

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: 06/03/2022

Details for "MMS453V/NOPB"

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)*
MMS453V/NOPB	SN	Level-3-245C-168 HR	Ext-Mfg	FN 44	16.6 x 16.6 x 4	2581.8

*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							
Copper and Its Alloys	Copper	7440-50-8	0.000003	0.000226	2	0	0
Copper and Its Alloys	Iron	7439-89-6	0.000003	0.000226	2	0	0
Other Inorganic Materials	Silicon	7440-21-3	0.000001	0.000075	1	0	0
Other Nonferrous Metals and Alloys	Beryllium	7440-41-7	0.000001	0.000075	1	0	0
Other Nonferrous Metals and Alloys	Calcium	7440-70-2	0.000001	0.000075	1	0	0
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.000004	0.000301	3	0	0
Precious Metals	Gold	7440-57-5	1.327617	99.997966	999980	0.051422	514
Precious Metals	Silver	7440-22-4	0.000014	0.001054	11	0.000001	0
Sub-Total			1.327644	100	1000000	0.051423	514
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	1.121362	69.999888	700000	0.043433	434
Thermoplastics	Epoxy	85954-11-6	0.480584	30.000012	300000	0.018614	186
Sub-Total			1.601946	100	1000000	0.062047	620
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	498.320099	99.67	996700	19.301167	193012
Other Nonferrous Metals and Alloys	Zirconium	7440-67-7	0.49997	0.1	1000	0.019365	194
Precious Metals	Silver	7440-22-4	1.149931	0.23	2300	0.04454	445
Sub-Total			499.97	100	1000000	19.365072	193651
Lead Frame Plating							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	24.38	100	1000000	0.944298	9443
Sub-Total			24.38	100	1000000	0.944298	9443
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	1749.000437	85.5	855000	67.743104	677431
Other Plastics and Rubber	Carbon Black	1333-86-4	6.136844	0.3	3000	0.237695	2377
Thermoplastics	Epoxy	85954-11-6	290.477266	14.2	142000	11.250901	112509
Sub-Total			2045.614547	100	1000000	79.231701	792317
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	8.919118	100	1000000	0.345459	3455
Sub-Total			8.919118	100	1000000	0.345459	3455
Total			2581.813255			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 Utility
 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.