

TPS7A2030PDBVR

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 10/11/2024



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

RoHS	Yes
REACH	Yes
Device marking	2AXF
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	0.016106	96.663066	966631	0.107237	1072
Precious Metals	Gold	7440-57-5	0.000091	0.546153	5462	0.000606	6
Precious Metals	Palladium	7440-05-3	0.000465	2.790781	27908	0.003096	31
Sub-total	—	—	0.016662	100	1000000	0.110939	1109
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.063766	75.000294	750003	0.424569	4246
Thermoplastics	Epoxy	85954-11-6	0.021255	24.999706	249997	0.141521	1415
Sub-total	—	—	0.085021	100	1000000	0.566089	5661
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	4.984488	97.050000	970500	33.187873	331879
Copper and Its Alloys	Iron	7439-89-6	0.133536	2.600000	26000	0.889114	8891
Copper and Its Alloys	Phosphorus	7723-14-0	0.007704	0.150000	1500	0.051295	513
Zinc and Its Alloys	Zinc	7440-66-6	0.010272	0.200000	2000	0.068393	684
Sub-total	—	—	5.136000	100	1000000	34.196675	341967
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.066584	95.120000	951200	0.443332	4433
Precious Metals	Gold	7440-57-5	0.000546	0.780000	7800	0.003635	36
Precious Metals	Palladium	7440-05-3	0.00287	4.100000	41000	0.019109	191
Sub-total	—	—	0.070000	100	1000000	0.466076	4661
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	8.369097	88.000005	880000	55.723382	557234
Other Organic Materials	Carbon Black	1333-86-4	0.028531	0.300000	3000	0.189966	1900
Other Organic Materials	Chlorine	7782-50-5	0.000095	0.000999	10	0.000633	6
Thermoplastics	Epoxy	85954-11-6	1.112614	11.698997	116990	7.408041	74080
Sub-total	—	—	9.510337	100	1000000	63.322022	633220
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.200984	100.000000	1000000	1.338198	13382
Sub-total	—	—	0.200984	100	1000000	1.338198	13382
Total	—	—	15.019004	—	—	100	1000000

Assembly site: TI PHILIPPINES A/T

RoHS	Yes
REACH	Yes
Device marking	2AXF
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	0.014842	96.665364	966654	0.095332	953
Precious Metals	Gold	7440-57-5	0.000084	0.547089	5471	0.000540	5
Precious Metals	Palladium	7440-05-3	0.000428	2.787547	27875	0.002749	27
Sub-total	—	—	0.015354	100	1000000	0.098621	986
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.063766	75.000294	750003	0.409578	4096
Thermoplastics	Epoxy	85954-11-6	0.021255	24.999706	249997	0.136524	1365
Sub-total	—	—	0.085021	100	1000000	0.546102	5461
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	5.334588	97.346496	973465	34.264835	342648
Copper and Its Alloys	Iron	7439-89-6	0.133767	2.441004	24410	0.859205	8592
Copper and Its Alloys	Phosphorus	7723-14-0	0.004521	0.082500	825	0.029039	290
Zinc and Its Alloys	Zinc	7440-66-6	0.007124	0.130000	1300	0.045758	458
Sub-total	—	—	5.480000	100	1000000	35.198837	351988
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.042804	95.120000	951200	0.274936	2749
Precious Metals	Gold	7440-57-5	0.000351	0.780000	7800	0.002255	23
Precious Metals	Palladium	7440-05-3	0.001845	4.100000	41000	0.011851	119
Sub-total	—	—	0.045000	100	1000000	0.289042	2890
Mold Compound							

Other Inorganic Materials	Fused Silica	60676-86-0	8.573257	88.000005	880000	55.067277	550673
Other Organic Materials	Carbon Black	1333-86-4	0.029227	0.300000	3000	0.187729	1877
Other Organic Materials	Chlorine	7782-50-5	0.000097	0.000996	10	0.000623	6
Thermoplastics	Epoxy	85954-11-6	1.139756	11.699000	116990	7.320819	73208
Sub-total	—	—	9.742337	100	1000000	62.576448	625764
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.200984	100.000000	1000000	1.290949	12909
Sub-total	—	—	0.200984	100	1000000	1.290949	12909
Total	—	—	15.568696	—	—	100	1000000

