Device Material Content

5555 NE Moore Ct.
Hillsboro OR 97124
custreq@latticesemi.com

January, 2020

Package: 328 csBGA
Total Device Weight 0.31 Grams

Package Code: MG328
Products: LAE3

Assembly: ASEM
Size (mm): 10 x 10
Lead pitch (mm): 0.5
MSL: 3
Reflow max (^{o}C): 260

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	4.49%	0.0139	4.49%	0.0139	Silicon chip	7440-21-3	100.00%	Die size: 4.60 x 5.20 mm
Mold Compound	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%	
D/A Epoxy	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%	
Wire	1.68%	0.0052	1.68%	0.0052	Gold (Au)	7440-57-5	100.00%	0.8 mil diameter; 1 wire per solder ball
Solder Balls	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%	
Substrate	15.98%	0.0495	4.44%	0.0138	BT Resins	-	27.80%	BT Resin CCL-HL832EX*
			0.67%	0.0021	Bromine (Br)	10097-32-2	4.20%	
			10.86%	0.0337	Glass fiber	65997-17-3	68.00%	
Foil	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%	
Solder Mask	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: SVHC:
* 0.16% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.
** 0.17% max. concentration of Morpholine derivative (CAS# 71868-10-5), contained in solder mask material.

Lattice regards this materials information to be correct but makes no guarantee as to its accuracy or completeness, including, but not limited to, with respect to its compliance with applicable environmental laws and regulations. Lattice subcontracts the production, test and assembly of hardware devices to independent third-party vendors and materials suppliers ("Contractors"). All data provided hereunder is based on information received from Contractors. Lattice has not independently verified the accuracy or completeness of this information which is provided solely for your reference in connection with the use of Lattice products.

www.latticesemi.com

Rev. O