Quality, reliability & packaging data download

MAX3232CPW

Status: ACTIVE

Report date: 12/08/2020

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

RoHS	Yes
REACH	Yes
Device marking	MA3232C
Lead finish/Ball material	NIPDAU
MSL rating/Peak reflow	Level-1-260C-UNLIM

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	0.064913	99.998460	999985	0.109528	1095
Precious Metals	Silver	7440-22-4	0.000001	0.001540	15	0.000002	0
Sub-total	—	—	0.064914	100	1000000	0.109530	1095
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.680571	79.999976	800000	1.148331	11483
Thermoplastics	Epoxy	85954-11-6	0.170143	20.000024	200000	0.287083	2871
Sub-total	—	—	0.850714	100	1000000	1.435414	14354
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	20.6635	97.240000	972400	34.865633	348656
Copper and Its Alloys	Iron	7439-89-6	0.5525	2.600000	26000	0.932236	9322
Copper and Its Alloys	Phosphorus	7723-14-0	0.031875	0.150000	1500	0.053783	538
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.002125	0.010000	100	0.003586	36
Sub-total	—	—	21.250000	100	1000000	35.855238	358552
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.342432	95.120000	951200	0.577787	5778
Precious Metals	Gold	7440-57-5	0.002808	0.780000	7800	0.004738	47
Precious Metals	Palladium	7440-05-3	0.01476	4.100000	41000	0.024905	249
Sub-total	—	—	0.360000	100	1000000	0.607430	6074
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	29.202335	85.999999	860000	49.273255	492733
Other Plastics and Rubber	Carbon Black	1333-86-4	0.101869	0.300001	3000	0.171884	1719
Thermoplastics	Epoxy	85954-11-6	4.652	13.700000	137000	7.849344	78493
Sub-total	—	—	33.956204	100	1000000	57.294483	572945
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	2.784265	100.000000	1000000	4.697905	46979
Sub-total	—	—	2.784265	100	1000000	4.697905	46979
Total	—	—	59.266097	—	—	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**
2.78×10^9	0.4	55	60	0.7	125	1000	32495	0	—

Qualification summary

Stress	Reference	Min Lot Qty	Sample Size / Lot	Condition	Duration	Result
TC	JESD22-A104	3	25	Temperature Cycle -65/150C	500 Cycles	PASS
AC/UHAST	JESD22-A102/JESD22-A118	3	25	Autoclave 121C or Unbiased HAST 130C / 85% RH	96 Hours	PASS
HTSL	JESD22-A103	3	25	High Temp Storage Bake 150C	1000 Hours	PASS
THB/HAST	JESD22-A101/JESD22-A110	3	25	THB 85C/85%RH or HAST 130C/110C/85%RH	1000 Hours or 96 Hours	PASS
CDM	JESD22-C101	1	3	ESD - CDM	Classification	See data sheet
HBM	JS-001	1	3	ESD - HBM	Classification	See data sheet
HTOL	JESD22-A108	3	77	Life Test, 125C	1000 Hours	PASS
LU	JESD78	1	3	Latch-up	Per JESD78	PASS
MSL	JEDEC J-STD-020E	—	—	Per JEDEC J-STD-020E	Classification	See data sheet

Ongoing reliability monitoring

FAB process reliability data

Fab Process	Reliability Test	Rolling Year (4Q19 - 3Q20) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	High Temperature Operating Life, 125C, 1000 Hours (or Equivalent)	26812	283773	PASS

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (4Q19 - 3Q20) Sample Size	Cumulative Sample Size	Disposition
TSSOP	Autoclave, 121C, 96 Hours	1232	48843	PASS
TSSOP	Biased HAST, 110C/85%RH, 264 Hours	77	613	PASS
TSSOP	Biased HAST, 130C/85%RH, 96 Hours	2123	30137	PASS
TSSOP	High Temperature Storage Life, 150C, 1000 Hours	180	8553	PASS
TSSOP	High Temperature Storage Life, 170C, 420 Hours	231	15908	PASS
TSSOP	Temperature Cycle, -40/125C, 850 Cycles	0	82	PASS
TSSOP	Temperature Cycle, -55/125C, 700 Cycles	0	1475	PASS
TSSOP	Temperature Cycle, -65/150C, 500 Cycles	2533	65090	PASS
TSSOP	Temperature-Humidity Bias Test (85C/85%RH), 1000 Hours	0	1485	PASS
TSSOP	Unbiased HAST, 130C/85%RH, 96 Hours	1016	7575	PASS

Additional resources

General quality guidelines

Certifications

Conflict minerals specialized disclosure report

For additional component information, please visit Material content search

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