



8-Lead TSSOP (Ni-Pd-Au) Package Material Declaration Data Sheet

Overview

The 8-lead TSSOP package, with the Ni-Pd-Au plating option, is qualified by at least two separate assembly sites. Packages that are assembled at different assembly sites will have differences in the materials that are present in the package. These differences will not impact the compliance of the package to the EU RoHS and IPC/JEDEC requirements. Compliance is guaranteed provided that the appropriate part number is ordered.

Package Code	8A2
Package Description	8-Lead, 4.4 mm Body, Plastic Thin Shrink Small Outline Package (TSSOP)
Max Reflow Temperature	260 Celsius
J-STD-609 Category	e4

Banned Substances

The European Union passed Directive 2002/95/EC on January 27, 2003, that defines the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).

The member companies that comprise EIA/JEDEC/JGPSSI developed JIG-101A in September 2007 to track and disclose specific information about the material composition of products to legal and market requirements. The Level A list is composed of materials and substances when used in products are subject to currently enacted legislation which prohibits their use, restricts their use or requires reporting. The Level B list is composed of materials and substances that the electrical and electronic equipment industry has determined relevant for disclosure because they are of significant environmental, health or safety interest; would trigger hazardous waste management requirements; or could have a negative impact on end-of-life management.

Material / Substance	RoHS / JIG	Material Mass (g)	Material Concentration (ppm)
Cadmium	RoHS	0	n/a
Hexavalent Chromium	RoHS	0	n/a
Lead	RoHS	0	n/a
Mercury	RoHS	0	n/a
Polybrominated Biphenyls (PBB)	RoHS	0	n/a
Polybrominated Diphenyl Ethers (PBDE)	RoHS	0	n/a
Asbestos	JIG Level A	0	n/a
Certain Azo Colorants	JIG Level A	0	n/a
Cadmium and Cadmium Compounds	JIG Level A	0	n/a
Hexavalent Chromium and Hexavalent Chromium Compounds	JIG Level A	0	n/a
Lead and Lead Compounds	JIG Level A	0	n/a
Mercury and Mercury Compounds	JIG Level A	0	n/a
Ozone Depleting Substances (Class I and II)	JIG Level A	0	n/a
Polybrominated Biphenyls (PBB)	JIG Level A	0	n/a
Polybrominated Diphenyl Ethers (PBDE)	JIG Level A	0	n/a
Polychlorinated Biphenyls and Terphenyls (PCB and PCT)	JIG Level A	0	n/a
Polychlorinated Naphthalenes	JIG Level A	0	n/a
Radioactive Substances	JIG Level A	0	n/a
Certain Shortchain Chlorinated Paraffins	JIG Level A	0	n/a
Tributyl Tin Oxide (TBTO)	JIG Level A	0	n/a
Antimony and Antimony Compounds	JIG Level B	0	n/a
Arsenic and Arsenic Compounds	JIG Level B	0	n/a
Beryllium and Beryllium Compounds	JIG Level B	0	n/a
Bismuth and Bismuth Compounds	JIG Level B	0	n/a
Brominated Flame Retardants (other than PBB and PBDE)	JIG Level B	0	n/a
Certain Phthalates	JIG Level B	0	n/a
Nickel (external applications only)	JIG Level B	0	n/a
Polyvinyl Chloride (PVC)	JIG Level B	0	n/a
Selenium and Selenium Compounds	JIG Level B	0	n/a



8-Lead TSSOP (Ni-Pd-Au)

