Device Material Content

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

June, 2022

Package: **324 ftBGA**
Total Device Weight **1.14** **Grams**

Package Code: **FTN324**
Products: XO

Assembly: ASEM
Size (mm): 19 x 19
Lead pitch (mm): 1.0
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	0.87%	0.0099	0.87%	0.0099	Silicon chip	7440-21-3	100.00%	Die size: 4.08 x 3.85 mm
Mold Compound	46.36%	0.5285	2.32%	0.0264	Epoxy Resin A	-	5.00%	Mold Compound: Sumitomo G750SE (ULA)
			0.70%	0.0079	Epoxy Resin B	-	1.50%	
			2.32%	0.0264	Phenol Novolac	9003-35-4	5.00%	
			2.32%	0.0264	Metal Hydroxide	-	5.00%	
			0.14%	0.0016	Carbon Black	1333-86-4	0.30%	
			38.57%	0.4397	Silica Fused	60676-86-0	83.20%	
D/A Epoxy	0.14%	0.0016	0.11%	0.00128	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00032	Esters & resins	-	20.00%	
Wire	0.39%	0.0044	0.38%	0.0043	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.01%	0.0001	Palladium	7440-05-3	1.50%	
Solder Balls	29.04%	0.3311	28.03%	0.3195	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.87%	0.0099	Silver (Ag)	7440-22-4	3.00%	
			0.15%	0.0017	Copper (Cu)	7440-50-8	0.50%	
Substrate	13.69%	0.1560	4.38%	0.0499	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A
			9.31%	0.1061	Glass fiber	65997-17-3	68.00%	
Foil	6.22%	0.0710	5.10%	0.0582	Copper	7440-50-8	82.00%	
			0.94%	0.0107	Nickel plating	7440-02-0	15.10%	
			0.18%	0.0021	Gold plating	7440-57-5	2.91%	
Solder Mask	3.29%	0.0375	1.85%	0.0211	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.53%	0.0060	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			0.72%	0.0082	Barium Sulfate	7727-43-7	22.00%	
			0.10%	0.0011	Talc (containing no asbestiform fibers)	14807-96-6	3.00%	
			0.09%	0.0010	Trade secret ingredients	-	2.80%	

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Br/Cl/Sb Pb lead-free RoHS

Rev. P1

LATTICE SEMICONDUCTOR

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Mold Compound	46.36%	0.5285	40.56%	0.4624	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G2250 series (ULA)
			3.01%	0.0344	Epoxy resin	-	6.50%	
			2.55%	0.0291	Phenol Resin	-	5.50%	
			0.23%	0.0026	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	0.14%	0.0016	0.11%	0.00128	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00032	Esters & resins	-	20.00%	
Wire	0.39%	0.0044	0.38%	0.0043	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.01%	0.0001	Palladium	7440-05-3	1.50%	
Solder Balls	29.04%	0.3311	28.61%	0.3261	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.29%	0.0033	Silver (Ag)	7440-22-4	1.00%	
			0.15%	0.0017	Copper (Cu)	7440-50-8	0.50%	
Substrate	13.69%	0.1560	4.38%	0.0499	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A
			9.31%	0.1061	Glass fiber	65997-17-3	68.00%	
Foil	6.22%	0.0710	5.10%	0.0582	Copper	7440-50-8	82.00%	
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			0.72%	0.0082	Barium Sulfate	7727-43-7	22.00%	
			0.10%	0.0011	Talc (containing no asbestiform fibers)	14807-96-6	3.00%	
			0.09%	0.0010	Trade secret ingredients	-	2.80%	

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