

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: 05/09/2022

Details for "LM224DR"

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)*
LM224DR	NIPDAU	Level-1-260C-UNLIM	TI MALAYSIA A/T	D 14	3.91X8.65X1.58	145.8

*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	0.054475	99.998164	999982	0.037373	374
Precious Metals	Silver	7440-22-4	0.000001	0.001836	18	0.000001	0
Sub-Total			0.054476	100	1000000	0.037374	374
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.204458	80.000157	800002	0.140271	1403
Thermoplastics	Epoxy	85954-11-6	0.051114	19.999843	199998	0.035067	351
Sub-Total			0.255572	100	1000000	0.175338	1753
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	39.394774	97.425	974250	27.027235	270272
Copper and Its Alloys	Iron	7439-89-6	0.970464	2.4	24000	0.665798	6658
Copper and Its Alloys	Phosphorus	7723-14-0	0.006065	0.014999	150	0.004161	42
Copper and Its Alloys	Tin	7440-31-5	0.012131	0.03	300	0.008323	83
Copper and Its Alloys	Zinc	7440-66-6	0.040436	0.1	1000	0.027742	277
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.012131	0.03	300	0.008323	83
Sub-Total			40.436001	100	1000000	27.74158	277416
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.060877	95.120313	951203	0.041765	418
Precious Metals	Gold	7440-57-5	0.000499	0.779688	7797	0.000342	3
Precious Metals	Palladium	7440-05-3	0.002624	4.1	41000	0.0018	18
Sub-Total			0.064	100	1000000	0.043908	439
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	91.619479	88	880000	62.85659	628566
Other Plastics and Rubber	Carbon Black	1333-86-4	0.312339	0.3	3000	0.214284	2143
Other Plastics and Rubber	Organic Phosphorus	1330-78-5	0.572622	0.55	5500	0.392854	3929
Thermoplastics	Epoxy	85954-11-6	11.608604	11.15	111500	7.964215	79642
Sub-Total			104.113044	100	1000000	71.427943	714279
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.836451	100	1000000	0.573857	5739
Sub-Total			0.836451	100	1000000	0.573857	5739
Total			145.759544			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: \(click here for a fuller statement with a signed certificate\)](#)

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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.