TPS73225DBVR

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 10/11/2024

Assembly site: **Ext-Mfg**

RoHS	Yes
REACH	Yes
Device marking	T36
Lead finish/Ball material	NIPDAU
MSL rating/Peak reflow	Level-1-260C-UNLIM
Rating	Catalog

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265

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	0.066987	99.998507	999985	0.372191	3722
Precious Metals	Silver	7440-22-4	0.000001	0.001493	15	0.000006	0
Sub-total	—	—	0.066988	100	1000000	0.372196	3722
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.16559	74.999887	749999	0.920045	9200
Thermoplastics	Epoxy	85954-11-6	0.055197	25.000113	250001	0.306683	3067
Sub-total	—	—	0.220787	100	1000000	1.226728	12267
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	7.80776	97.597000	975970	43.381178	433812
Copper and Its Alloys	Iron	7439-89-6	0.1784	2.230000	22300	0.991219	9912
Copper and Its Alloys	Phosphorus	7723-14-0	0.0028	0.035000	350	0.015557	156
Zinc and Its Alloys	Zinc	7440-66-6	0.01104	0.138000	1380	0.061340	613
Sub-total	—	—	8.00000	100	1000000	44.449294	444493
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.085608	95.120000	951200	0.475652	4757
Precious Metals	Gold	7440-57-5	0.000702	0.780000	7800	0.003900	39
Precious Metals	Palladium	7440-05-3	0.00369	4.100000	41000	0.020502	205
Sub-total	—	—	0.090000	100	1000000	0.500055	5001
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	7.646523	86.999999	870000	42.485319	424853
Other Organic Materials	Carbon Black	1333-86-4	0.008789	0.099999	1000	0.048833	488
Thermoplastics	Epoxy	85954-11-6	1.133795	12.900002	129000	6.299548	62995
Sub-total	—	—	8.789107	100	1000000	48.833701	488337
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.831154	100.000000	1000000	4.618026	46180
Sub-total	—	—	0.831154	100	1000000	4.618026	46180
Total	—	—	17.998036	—	—	100	1000000

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265

Assembly site: Ext-Mfg

RoHS	Yes
REACH	Yes
Device marking	T36
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							
Precious Metals	Gold	7440-57-5	0.066987	100.000000	1000000	0.414749	4147
Sub-total	—	—	0.066987	100	1000000	0.414749	4147
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.219449	80.000073	800001	1.358716	13587
Thermoplastics	Epoxy	85954-11-6	0.054862	19.999927	199999	0.339678	3397
Sub-total	—	—	0.274311	100	1000000	1.698394	16984
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	6.292686	97.410000	974100	38.961100	389611
Copper and Its Alloys	Iron	7439-89-6	0.153748	2.380000	23800	0.951929	9519
Copper and Its Alloys	Phosphorus	7723-14-0	0.005426	0.083994	840	0.033595	336
Zinc and Its Alloys	Zinc	7440-66-6	0.00814	0.126006	1260	0.050399	504
Sub-total	—	—	6.460000	100	1000000	39.997023	399970
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.110339	95.119828	951198	0.683163	6832
Precious Metals	Gold	7440-57-5	0.000905	0.780172	7802	0.005603	56
Precious Metals	Palladium	7440-05-3	0.004756	4.100000	41000	0.029447	294
Sub-total	—	—	0.116000	100	1000000	0.718213	7182
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	7.226365	86.000000	860000	44.741964	447420
Other Organic Materials	Carbon Black	1333-86-4	0.042014	0.500003	5000	0.260129	2601

Thermoplastics	Epoxy	85954-11-6	1.134371	13.499997	135000	7.023446	70234
Sub-total	—	—	8.402750	100	1000000	52.025540	520255
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.831154	100.000000	1000000	5.146081	51461
Sub-total	—	—	0.831154	100	1000000	5.146081	51461
Total	—	—	16.151202	—	—	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 (4Q2023 - 3Q2024) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	27044	403351	Pass

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (4Q2023 - 3Q2024) Sample Size	Cumulative Sample Size	Disposition
SOP/SOT	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	9919	102573	Pass
SOP/SOT	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	9671	80769	Pass
SOP/SOT	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	18740	187894	Pass
SOP/SOT	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	13709	156679	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

Important Notice and Disclaimer

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicablestandards, and any other safety, security, or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265