



## Device Material Content

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Assembly: ASEM  
Size (mm): 10 x 10

**Package:** 328 csBGA  
**Total Device Weight** 0.31 Grams

**Package Code:**

MG328

Lead pitch (mm): 0.5

MSL: 3

August, 2019

**Products:**

LAE3

Reflow max (°C): 260

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	4.49%	0.0139	4.49%	0.0139	Silicon chip	7440-21-3	100.00%	Die size: 4.60 x 5.20 mm
<b>Mold Compound</b>	49.30%	0.1528	2.46%	0.0076	Epoxy Resins	-	5.00%	Mold Compound: Hitachi CEL9750ZHF10AKL-U (ULA)
			2.46%	0.0076	Phenol Resin	-	5.00%	
			0.10%	0.0003	Carbon Black	1333-86-4	0.20%	
			43.28%	0.1342	Silica	60676-86-0	87.80%	
			0.99%	0.0031	Others	-	2.00%	
<b>D/A Epoxy</b>	0.69%	0.0021	0.55%	0.00170	Silver (Ag)	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.14%	0.00043	Organic esters & resins	-	20.00%	
<b>Wire</b>	1.68%	0.0052	1.68%	0.0052	Gold (Au)	7440-57-5	100.00%	0.8 mil diameter; 1 wire per solder ball
<b>Solder Balls</b>	11.11%	0.0344	10.72%	0.0332	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.33%	0.0010	Silver (Ag)	7440-22-4	3.00%	
			0.06%	0.0002	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	15.98%	0.0495	5.11%	0.0158	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			10.86%	0.0337	Glass fiber	65997-17-3	68.00%	
<b>Foil</b>	11.56%	0.0358	8.02%	0.0249	Copper	7440-50-8	69.41%	
			2.88%	0.0089	Nickel plating	7440-02-0	24.93%	
			0.65%	0.0020	Gold plating	7440-57-5	5.67%	
<b>Solder Mask</b>	5.21%	0.0161	2.83%	0.00877	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.38%	0.00118	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.17%	0.00054	Morpholine derivative	71868-10-5	3.32%	
			0.16%	0.00048	Silicon dioxide	7631-86-9	3.00%	
			0.16%	0.00048	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.00004	Carbon black	1333-86-4	0.24%	
			1.50%	0.00464	Trade secret ingredients	-	28.74%	

**Notes:** \* 0.16% max. concentration (of total pkg wt.) of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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