Package Material Declaration Data Sheet

Material Declaration # 1

Material	Substance	CAS #	Weight (g)	Homogeneous Material		Package	
				Percentage	ppm	Percentage	ppm
Leadframe	Copper (Cu)	7440-50-8	0.0096	97.4	974000	28.47	284700
	Iron (Fe)	7439-89-6	0.0002	2.4	24000	0.70	7000
	Zinc (Zn)	7440-66-6	< 0.0001	0.1	1000	0.03	300
	Phosphorous (P)	7723-14-0	< 0.0001	0.1	1000	0.03	300
Sub-Total			0.0098	100.0	1000000	29.23	292300
Integrated Circuit	Silicon (Si)	7440-21-3	0.0009	100.0	1000000	2.65	26500
Sub-Total			0.0009	100.0	1000000	2.65	26500
Die Attach	Silver (Ag)	7440-22-4	0.0001	75.0	750000	0.15	1500
	Epoxy Resin	Trade Secret	< 0.0001	15.1	151000	0.02	200
	Amine	Trade Secret	< 0.0001	3.3	33000	0.01	100
	Gamma Butyrolactone	96-48-0	< 0.0001	3.3	33000	0.01	100
	Metal Oxide	Trade Secret	< 0.0001	3.3	33000	0.01	100
Sub-Total			0.0001	100.0	1000000	0.20	2000
Die Pad Plating	Silver (Ag)	7440-22-4	0.0003	100.0	1000000	0.84	8400
Sub-Total			0.0003	100.0	1000000	0.84	8400
Bond Wire	Gold (Au)	7440-57-5	0.0001	100.0	1000000	0.26	2600
Sub-Total			0.0001	100.0	1000000	0.26	2600
Encapsulation	Silica Fused	60676-86-0	0.0194	86.4	864000	57.33	573300
	Epoxy Resin	Trade Secret	0.0018	7.9	79000	5.24	52400
	Phenol Resin	Trade Secret	0.0012	5.4	54000	3.58	35800
	Carbon Black	1333-86-4	0.0001	0.3	3000	0.20	2000
Sub-Total			0.0225	100.0	1000000	66.35	663500
Terminal Plating	Nickel (Ni)	7440-02-0	0.0002	90.6	906000	0.43	4300
	Palladium (Pd)	7440-05-3	< 0.0001	9.1	91000	0.04	400
	Gold (Au)	7440-57-5	< 0.0001	0.3	3000	< 0.01	< 100
Sub-Total			0.0002	100.0	1000000	0.47	4700
Total			0.0339			100.00	1000000



8-Lead TSSOP (Ni-Pd-Au)

Package Material Declaration Data Sheet

Material Declaration # 2

Material	Substance	CAS #	Weight (g)	Homogeneous Material		Package	
				Percentage	ppm	Percentage	ppm
Leadframe	Copper (Cu)	7440-50-8	0.0096	97.4	974000	28.19	281900
	Iron (Fe)	7439-89-6	0.0002	2.4	24000	0.69	6900
	Zinc (Zn)	7440-66-6	< 0.0001	0.1	1000	0.03	300
	Phosphorous (P)	7723-14-0	< 0.0001	0.1	1000	0.03	300
Sub-Total			0.0098	100.0	1000000	28.94	289400
Integrated Circuit	Silicon (Si)	7440-21-3	0.0009	100.0	1000000	2.62	26200
Sub-Total			0.0009	100.0	1000000	2.62	26200
Die Attach	Silver (Ag)	7440-22-4	0.0001	77.0	770000	0.13	1300
	Diester Resin	Trade Secret	< 0.0001	10.3	103000	0.02	200
	Polymeric Resin Mixture	Trade Secret	< 0.0001	8.5	85000	0.01	100
	Epoxy Resin	Trade Secret	< 0.0001	4.2	42000	0.01	100
Sub-Total			0.0001	100.0	1000000	0.17	1700
Die Pad Plating	Silver (Ag)	7440-22-4	0.0003	100.0	1000000	0.83	8300
Sub-Total			0.0003	100.0	1000000	0.83	8300
Bond Wire	Gold (Au)	7440-57-5	0.0001	100.0	1000000	0.26	2600
Sub-Total			0.0001	100.0	1000000	0.26	2600
Encapsulation	Silica Fused	60676-86-0	0.0198	86.5	865000	57.71	577100
	Epoxy Resin	Trade Secret	0.0013	5.5	55000	3.67	36700
	Phenol Resin	Trade Secret	0.0013	5.5	55000	3.67	36700
	Epoxy, Cresol Novolac	29690-82-2	0.0005	2.2	22000	1.47	14700
	Carbon Black	1333-86-4	0.0001	0.3	3000	0.19	1900
Sub-Total			0.0228	100.0	1000000	66.71	667100
Terminal Plating	Nickel (Ni)	7440-02-0	0.0002	90.6	906000	0.43	4300
	Palladium (Pd)	7440-05-3	< 0.0001	9.1	91000	0.04	400
	Gold (Au)	7440-57-5	< 0.0001	0.3	3000	< 0.01	< 100
Sub-Total			0.0002	100.0	1000000	0.47	4700
Total			0.0342			100.00	1000000

Comments

- Reliability qualification reports are available upon request through the appropriate sales or marketing contact.
- Third party testing for RoHS substances has been completed on the homogeneous material level and are available upon request through the appropriate sales or marketing contact.
- Materials and/or substances not listed in the material declaration are considered not present in the product or not detectable trace levels.
- In order to report full 100 percent material declaration, some materials and/or substances have been rounded to the nearest 0.1 percent.
- Package material declarations are calculated using a combination of Material Safety Data Sheets (MSDS), material analysis testing, industry standard specifications and engineering calculations.

Disclaimer Information

ATMEL Corporation accepts no duty to notify or update users of any changes made to this document. ATMEL Corporation is not liable for any damages direct, indirect, consequential, incidental, special or otherwise suffered by users or any third party resulting from a reliance upon any information in this document that has been updated or changed.