

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: 06/04/2022

Details for "OPA227U/2K5E4"

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)*
OPA227U/2K5E4		Level-3-260C-168 HR	TI MALAYSIA A/T	D 8	3.91x4.9x1.58	87

*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							
Precious Metals	Gold	7440-57-5	0.132938	99.376551	993766	0.152748	1527
Precious Metals	Palladium	7440-05-3	0.000833	0.622701	6227	0.000957	10
Precious Metals	Silver	7440-22-4	0.000001	0.000748	7	0.000001	0
Sub-Total			0.133772	100	1000000	0.153706	1537
Die Attach Adhesive							
Other Inorganic Materials	Silica	7631-86-9	0.015617	2.000031	20000	0.017944	179
Precious Metals	Silver	7440-22-4	0.538778	68.999972	690000	0.619063	6191
Thermoplastics	Epoxy	85954-11-6	0.226443	28.999997	290000	0.260186	2602
Sub-Total			0.780838	100	1000000	0.897193	8972
Lead Frame							
Copper and its Alloys	Copper	7440-50-8	24.8676	97.52	975200	28.573207	285732
Copper and its Alloys	Iron	7439-89-6	0.5865	2.3	23000	0.673896	6739
Copper and its Alloys	Phosphorus	7723-14-0	0.00765	0.03	300	0.00879	88
Zinc and its Alloys	Zinc	7440-66-6	0.03825	0.15	1500	0.04395	439
Sub-Total			25.5	100	1000000	29.299843	292998
Lead Frame Plating							
Nickel and its Alloys	Nickel	7440-02-0	0.09512	95.12	951200	0.109294	1093
Precious Metals	Gold	7440-57-5	0.00078	0.78	7800	0.000896	9
Precious Metals	Palladium	7440-05-3	0.0041	4.1	41000	0.004711	47
Sub-Total			0.1	100	1000000	0.114901	1149
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	49.846464	85.999999	860000	57.274257	572743
Other Plastics and Rubber	Carbon Black	1333-86-4	0.173883	0.3	3000	0.199794	1998
Other Plastics and Rubber	Organic Phosphorus	1330-78-5	0.318786	0.550001	5500	0.366289	3663
Thermoplastics	Epoxy	85954-11-6	7.621872	13.15	131500	8.757633	87576
Sub-Total			57.961005	100	1000000	66.597974	665980
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	2.555569	100	1000000	2.936383	29364
Sub-Total			2.555569	100	1000000	2.936383	29364
Total			87.031184			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 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: \(click here for a fuller statement with a signed certificate\)](#)

Name/Title: Hubie Payne, Vice President, Worldwide SC Quality
 For further environmental statements, please go to www.ti.com/ecoinfo
 Created on: 06/04/2022

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 J5709B 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.