



Device Material Content

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

Assembly: ASEM

Size (mm): 5 x 5

Lead pitch (mm): 0.5

MSL: 3

Reflow max (°C): 260

January, 2020

Package: 64 csBGA
Total Device Weight 0.047 Grams

Package Code:

MN64

Products:

LC4kZE

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	4.53%	0.0021	4.53%	0.0021	Silicon chip	7440-21-3	100.00%	Die size: 1.77 x 1.91 mm
Mold Compound	49.16%	0.0231	3.44%	0.0016	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G750SE (ULA)
			2.46%	0.0012	Phenol Novolac	9003-35-4	5.00%	
			2.46%	0.0012	Metal Hydroxide	-	5.00%	
			0.25%	0.0001	Carbon Black	1333-86-4	0.50%	
			40.55%	0.0191	Silica Fused	60676-86-0	82.50%	
D/A Epoxy	0.73%	0.0003	0.58%	0.00027	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.15%	0.00007	Esters & resins	-	20.00%	
Wire	1.85%	0.0009	1.82%	0.0009	Copper	7440-50-8	98.50%	Pd coated Copper, 0.8 mil diameter
			0.03%	0.0000	Palladium	7440-05-3	1.50%	
Solder Balls	14.33%	0.0067	13.83%	0.0065	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.43%	0.0002	Silver (Ag)	7440-22-4	3.00%	
			0.07%	0.0000	Copper (Cu)	7440-50-8	0.50%	
Substrate	17.35%	0.0082	5.55%	0.0026	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			11.80%	0.0055	Glass fiber	65997-17-3	68.00%	
Foil	7.89%	0.0037	6.47%	0.00304	Copper	7440-50-8	82.00%	
			1.19%	0.00056	Nickel plating	7440-02-0	15.10%	
			0.23%	0.00011	Gold plating	7440-57-5	2.91%	
Solder Mask	4.17%	0.0020	2.27%	0.00106	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.31%	0.00014	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.14%	0.00007	Morpholine derivative**	71868-10-5	3.32%	
			0.13%	0.00006	Silicon dioxide	7631-86-9	3.00%	
			0.13%	0.00006	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.000005	Carbon black	1333-86-4	0.24%	
			1.20%	0.00056	Trade secret ingredients	-	28.74%	

Notes: SVHC: * 0.17% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.
** 0.14% 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.

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Mold Compound	49.16%	0.0231	43.01%	0.0202	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G2250 series (ULA)
			3.20%	0.0015	Epoxy resin	-	6.50%	
			2.70%	0.0013	Phenol Resin	-	5.50%	
			0.25%	0.0001	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	0.73%	0.0003	0.58%	0.00027	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
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