

iChip™ CO21284/48LI-3

RoHS Certificate of Compliance

OVERVIEW

The 128-lead LQFP package is compliant with the RoHS and JIG requirements. Compliance is guaranteed provided that the appropriate part number is ordered.

Package Code	AL
Package Description	128-Lead, 14x20x1.4mm Body, Plastic Low profile Quad Flat Pack (LQFP)
Max Reflow Temperature	260 Celsius
JESD97 Category	e3

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 electromagnetic equipment (RoHS).

The member companies that comprise EIA/JIG/JGPSSI developed JIG-101 in April 2005 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 that are subject to currently enacted legislation. The Level B list is composed of materials and substances that the electrical and electronic equipment industry has determined relevant for disclosure.

International:

USA:

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 (PCB)	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 (TBT) and Triphenyl Tin (TPT)	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
Brominated Flame Retardants (other than PBB and PBDE)	JIG Level B	0	n/a
Nickel (external applications only)	JIG Level B	0	n/a
Certain Phthalates	JIG Level B	0	n/a
Selenium and Selenium Compounds	JIG Level B	0	n/a
Polyvinyl Chloride (PVC)	JIG Level B	0	n/a

MATERIAL DECLARATION

Material	Substance	CAS#	Weight (mg) (average)	Homogeneous Material		Package	
				Percentage (average)	ppm (average)	Percentage (average)	ppm (average)
Leadframe	Copper (Cu)	7440-50-8	127,27	96,20%	962 000	13,80%	138 049
	Nickel (Ni)	7440-02-0	3,97	3,00%	30 000	0,43%	4 305
	Silicon (Si)	7440-21-3	0,86	0,65%	6 500	0,09%	933
	Magnesium (Mg)	7439-95-4	0,20	0,15%	1 500	0,02%	215
Sub-Total	**	**	132,3	100,00%	1 000 000	14,35%	143 502
Integrated Circuit	Silicon	7440-21-3	14,65	100,00%	1 000 000	1,59%	15 894
Sub-Total	**	**	14,7	100,00%	1 000 000	1,59%	15 894
Die Attach	Silver	7440-22-4	1,21	75,83%	758 294	0,13%	1 309
	Di-ester resin	Trade Secret	0,11	7,11%	71 090	0,01%	123
	Functionalized ester resin	Trade Secret	0,05	2,84%	28 436	0,00%	49
	Polymeric material	Trade Secret	0,05	2,84%	28 436	0,00%	49
	Metal oxide	Trade Secret	0,05	2,84%	28 436	0,00%	49
	Functionalized urethane resin	Trade Secret	0,05	2,84%	28 436	0,00%	49
	Epoxy resin	Trade Secret	0,05	2,84%	28 436	0,00%	49
Cyclo-aliphatic compound	Trade Secret	0,05	2,84%	28 436	0,00%	49	
Sub-Total	**	**	1,6	100,00%	1 000 000	0,17%	1 727
Bond Wire	Gold (Au)	7440-57-5	2,22	99,99%	999 850	0,24%	2 412
	Ion impurities	**	0,00	0,02%	150	0,00%	0
Sub-Total	**	**	2,2	100,00%	1 000 000	0,24%	2 413
Mold Compound	Silica Fused	60676-86-0	658,81	87,02%	870 206	71,46%	714 598
	Epoxy resin	Trade Secret	37,22	4,92%	49 164	4,04%	40 373
	Phenol resin	Trade Secret	33,50	4,42%	44 248	3,63%	36 335
	Carbon black	1333-86-4	1,49	0,20%	1 967	0,16%	1 615
	Others	Trade Secret	26,05	3,44%	34 415	2,83%	28 261
Sub-Total	**	**	757,1	100,00%	1 000 000	82,12%	821 182
Terminal Plating	Tin (Sn)	7440-31-5	14,09	100,00%	1 000 000	1,53%	15 282
Sub-Total	**	**	14,1	100,00%	1000 000	1,53%	15 282
Total			921,9			100,0%	1 000 000

COMMENTS

- Reliability qualification reports are available upon request.
- Third-party testing for RoHS substances has been completed on the homogeneous material level and is available upon request.
- 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

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