Assembly site: TI Semiconductor

RoHS	Yes
REACH	Yes
Device marking	2AXF
Lead finish/Ball material	SN
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	0.014921	97.535626	975356	0.095853	959
Not Categorized	Proprietary Materials	—	0.000002	0.013074	131	0.000013	0
Precious Metals	Gold	7440-57-5	0.000008	0.052294	523	0.000051	1
Precious Metals	Palladium	7440-05-3	0.000367	2.399006	23990	0.002358	24
Sub-total	—	—	0.015298	100	1000000	0.098275	983
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.068017	80.000235	800002	0.436945	4369
Thermoplastics	Epoxy	85954-11-6	0.017004	19.999765	199998	0.109235	1092
Sub-total	—	—	0.085021	100	1000000	0.546179	5462
Lead Frame							

Copper and Its Alloys	Copper	7440-50-8	5.31834	97.050000	970500	34.165275	341653
Copper and Its Alloys	Iron	7439-89-6	0.14248	2.600000	26000	0.915298	9153
Copper and Its Alloys	Phosphorus	7723-14-0	0.00822	0.150000	1500	0.052806	528
Zinc and Its Alloys	Zinc	7440-66-6	0.01096	0.200000	2000	0.070408	704
Sub-total	—	—	5.48000	100	1000000	35.203787	352038
Lead Frame Plating							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.05	100.000000	1000000	0.321202	3212
Sub-total	—	—	0.05	100	1000000	0.321202	3212
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	8.611414	87.999998	880000	55.320143	553201
Other Organic Materials	Carbon Black	1333-86-4	0.029357	0.299999	3000	0.188591	1886
Other Organic Materials	Chlorine	7782-50-5	0.000098	0.001001	10	0.000630	6
Thermoplastics	Epoxy	85954-11-6	1.144829	11.699002	116990	7.354437	73544
Sub-total	—	—	9.785698	100	1000000	62.863801	628638
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.15049	100.000000	1000000	0.966755	9668
Sub-total	—	—	0.15049	100	1000000	0.966755	9668
Total	—	—	15.566507	—	—	100	1000000

Assembly site: Ext-Mfg

RoHS	Yes
REACH	Yes
Device marking	2AXF
Lead finish/Ball material	SN
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	0.015593	97.389295	973893	0.093636	936
Precious Metals	Gold	7440-57-5	0.000034	0.212354	2124	0.000204	2
Precious Metals	Palladium	7440-05-3	0.000384	2.398351	23984	0.002306	23
Sub-total	—	—	0.016011	100	1000000	0.096146	961
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.069717	80.000229	800002	0.418650	4187
Thermoplastics	Epoxy	85954-11-6	0.017429	19.999771	199998	0.104661	1047
Sub-total	—	—	0.087146	100	1000000	0.523311	5233
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	6.632428	97.535706	975357	39.827705	398277
Copper and Its Alloys	Iron	7439-89-6	0.153136	2.252000	22520	0.919581	9196
Copper and Its Alloys	Phosphorus	7723-14-0	0.001496	0.022000	220	0.008983	90
Precious Metals	Silver	7440-22-4	0.004304	0.063294	633	0.025846	258
Zinc and Its Alloys	Zinc	7440-66-6	0.008636	0.127000	1270	0.051859	519
Sub-total	—	—	6.800000	100	1000000	40.833974	408340
Lead Frame Plating							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.04	100.000000	1000000	0.240200	2402
Sub-total	—	—	0.04	100	1000000	0.240200	2402
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	8.268589	86.850000	868500	49.652845	496528
Other Organic Materials	Carbon Black	1333-86-4	0.014281	0.150002	1500	0.085757	858
Other Organic Materials	Proprietary Non Halide Flame Retardant	Trade Secret	0.047603	0.500003	5000	0.285856	2859
Thermoplastics	Epoxy	85954-11-6	1.190067	12.499995	125000	7.146348	71463
Sub-total	—	—	9.520540	100	1000000	57.170806	571708
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.189103	100.000000	1000000	1.135563	11356
Sub-total	—	—	0.189103	100	1000000	1.135563	11356
Total	—	—	16.652800	—	—	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

8.71×10 ⁹	0.1	55	60	0.7	125	1000	101758	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

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 applicable standards, 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.