LATTICE SEMICONDUCTOR

Device Material Content

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Package: 256 csfBGA
Total Device Weight 0.137 Grams

Package Code: MG256
Products: XO3

Assembly: ATP
Size (mm): 9 x 9
Lead pitch (mm): 0.5
MSL: 3
Reflow max (ºC): 260

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	6.14%	0.0084	6.14%	0.0084	Silicon chip	7440-21-3	100.00%	Die size: 4.5 x 4.4 x 0.177mm
Mold Compound	43.87%	0.0601	7.90%	0.01082	Epoxy Resin	Trade secret	18.00%	Hitachi(Nitto) GE-110BH83-FC
			35.97%	0.04928	Silica filler	60676-86-0	82.00%	
Substrate	30.16%	0.0413	14.42%	0.0198	Laminate*	Trade secret	47.80%	CCL-HL832NS
			4.74%	0.0065	Solder mask	Trade secret	15.70%	
			7.09%	0.0097	Copper (Cu)	7440-50-8	23.50%	
			2.59%	0.0036	Nickel Plating	7440-02-0	8.60%	
			0.60%	0.0008	Gold Plating	7440-57-5	2.00%	
Cu Pillar	0.250%	0.000343			Pillar:			Oval Type
			0.150%	0.00021	Copper (Cu)	7440-50-8	60.09%	
					Cap:			
			0.098%	0.0001343	Tin (Sn)	7440-31-5	39.21%	
			0.002%	0.0000025	Silver (Ag)	7440-22-4	0.73%	
Sputter 1	0.002%	0.000003	0.000%	0.0000001	Titanium (Ti)	7440-32-6	4.98%	
			0.001%	0.0000012	Tungsten (W)	7440-33-7	44.84%	
			0.001%	0.0000014	Copper (Cu)	7440-50-8	50.18%	
Sputter 2	0.028%	0.000038	0.002%	0.000003	Titanium (Ti)	7440-32-6	7.74%	
			0.026%	0.000035	Copper (Cu)	7440-50-8	92.26%	
RDL	0.259%	0.000355	0.26%	0.0004	Copper (Cu)	7440-50-8	100.00%	
Polymide & PBO	0.160%	0.000219	0.144%	0.000197	Proprietary Polymer	Trade secret	90.00%	
			0.016%	0.000022	Additives	Trade secret	10.00%	
Solder Balls	19.58%	0.0268	18.895%	0.02589	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.587%	0.00080	Silver (Ag)	7440-22-4	3.00%	
			0.098%	0.00013	Copper (Cu)	7440-50-8	0.50%	

Notes: * 0.14% max. concentration of Bisphenol A (CAS# 80-05-7) in substrate laminate material as impurity - not intentionally added.

The values listed above are nominal values based on studies of representatives of this particular package type, and are believed to be as accurate as possible.

Constituent substances and proportions in epoxy materials are before curing.

The information provided above is representative of the package as of the date listed, and is subject to change at any time.

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