

**LTM4650 144LD BGA-PBF 16mm X 16mm X 5.01mm (TABLE OF MATERIAL DECLARATION)**

This Package is RoHS compliant per EU RoHS Directive 2003/95/EC.

It contains less than 100ppm cadmium (Cd) and less than 1,000ppm of each - lead (Pb), mercury (Hg), hexavalent chromium (Cr+) polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE)

No.	Part Name	Material Name	Component Weight (gram)	Materials Analysis (element)	CAS Number	Material Mass (gram)	Materials Analysis (weight %)
1	Substrate	Circuit Board	0.3121	Bismaleimide/Triazine Resin/Filler Substances (Silica Crystalline)	105391-33-1 1156-51-0/9003-36-5/21645-51-2 non-disclosure	0.06996	22.42
				Continuous Filament Fiber Glass	65997-17-3	0.06204	19.88
				Copper Metal	7440-50-8	0.15025	48.15
				Zinc	7440-66-6	0.00001	0.00
				Chromium(III) oxide	1308-38-9	0.00001	0.00
				Silver coated Copper powder	7440-50-8	0.00158	0.51
				Epoxy Resin	non-disclosure	0.00023	0.07
				1-Cyanoethyl-2-Undecylimidazole	23996-16-9	0.00002	0.01
				Curing reagent	*non-disclosure	0.00003	0.01
				Acrylic Resin	non-disclosure	0.01401	4.49
				Copper Compounds	147-14-8	0.00006	0.02
				Barium Compounds	7727-43-7	0.00735	2.35
				Silica amorphous	7631-86-9	0.00009	0.03
				Talc;not containing fibers like asbestos	14807-96-6	0.00085	0.27
				Aromatic carbonyl compounds	non-disclosure	0.00080	0.26
				Cyanoguanidine	461-58-5	0.00002	0.01
				Amine compounds	non-disclosure	0.00010	0.03
				Leveling agent and others	non-disclosure	0.00032	0.10
				Nickel	7440-02-0	0.00379	1.22
				Gold	7440-57-5	0.00049	0.16
2	Solder Paste	Alloy	0.0178	Ecotoxic substances	7440-38-2 7440-28-0	0.00005	0.02
				Tin (Sn)	7440-31-5	0.01692	95.00
3	Components	Passive/Active	1.3041	Antimony (Sb)	7440-36-0	0.00089	5.00
				Iron Powder (Fe)	7439-89-6	1.02660	78.72
				Copper (Cu)	7440-50-8	0.25007	19.18
				Nickel (Ni)	7440-02-0	0.00343	0.26
				Tin (Sn)	7440-31-5	0.00850	0.65
				Ceramic (Ba) Compounds	12047-27-7	0.01551	1.19
3(i)	FC-DFN		0.2180				
	Active Ics	Silicon		Silicon (Si)	7440-21-3	0.00246	1.13
	Clip	Copper Clip		Copper (Cu)	7440-50-8	0.04859	22.29
				Iron (Fe)	7439-89-6	0.00120	0.55
				Zinc (Zn)	7440-66-6	0.00006	0.03
	Leadfinish	Plating		Tin (Sn)	7440-31-5	0.00228	1.05
				Silver (Ag)	7440-22-4	0.00017	0.08
	Solder Paste	Alloy		Lead (Pb)	7439-92-1	0.00352	1.62
				Silver (Ag)	7440-22-4	0.00009	0.04
				Tin (Sn)	7440-31-5	0.00007	0.03
	Encapsulation	Epoxy Resin		Epoxy resin	29690-82-2	0.00928	4.26
				Carbon black	1333-86-4	0.00018	0.08
				Silica (Si)	60676-86-0	0.08067	37.00
	Lead frame	Lead frame		Copper (Cu)	7440-50-8	0.06770	31.05
				Iron (Fe)	7439-89-6	0.00167	0.76
				Zinc (Zn)	7440-66-6	0.00008	0.04
4	Wire	Copper	0.0013	Copper (Cu)	7440-50-8	0.00002	0.01
	Active Ics	Silicon		Silicon (Si)	7440-21-3	0.00132	100.00

5	Wire	Gold	0.0013	Gold (Au)	7440-57-5	0.00130	99.99
6	Solder Ball	Alloy	0.2408	Tin (Sn)	7440-31-5	0.23240	96.50
				Silver (Ag)	7440-22-4	0.00722	3.00
				Copper (Cu)	7440-50-8	0.00120	0.50
				Cu	7440-50-8	0.33114	100.00
7	Cu Frame	Cu	0.3311				
8	Encapsulation	Epoxy Resin	1.4019	Fused Silica	60676-86-0	1.08224	77.20
				Epoxy Resin	non-disclosure	0.12477	8.90
				Phenol Resin	non-disclosure	0.12477	8.90
				Crytalline Silica	14808-60-7	0.04206	3.00
				Carbon Black	1333-86-4	0.00701	0.50
				Metal Hydroxide	non-disclosure	0.02103	1.50
Total Package Weight			3.8285				

Note: Composition derived from MSDS and material C of C from Vendors  
Component Weight based on assembly of generic parts