Device Material Content

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

June, 2020

Package: 144 csBGA
Total Device Weight 0.093 Grams

Package Code: MN144
Products: LC4kZE

Assembly: ASEM
Size (mm): 7 x 7
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	5.73%	0.0053	5.73%	0.0053	Silicon chip	7440-21-3	100.00%	Die size: 3.07 x 2.76 mm
Mold Compound	47.81%	0.0445	3.35%	0.0031	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G750SE
			2.39%	0.0022	Phenol Novolac	9003-35-4	5.00%	
			2.39%	0.0022	Metal Hydroxide	-	5.00%	
			0.24%	0.0002	Carbon Black	1333-86-4	0.50%	
			39.44%	0.0367	Silica Fused	60676-86-0	82.50%	
D/A Epoxy	0.93%	0.0009	0.74%	0.00069	Silver (Ag)	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.19%	0.00017	Esters & resins	-	20.00%	
Wire	1.23%	0.0011	1.21%	0.00113	Copper (Cu)	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.02%	0.00002	Palladium (Pd)	7440-05-3	1.50%	
Solder Balls	16.23%	0.0151	15.66%	0.0146	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.49%	0.0005	Silver (Ag)	7440-22-4	3.00%	
			0.08%	0.0001	Copper (Cu)	7440-50-8	0.50%	
Substrate	18.25%	0.0170	5.66%	0.0053	BT Resins	-	31.00%	BT Resin CCL-HL832NX-A*
			12.41%	0.0115	Glass fiber	65997-17-3	68.00%	
			0.18%	0.0002	Bisphenol A	80-05-7	1.00%	
Foil	4.06%	0.0038	3.01%	0.00280	Copper	7440-50-8	74.07%	
			1.00%	0.00093	Nickel plating	7440-02-0	24.69%	
			0.05%	0.00005	Gold plating	7440-57-5	1.24%	
Solder Mask	5.77%	0.0054	2.95%	0.00275	Quartz	14808-60-7	51.20%	Solder mask PSR4000 AUS 308
			0.87%	0.00080	3-methoxy-3-methylbutylacetate	103429-90-9	15.00%	
			1.21%	0.00113	Barium Sulfate	7727-43-7	21.00%	
			0.17%	0.00016	Talc	14807-96-6	3.00%	
			0.03%	0.00003	Naphthalene	91-20-3	0.50%	
			0.54%	0.00050	Trade secret ingredients	-	9.30%	

Notes: SVHC: * 0.18% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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. Q

Device Material Content

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

June, 2020

Package: 144 csBGA
Total Device Weight 0.093 Grams

Package Code: MN144
Products: LC4kZE

Assembly: ASEK
Size (mm): 7 x 7
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	5.73%	0.0053	5.73%	0.0053	Silicon chip	7440-21-3	100.00%	Die size: 3.07 x 2.76 mm
Mold Compound	47.81%	0.0445	41.83%	0.0389	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KEG-2250LKDS
			3.11%	0.0029	Epoxy resin	-	6.50%	
			2.63%	0.0024	Phenol Resin	-	5.50%	
			0.24%	0.0002	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	0.93%	0.0009	0.74%	0.00069	Silver (Ag)	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.19%	0.00017	Esters & resins	-	20.00%	
Wire	1.23%	0.0011	1.21%	0.0011	Copper (Cu)	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.02%	0.0000	Palladium (Pd)	7440-05-3	1.50%	
Solder Balls	16.23%	0.0151	15.98%	0.0149	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.16%	0.0002	Silver (Ag)	7440-22-4	1.00%	
			0.08%	0.0001	Copper (Cu)	7440-50-8	0.50%	
Substrate	18.25%	0.0170	5.66%	0.0053	BT Resins	-	31.00%	BT Resin CCL-HL832NX-A*
			12.41%	0.0115	Glass fiber	65997-17-3	68.00%	
			0.18%	0.0002	Bisphenol A	80-05-7	1.00%	
Foil	4.06%	0.0038	3.01%	0.00280	Copper	7440-50-8	74.07%	
			1.00%	0.00093	Nickel plating	7440-02-0	24.69%	
			0.05%	0.00005	Gold plating	7440-57-5	1.24%	
Solder Mask	5.77%	0.0054	2.95%	0.00275	Quartz	14808-60-7	51.20%	Solder mask PSR4000 AUS 308
			0.87%	0.00080	3-methoxy-3-methylbutylacetate	103429-90-9	15.00%	
			1.21%	0.00113	Barium Sulfate	7727-43-7	21.00%	
			0.17%	0.00016	Talc	14807-96-6	3.00%	
			0.03%	0.00003	Naphthalene	91-20-3	0.50%	
			0.54%	0.00050	Trade secret ingredients	-	9.30%	

Notes: SVHC: * 0.18% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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. Q