

Current Production Information							
TI Part Number		TLC2274ID		Assembly Site		TI AGUASCALIENTES	
Lead/Ball Finish		CU NIPDAU		Package Type / Pins		D 14	
Planned Lead/Ball Finish				Package Body Size (WxLxH) mm		3.91X8.65X1.58	
MSL / Reflow Ratings		Level-1-260C-UNLIM		Total Device Mass (mg)		122.68998600000003	
Environmental Ratings Information							
Part Number Type		Std		JIG Material Content Compliance		Level A & B	
RoHS & High-Temp Compliant		Y		Green Compliant		Y	
Pb-Free (RoHS) Conversion Date		15-Feb-2004 (DC 0408)		Green Conversion Date		03-Jun-2005 (DC 0523)	
Pb-Free (RoHS) Available Supply Date		09-Sep-2005		Green Available Supply Date		09-Sep-2005	
Component Information							
Component	Substance	CAS Number	Amount (mg)	Homogeneous Material Level		Component Level	
				Percentage %	ppm	Percentage %	ppm
Bond Wire							
Metallurgy	Gold	7440-57-5	0.189981	99.9979	999978	0.1548	1548
Trace Metal	Beryllium	7440-41-7	0.000002	0.0011	10	0	0
Trace Metal	Calcium	7440-70-2	0.000001	0.0005	5	0	0
Trace Metal	Silver	7440-22-4	0.000001	0.0005	5	0	0
Sub-Total			0.189985	100	1000000	0.1548	1548
Die Attach Adhesive							
Conductive Material	Silver	7440-22-4	0.0474	79	790000	0.0386	386
Polymer	Bismaleimide		0.0078	13	130000	0.0064	63
Polymer	Proprietary Resin		0.0036	6	60000	0.0029	29
Reactive Diluent	Proprietary Material		0.0012	2	20000	0.001	9
Sub-Total			0.06	100	1000000	0.0489	487
Lead Frame							
Base Metal	Copper	7440-50-8	40.174173	97.425	974250	32.7445	327444
Base Metal	Iron	7439-89-6	0.989664	2.4	24000	0.8066	8066
Base Metal	Lead	7439-92-1	0.012371	0.03	300	0.0101	100
Base Metal	Phosphorus	7723-14-0	0.006185	0.015	149	0.005	50
Base Metal	Tin	7440-31-5	0.012371	0.03	300	0.0101	100
Base Metal	Zinc	7440-66-6	0.041236	0.1	1000	0.0336	336
Sub-Total			41.236	100	1000000	33.6099	336096
Lead Frame Plating							
Plating	Gold	7440-57-5	0.000499	0.7797	7796	0.0004	4
Plating	Nickel	7440-02-0	0.060877	95.1203	951203	0.0496	496
Plating	Palladium	7440-05-3	0.002624	4.1	41000	0.0021	21
Sub-Total			0.064	100	1000000	0.0522	521
Mold Compound							
Coloring	Carbon Black	1333-86-4	0.2418	0.3	2999	0.1971	1970
Filler	Fused Silica	60676-86-0	61.256001	76	760000	49.9275	499274
Flame Retardant Additive	Proprietary Non Halide		2.821	3.5	34999	2.2993	22992
Hardener	Phenolic Novolac		6.045	7.5	74999	4.9271	49270
Other additives	Catalyst Mold Release Adhesion Agent		2.9822	3.7	36999	2.4307	24306
Polymer	Cresol Novolac Epoxy		6.045	7.5	74999	4.9271	49270
Stress Relief Agent	Proprietary		1.209	1.5	14999	0.9854	9854
Sub-Total			80.600001	100	1000000	65.694	656936
Semiconductor Device							
Silicon Chip	Doped Silicon	7440-21-3	0.54	100	1000000	0.4401	4401
Sub-Total			0.54	100	1000000	0.4401	4401
Total			122.689986			100	1000000

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 Products

TI certifies that the material content information provided by TI as of the date of disclosure is representative and accurate. TI semiconductor products designated by TI as "Pb-Free" or "Green" (defined below) do not exceed any of the Joint Industry Guide (JIG) Level-A Substance thresholds and are compliant with the requirements of the European Union's Restriction on Use of Hazardous Substances ("RoHS") Directive, 2002/95/EC.

For TI semiconductor products NOT designated as "Pb-Free" or "Green", these products are RoHS compliant with the exception of Lead (Pb) which may be found in the leadframe plating or solder balls, or in RoHS exempt applications such as high-temperature solder die attach (exemption 7a) and flip-chip solder bumps (exemption 15). This situation is known as RoHS-5 or "5 of 6" compliant.

JIG Level-A Banned Substances	Threshold, Homogeneous Level (1)
Asbestos	Not intentionally added
Azo colorants	Not intentionally added
RoHS - Cadmium/Cadmium Compounds	75 ppm, Not intentionally added (RoHS threshold = 100ppm)
RoHS - Hexavalent Chromium/Hex.Chromium.Compounds	1000 ppm, Not intentionally added
RoHS - Lead/Lead Compounds	1000 ppm, Not intentionally added
RoHS - Mercury/Mercury Compounds	1000 ppm, Not intentionally added
Ozone Depleting Substances	Class I : Not intentionally added Class II : 1000ppm
RoHS - Polybrominated Biphenyls (PBBs)	1000 ppm, Not intentionally added
RoHS - Polybrominated Diphenyl Ethers (PBDEs)	1000 ppm, Not intentionally added
Polychlorinated Biphenyls (PCBs)	1000 ppm, Not intentionally added
Polychlorinated Naphthalenes (>3 Chlorine atoms)	1000 ppm, Not intentionally added
Radioactive Substances	1000 ppm, Not intentionally added
Shortchain Chlorinated Paraffins	1000 ppm, Not intentionally added
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	1000 ppm, Not intentionally added
Tributyl Tin Oxide (TBTO)	1000 ppm, Not intentionally added
(1) Threshold does not apply to applications covered by a RoHS substance exemption.	

Regarding the EU Directive 2004/12/EC concerning Packaging and Packaging Waste, TI's packing materials (boxes, trays, etc) comply with the directive's requirement that the total concentration of the 4 heavy metals (cadmium, hexavalent chromium, lead, and mercury) must not exceed 100 ppm. Material content details for TI's packing materials are available at www.ti.com/eoinfo.

TI bases its material content knowledge on information provided by third parties and has taken and continues to take commercially reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain limited information to be proprietary, and thus CAS numbers and other limited information may not be available for release. TI's standard warranty and limitation of liability provisions of TI's Standard Terms and Conditions (available at <http://www.ti.com/sc/docs/stdterms.htm>) apply to the representations herein unless otherwise provided by a written contract or other agreement signed by the parties.

Signature: [\(click here for signed certificate\)](#)

Name/Title: Cindy Allen, Vice President, Worldwide Quality

Date: September 27, 2006

Pb-Free: TI defines "Pb-Free" or "RoHS Compliant" to mean semiconductor products that are compliant with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials unless exempt. Where designed to be soldered at high temperatures, TI "Pb-Free" and "RoHS Compliant" products are suitable for use in specified lead-free processes.

Green: TI defines "Green" to mean Pb-Free/RoHS Compliant and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material).