



Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com		Package: 64 csBGA Total Device Weight 0.047 Grams			Package Code: MN64	Assembly: ASEM Size (mm): 5 x 5 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 260		
June, 2022					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% 2.46% 2.46% 0.25% 40.55%	0.0016 0.0012 0.0012 0.0001 0.0191	Epoxy Resin Phenol Novolac Metal Hydroxide Carbon Black Silica Fused	- 9003-35-4 - 1333-86-4 60676-86-0	7.00% 5.00% 5.00% 0.50% 82.50%	Mold Compound: Sumitomo G750SE (ULA)
D/A Epoxy	0.73%	0.0003	0.58% 0.15%	0.00027 0.00007	Silver Esters & resins	7440-22-4 -	80.00% 20.00%	Die attach epoxy: Henkel (Ablebond) 2100A
Wire	1.85%	0.0009	1.82% 0.03%	0.0009 0.0000	Copper Palladium	7440-50-8 7440-05-3	98.50% 1.50%	Pd coated Copper, 0.8 mil diameter
Solder Balls	14.33%	0.0067	13.83% 0.43% 0.07%	0.0065 0.0002 0.0000	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	96.50% 3.00% 0.50%	SAC305
Substrate	17.35%	0.0082	5.55% 11.80%	0.0026 0.0055	BT Resins Glass fiber	- 65997-17-3	32.00% 68.00%	BT Resin CCL-HL832NX-A
Foil	7.89%	0.0037	6.47% 1.19% 0.23%	0.00304 0.00056 0.00011	Copper Nickel plating Gold plating	7440-50-8 7440-02-0 7440-57-5	82.00% 15.10% 2.91%	
Solder Mask	4.17%	0.0020	2.34% 0.67% 0.92% 0.13% 0.12%	0.00110 0.00031 0.00043 0.00006 0.00005	Quartz 3-methoxy-3-methylbutylacetate Barium Sulfate Talc (containing no asbestiform fibers) Trade secret ingredients	14808-60-7 103429-90-9 7727-43-7 14807-96-6 -	56.20% 16.00% 22.00% 3.00% 2.80%	Solder mask PSR4000 AUS 308

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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Package: 64 csBGA		Total Device Weight 0.047 Grams		Products: LC4kZE				
June, 2022								
	% 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	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
			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	14.12%	0.0066	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.14%	0.0001	Silver (Ag)	7440-22-4	1.00%	
			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	2.34%	0.00110	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.67%	0.00031	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			0.92%	0.00043	Barium Sulfate	7727-43-7	22.00%	
			0.13%	0.00006	Talc (containing no asbestiform fibers)	14807-96-6	3.00%	
			0.12%	0.00005	Trade secret ingredients	-	2.80%	

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