

Supplier Name: **Texas Instruments Inc. (DUNS# 00-732-1904)**
 Contact Info: ti.com/support
 Form/Declaration Type: **Distribute - RoHS and IEC 62474 DB**
 Created on: **06/07/2022**

Details for "TBSR1DE4"

Current Product Information

TI part number	Lead finish/Ball material	MSL rating/peak reflow	Assembly site	Package Pins	Package body size (mm)	Total device mass (mg)*
TBSR1DE4	NIPDAU	Level-2-250C-1YEAR/Level-1-220C-UNLIM	TI TAIWAN A/T	D 16	3.91x9.9x1.58	238.7

***Total Device Mass**

The summary mass is a rounded value and will be within approximately +/- 10% of the detailed mass value.

Environmental Ratings Information

RoHS	REACH	Green	IEC 62474 DB
Yes	Yes	Yes	Yes

Component Information

Component	Substance	CAS Number	Amount (mg)	Homogeneous Material Level		Component Level	
				Percentage %	ppm	Percentage %	ppm
Bond Wire							
Other Nonferrous Metals and Alloys	Yttrium	7440-65-5	0.00001	0.00058	6	0	0
Precious Metals	Gold	7440-57-5	0.172409	99.99826	999983	0.072239	722
Precious Metals	Silver	7440-22-4	0.000002	0.00116	12	0.000001	0
Sub-Total			0.172412	100	1000000	0.07224	722
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.995528	80	800000	0.417122	4171
Thermoplastics	Epoxy	85954-11-6	0.248882	20	200000	0.10428	1043
Sub-Total			1.24441	100	1000000	0.521402	5214
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	120.891063	97.375	973750	50.652789	506528
Copper and Its Alloys	Iron	7439-89-6	3.2279	2.6	26000	1.352475	13525
Copper and Its Alloys	Phosphorus	7723-14-0	0.018623	0.015	150	0.007803	78
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.012415	0.01	100	0.005202	52
Sub-Total			124.150001	100	1000000	52.018269	520183
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.9512	95.12	951200	0.398548	3985
Precious Metals	Gold	7440-57-5	0.0078	0.78	7800	0.003268	33
Precious Metals	Palladium	7440-05-3	0.041	4.1	41000	0.017179	172
Sub-Total			1	100	1000000	0.418995	4190
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	95.067393	88	880000	39.832792	398328
Other Plastics and Rubber	Carbon Black	1333-86-4	0.324093	0.3	3000	0.135793	1358
Other Plastics and Rubber	Organic Phosphorus	1330-78-5	0.594171	0.55	5500	0.248955	2490
Thermoplastics	Epoxy	85954-11-6	12.045471	11.15	111500	5.046996	50470
Sub-Total			108.031128	100	1000000	45.264537	452645
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	4.068202	100	1000000	1.704558	17046
Sub-Total			4.068202	100	1000000	1.704558	17046
Total			238.666153			100	1000000

Important Note

The ppm calculations are at the **homogeneous material** level and are maximum concentration values. The ppm displayed represents the **homogeneous material** with the highest ppm for that substance. The amount (mg) calculations represent the maximum total amount of each substance within the component.
 The ppm calculations are at the **component** level and are average concentration values. The amount (mg) calculations represent the average total amount of each substance within the component.
[See Glossary of Terms for more details.](#)

Important Part Information

There is a remote possibility the Customer Part Number (CPN) your company uses could reference more than one TI part number. This is due to two or more users (EMSI's or subcontractors) using the same CPN for different TI part numbers. If this occurs, please check your Customer Part Number and cross reference it with the TI part number seen on this page.

Product Content Methodology

[For an explanation of the methods used to determine material weights, See Product Content Methodology](#)

Material Declaration Certificate for Semiconductor IC Packaged Products

TI certifies that the material content information provided by TI is representative and accurate to the best of their knowledge based on material information provided by its suppliers and their combination into finished IC packaged products. TI semiconductor products designated to be "Pb-free", "Green" or "RoHS Exempt" fully meets the latest EU RoHS Directive requirements along with other legislation as seen in the former JIG-101 list that has been transferred to the IEC 62474 database.

Important Information/Disclaimer

TI bases its material content information on information provided by third-party suppliers and has taken, and continues to take, reasonably diligent steps to provide any required or available information. TI may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers may consider certain information to be proprietary, and thus certain information may not be available for release by TI. The material content information is provided by TI "as is."
[For additional information, please contact TI customer support.](#)

Signature: [\(click here for a fuller statement with a signed certificate\)](#)

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 For further environmental statements, please go to www.ti.com/ecoinfo
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RoHS: Means TI semiconductor products that are compliant with the current RoHS requirement that the maximum concentration values of the ten substances listed in RoHS Annex II do not exceed 0.1 % by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI semiconductor products labeled as "RoHS Compliant" are suitable for use in specified lead-free processes. TI may also reference these types of semiconductor products as "Pb-Free." These TI semiconductor products are also fully compliant with GADSL and the IEC 62474 database for electronic requirements.

RoHS Exempt: Means TI semiconductor products that contain lead (Pb) above the RoHS Annex II threshold, but that fall within one of the specific RoHS exemptions noted above or documented in <http://www.ti.com/lit/pdf/szzq088>

Green: Means the content of Chlorine (Cl) and Bromine (Br)-based flame retardants meet JS709B low halogen requirements of <=1 000ppm threshold; Antimony trioxide (Sb2O3) contained in halogen based flame retardant materials meets the <=1 000ppm threshold requirement; and Beryllium Oxide (BeO) is <=1000ppm.