



Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com		Package: 324 ftBGA Total Device Weight 1.14 Grams			Package Code: <div style="border: 1px solid black; padding: 2px; display: inline-block;">FTN324</div>	Assembly: ASEM Size (mm): 19 x 19 Lead pitch (mm): 1.0 MSL: 3 Reflow max (°C): 260		
June, 2022					Products: <div style="border: 1px solid black; padding: 2px; display: inline-block;">XO</div>			
	% 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% 0.70% 2.32% 2.32% 0.14% 38.57%	0.0264 0.0079 0.0264 0.0264 0.0016 0.4397	Epoxy Resin A Epoxy Resin B Phenol Novolac Metal Hydroxide Carbon Black Silica Fused	- - 9003-35-4 - 1333-86-4 60676-86-0	5.00% 1.50% 5.00% 5.00% 0.30% 83.20%	Mold Compound: Sumitomo G750SE (ULA)
D/A Epoxy	0.14%	0.0016	0.11% 0.03%	0.00128 0.00032	Silver Esters & resins	7440-22-4 -	80.00% 20.00%	Die attach epoxy: Henkel (Ablebond) 2100A
Wire	0.39%	0.0044	0.38% 0.01%	0.0043 0.0001	Copper Palladium	7440-50-8 7440-05-3	98.50% 1.50%	0.8 mil diameter; 1 wire per solder ball
Solder Balls	29.04%	0.3311	28.03% 0.87% 0.15%	0.3195 0.0099 0.0017	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	96.50% 3.00% 0.50%	SAC305
Substrate	13.69%	0.1560	4.38% 9.31%	0.0499 0.1061	BT Resins Glass fiber	- 65997-17-3	32.00% 68.00%	BT Resin CCL-HL832NX-A
Foil	6.22%	0.0710	5.10% 0.94% 0.18%	0.0582 0.0107 0.0021	Copper Nickel plating Gold plating	7440-50-8 7440-02-0 7440-57-5	82.00% 15.10% 2.91%	
Solder Mask	3.29%	0.0375	1.85% 0.53% 0.72% 0.10% 0.09%	0.0211 0.0060 0.0082 0.0011 0.0010	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: 324 ftBGA		Total Device Weight 1.14 Grams		Products: XO				
June, 2022								
	% 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	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%	
			0.94%	0.0107	Nickel	7440-02-0	15.10%	
			0.18%	0.0021	Gold	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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