	0.526252	5263
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	27.923323	97.050000	970500	63.900813	639008
Copper and Its Alloys	Iron	7439-89-6	0.748075	2.600001	26000	1.711924	17119
Copper and Its Alloys	Phosphorus	7723-14-0	0.043158	0.149999	1500	0.098764	988
Zinc and Its Alloys	Zinc	7440-66-6	0.057544	0.199999	2000	0.131686	1317
Sub-total	—	—	28.772100	100	1000000	65.843187	658432
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.026634	95.121429	951214	0.060950	610
Precious Metals	Gold	7440-57-5	0.000218	0.778571	7786	0.000499	5
Precious Metals	Palladium	7440-05-3	0.001148	4.100000	41000	0.002627	26
Sub-total	—	—	0.028000	100	1000000	0.064076	641
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	12.273044	87.000001	870000	28.086109	280861
Other Organic Materials	Carbon Black	1333-86-4	0.070535	0.500002	5000	0.161415	1614
Other Organic Materials	Chlorine	7782-50-5	0.000282	0.001999	20	0.000645	6
Thermoplastics	Epoxy	85954-11-6	1.763086	12.497998	124980	4.034714	40347
Sub-total	—	—	14.106947	100	1000000	32.282884	322829
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.536988	100.000000	1000000	1.228864	12289
Sub-total	—	—	0.536988	100	1000000	1.228864	12289
Total	—	—	43.697915	—	—	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	
4.01×10 ⁸	2.5	55	60	0.7	125	1000	4678	0	—	

Qualification summary

Stress	Reference	Min lot qty	SS / lot	Condition	Duration	Result	Notes
HTOL	JESD22-A108	3	77	Life test, 125C	1000 hours	Pass	Or equivalent JEDEC condition
HTSL	JESD22-A103	3	25	High temp storage bake, 150C	1000 hours	Pass	Or equivalent JEDEC condition
AC/UHAST	JESD22-A102/JESD22-A118	3	25	Unbiased HAST 130C / 85% RH	96 hours	Pass	Or equivalent JEDEC condition
THB/HAST	JESD22-A101/JESD22-A110	3	25	HAST 130C/85%RH	96 hours	Pass	Or equivalent JEDEC condition
TC	JESD22-A104	3	25	Temperature cycle -65/150C	500 cycles	Pass	Or equivalent JEDEC condition
SD	J-STD-002	3	22	Per specification	>95% lead coverage	Pass	—
HBM	JS-001	1	3	ESD - HBM	Classification	See data sheet	—
CDM	JS-002	1	3	ESD - CDM	Classification	See data sheet	—
LU	JESD78	1	3	Latch-up	Per JESD78	Pass	As applicable per JESD78
MSL	J-STD-020	—	—	Per J-STD-020	Classification	See data sheet	—

Ongoing reliability monitoring

FAB process reliability data

Fab Process	Reliability Test	Rolling Year (3Q2023 - 2Q2024) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	31999	401272	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (3Q2023 - 2Q2024) Sample Size	Cumulative Sample Size	Disposition
VSSOP	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	847	31002	Pass
VSSOP	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	610	18334	Pass
VSSOP	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	3927	53235	Pass
VSSOP	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	2464	43984	Pass

Additional resources

[General quality guidelines](#)

[Certifications](#)

[Conflict minerals specialized disclosure report](#)

[Restricted chemical test report](#)

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