Device Material Content

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

May, 2020

Package: 64 ucBGA
Total Device Weight 0.03 Grams

Package Code: UMG64
Products: XO2

Assembly: ASEM
Size (mm): 4 x 4
Lead pitch (mm): 0.4
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	7.09%	0.0021						Die size: 1.7 x 1.91 mm
			7.09%	0.0021	Silicon chip	7440-21-3	100.00%	
Mold Compound	47.43%	0.0142						Mold Compound: Sumitomo G750SE (ULA)
			2.37%	0.00071	Epoxy Resin A	-	5.00%	
			0.71%	0.00021	Epoxy Resin B	-	1.50%	
			2.37%	0.00071	Phenol Novolac	9003-35-4	5.00%	
			2.37%	0.00071	Metal Hydroxide	-	5.00%	
			0.14%	0.00004	Carbon Black	1333-86-4	0.30%	
			39.46%	0.01184	Silica Fused	60676-86-0	83.20%	
D/A Epoxy	1.14%	0.0003						Die attach epoxy: Henkel (Ablebond) 2100A
			0.91%	0.00027	Silver	7440-22-4	80.00%	
			0.23%	0.00007	Esters & resins	-	20.00%	
Wire	1.85%	0.0006						0.8 mil diameter; 1 wire per solder ball
			1.82%	0.00055	Copper	7440-50-8	98.50%	
			0.03%	0.00001	Palladium	7440-05-3	1.50%	
Solder Balls	12.99%	0.0039						SAC105
			12.80%	0.00384	Tin (Sn)	7440-31-5	98.50%	
			0.13%	0.00004	Silver (Ag)	7440-22-4	1.00%	
			0.06%	0.00002	Copper (Cu)	7440-50-8	0.50%	
Substrate	19.01%	0.0057						BT Resin CCL-HL832NX-A*
			5.89%	0.00177	BT Resins	-	31.00%	
			12.93%	0.00388	Glass fiber	65997-17-3	68.00%	
			0.19%	0.00006	Bisphenol A	80-05-7	1.00%	
Foil	4.44%	0.0013						
			3.16%	0.0009	Copper	7440-50-8	71.12%	
			1.05%	0.0003	Nickel plating	7440-02-0	23.71%	
			0.23%	0.00007	Gold plating	7440-57-5	5.18%	
Solder Mask	6.06%	0.0018						Solder mask PSR4000 AUS 308
			3.40%	0.00102	Quartz	14808-60-7	56.20%	
			0.97%	0.00029	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			1.33%	0.00040	Barium Sulfate	7727-43-7	22.00%	
			0.18%	0.00005	Talc	14807-96-6	3.00%	
			0.03%	0.000009	Naphthalene	91-20-3	0.50%	
			0.14%	0.000042	Trade secret ingredients	-	2.30%	

Notes: SVHC: * 0.19% 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.

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Mold Compound	47.43%	0.0142	41.50%	0.01245	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G2250 series (ULA)
			3.08%	0.00092	Epoxy resin	-	6.50%	
			2.61%	0.00078	Phenol Resin	-	5.50%	
			0.24%	0.00007	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	1.14%	0.0003	0.91%	0.00027	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.23%	0.00007	Esters & resins	-	20.00%	
Wire	1.85%	0.0006	1.82%	0.00055	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
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