UCC28251PW

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 06/25/2024

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

RoHS	Yes
REACH	Yes
Device marking	UCC28251
Lead finish/Ball material	NIPDAU
MSL rating/Peak reflow	Level-1-260C-UNLIM
Rating	Catalog

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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	0.116102	99.989665	999897	0.108821	1088
Copper and Its Alloys	Iron	7439-89-6	0.000001	0.000861	9	0.000001	0
Not Categorized	Proprietary Materials	—	0.000009	0.007751	78	0.000008	0
Precious Metals	Silver	7440-22-4	0.000002	0.001722	17	0.000002	0
Sub-total	—	—	0.116114	100	1000000	0.108832	1088
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.321688	80.000000	800000	0.301515	3015
Thermoplastics	Epoxy	85954-11-6	0.080422	20.000000	200000	0.075379	754
Sub-total	—	—	0.402110	100	1000000	0.376893	3769
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	56.960365	97.584999	975850	53.388344	533883
Copper and Its Alloys	Iron	7439-89-6	1.34251	2.300000	23000	1.258320	12583
Copper and Its Alloys	Phosphorus	7723-14-0	0.008756	0.015001	150	0.008207	82
Zinc and Its Alloys	Zinc	7440-66-6	0.05837	0.100000	1000	0.054710	547
Sub-total	—	—	58.370001	100	1000000	54.709580	547096
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.028536	95.120000	951200	0.026746	267
Precious Metals	Gold	7440-57-5	0.000234	0.780000	7800	0.000219	2
Precious Metals	Palladium	7440-05-3	0.00123	4.100000	41000	0.001153	12
Sub-total	—	—	0.030000	100	1000000	0.028119	281
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	39.952474	86.000000	860000	37.447029	374470
Other Organic Materials	Carbon Black	1333-86-4	0.139369	0.300000	3000	0.130629	1306
Thermoplastics	Epoxy	85954-11-6	6.364522	13.700000	137000	5.965399	59654
Sub-total	—	—	46.456365	100	1000000	43.543056	435431
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	1.316049	100.000000	1000000	1.233519	12335
Sub-total	—	—	1.316049	100	1000000	1.233519	12335
Total	—	—	106.690639	—	—	100	1000000

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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**
9.999999999×10^9	0.1	55	60	0.7	125	1000	183306	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 (2Q2023 - 1Q2024) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	33096	398651	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (2Q2023 - 1Q2024) Sample Size	Cumulative Sample Size	Disposition
TSSOP	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	2387	42385	Pass
TSSOP	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	1330	32206	Pass
TSSOP	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	7700	89445	Pass
TSSOP	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	5621	72531	Pass

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Additional resources

General quality guidelines

Certifications

Conflict minerals specialized disclosure report

Restricted chemical test report

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