UCC28220D

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 07/26/2024

Assembly site: **TI AGUASCALIENTES**

RoHS	Yes
REACH	Yes
Device marking	28220
Lead finish/Ball material	NIPDAU
MSL rating/Peak reflow	Level-1-260C-UNLIM
Rating	Catalog

Material content

				Homogeneous Material Level		Component Level	
Component	**Substance**	**CAS Number**	**Amount (mg)**	**Percentage %**	**ppm**	**Percentage %**	**ppm**
Bond Wire							
Copper and Its Alloys	Copper	7440-50-8	0.099947	99.997999	999980	0.060044	600
Precious Metals	Silver	7440-22-4	0.000002	0.002001	20	0.000001	0
Sub-total	—	—	0.099949	100	1000000	0.060045	600
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.721221	78.999998	790000	0.433281	4333
Thermoplastics	Epoxy	85954-11-6	0.191717	21.000002	210000	0.115176	1152
Sub-total	—	—	0.912938	100	1000000	0.548457	5485
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	52.9893	97.050000	970500	31.833871	318339
Copper and Its Alloys	Iron	7439-89-6	1.4196	2.600000	26000	0.852839	8528
Copper and Its Alloys	Phosphorus	7723-14-0	0.0819	0.150000	1500	0.049202	492
Zinc and Its Alloys	Zinc	7440-66-6	0.1092	0.200000	2000	0.065603	656
Sub-total	—	—	54.6000	100	1000000	32.801516	328015
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.19024	95.120000	951200	0.114289	1143
Precious Metals	Gold	7440-57-5	0.00156	0.780000	7800	0.000937	9
Precious Metals	Palladium	7440-05-3	0.0082	4.100000	41000	0.004926	49
Sub-total	—	—	0.20000	100	1000000	0.120152	1202
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	94.444179	88.000000	880000	56.738319	567383
Other Organic Materials	Carbon Black	1333-86-4	0.321969	0.300000	3000	0.193426	1934
Other Organic Materials	Organic Phosphorus	1330-78-5	0.590276	0.550000	5500	0.354614	3546
Thermoplastics	Epoxy	85954-11-6	11.966507	11.150000	111500	7.189003	71890
Sub-total	—	—	107.322931	100	1000000	64.475363	644754
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	3.319905	100.000000	1000000	1.994467	19945
Sub-total	—	—	3.319905	100	1000000	1.994467	19945
Total	—	—	166.455723	—	—	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**

4.98×10^9	0.2	55	60	0.7	125	1000	58207	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	399655	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (3Q2023 - 2Q2024) Sample Size	Cumulative Sample Size	Disposition
SOIC	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	6101	73023	Pass
SOIC	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	5427	62256	Pass
SOIC	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	12493	162153	Pass
SOIC	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	8565	121203	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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