

Supplier Name: **Texas Instruments Inc. (DUNS# 00-732-1904)**  
 Contact Info: [ti.com/support](http://ti.com/support)  
 Form/Declaration Type: **Distribute - RoHS and IEC 62474 DB**  
 Created on: **06/08/2022**

**Details for "TL16C450FNR"**

**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)*
TL16C450FNR	NIPDAU	Level-3-260C-168 HR	TI PHILIPPINES A/T	FN   44	2.9x1.6x0.85	2099.3

**\*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
<b>Bond Wire</b>							
Copper and Its Alloys	Iron	7439-89-6	0.00001	0.000166	2	0	0
Other Nonferrous Metals and Alloys	Beryllium	7440-41-7	0.00001	0.000166	2	0	0
Other Nonferrous Metals and Alloys	Calcium	7440-70-2	0.00002	0.000331	3	0	0
Other Nonferrous Metals and Alloys	Yttrium	7440-65-5	0.00004	0.000663	7	0	0
Precious Metals	Gold	7440-57-5	0.603352	99.997514	999975	0.028741	287
Precious Metals	Silver	7440-22-4	0.000007	0.00116	12	0	0
Sub-Total			<b>0.603367</b>	<b>100</b>	<b>1000000</b>	<b>0.028741</b>	<b>287</b>
<b>Die Attach Adhesive</b>							
Precious Metals	Silver	7440-22-4	1.024259	70.000007	700000	0.04879	488
Thermoplastics	Epoxy	85954-11-6	0.438968	29.999993	300000	0.02091	209
Sub-Total			<b>1.463227</b>	<b>100</b>	<b>1000000</b>	<b>0.0697</b>	<b>697</b>
<b>Lead Frame</b>							
Copper and Its Alloys	Copper	7440-50-8	4.05384	96.52	965200	0.193104	1931
Magnesium and Its Alloys	Magnesium	7439-95-4	0.0042	0.1	1000	0.0002	2
Nickel and Its Alloys	Nickel	7440-02-0	0.11466	2.73	27300	0.005462	55
Other Inorganic Materials	Silicon	7440-21-3	0.0273	0.65	6500	0.0013	13
Sub-Total			<b>4.2</b>	<b>100</b>	<b>1000000</b>	<b>0.20066</b>	<b>2001</b>
<b>Lead Frame Plating</b>							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.3	100	1000000	0.01429	143
Sub-Total			<b>0.3</b>	<b>100</b>	<b>1000000</b>	<b>0.01429</b>	<b>143</b>
<b>Mold Compound</b>							
Other Inorganic Materials	Fused Silica	60676-86-0	1625.585315	78	780000	77.434397	774344
Other Nonferrous Metals and Alloys	Metal Hydroxide	Trade Secret	57.312303	2.75	27500	2.730059	27301
Other Organic Materials	Proprietary Non Halide Flame Retardant	Trade Secret	57.312303	2.75	27500	2.730059	27301
Other Plastics and Rubber	Carbon Black	1333-86-4	15.630628	0.75	7500	0.744562	7446
Thermoplastics	Epoxy	85954-11-6	328.243189	15.75	157500	15.635792	156358
Sub-Total			<b>2084.083738</b>	<b>100</b>	<b>1000000</b>	<b>99.274868</b>	<b>992749</b>
<b>Semiconductor Device</b>							
Ceramics / Glass	Doped Silicon	7440-21-3	8.655954	100	1000000	0.412324	4123
Sub-Total			<b>8.655954</b>	<b>100</b>	<b>1000000</b>	<b>0.412324</b>	<b>4123</b>
<b>Solder Bump</b>							
Copper and Its Alloys	Copper	7440-50-8	0.00015	75	750000	0.000007	0
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.00005	25	250000	0.000002	0
Sub-Total			<b>0.0002</b>	<b>100</b>	<b>1000000</b>	<b>0.00001</b>	<b>0</b>
<b>Total</b>			<b>2099.306486</b>			<b>100</b>	<b>1000000</b>

**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."

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

Name/Title: Hubie Payne, Vice President, Worldwide SC Quality

For further environmental statements, please go to [www.ti.com/ecoinfo](http://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.