



Device Material Content

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

Assembly: ASEM
Size (mm): 17 x 17

Package: 256 ftBGA (v.1)
Total Device Weight 0.705 Grams

Package Code: **FTN256**
Products: XO, XP2

Lead pitch (mm): 1.0
MSL: 3
Reflow max (°C): 260

December-18

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.00%	0.0071	1.00%	0.0071	Silicon chip	7440-21-3	100.00%	Die size: 5.1 x 4.9 x 0.228 mm
Mold Compound	55.89%	0.3940	3.91%	0.0276	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G750SE (ULA)
			2.79%	0.0197	Phenol Novolac	9003-35-4	5.00%	
			2.79%	0.0197	Metal Hydroxide	-	5.00%	
			0.28%	0.0020	Carbon Black	1333-86-4	0.50%	
			46.11%	0.3251	Silica Fused	60676-86-0	82.50%	
D/A Epoxy	0.16%	0.0011	0.13%	0.00090	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00023	Esters & resins	-	20.00%	
Wire	0.49%	0.0035	0.48%	0.0034	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	13.78%	0.0971	13.30%	0.0937	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.41%	0.0029	Silver (Ag)	7440-22-4	3.00%	
			0.07%	0.0005	Copper (Cu)	7440-50-8	0.50%	
Substrate	13.11%	0.0924	4.20%	0.0296	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			8.91%	0.0628	Glass Fiber	65997-17-3	68.00%	
Foil	7.43%	0.0524	6.01%	0.0424	Copper	7440-50-8	80.89%	
			1.37%	0.0096	Nickel plating	7440-02-0	18.38%	
			0.05%	0.0004	Gold plating	7440-57-5	0.73%	
Solder Mask	8.15%	0.0575	4.43%	0.0312	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.60%	0.0042	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.27%	0.0019	Morpholine derivative	71868-10-5	3.32%	
			0.24%	0.0017	Silicon dioxide	7631-86-9	3.00%	
			0.24%	0.0017	Silica, amorphous	112945-52-5	3.00%	
			0.02%	0.0001	Carbon Black	1333-86-4	0.24%	
			2.34%	0.0165	Trade secret ingredients	-	28.74%	

Notes: * max. concentration of Bisphenol A (CAS# 80-05-7): 0.13% of article weight
BPA contained in substrate core 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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Device Material Content

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Assembly: ASET
Size (mm): 17 x 17

Package: 256 ftBGA (v.1)
Total Device Weight: 0.705 Grams

Package Code: FTN256
Products: XO, XP2

Lead pitch (mm): 1.0
MSL: 3
Reflow max (°C): 260

December-18

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.00%	0.0071	1.00%	0.0071	Silicon chip	7440-21-3	100.00%	Die size: 5.1 x 4.9 x 0.228 mm
Mold Compound	55.89%	0.3940	48.90%	0.3448	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G2250 series
			3.63%	0.0256	Epoxy resin	-	6.50%	
			3.07%	0.0217	Phenol Resin	-	5.50%	
			0.28%	0.0020	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	0.16%	0.0011	0.13%	0.00090	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00023	Esters & resins	-	20.00%	
Wire	0.49%	0.0035	0.48%	0.0034	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	13.78%	0.0971	13.57%	0.0957	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.14%	0.0010	Silver (Ag)	7440-22-4	1.00%	
			0.07%	0.0005	Copper (Cu)	7440-50-8	0.50%	
Substrate	13.11%	0.0924	4.20%	0.0296	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			8.91%	0.0628	Glass Fiber	65997-17-3	68.00%	
Foil	7.43%	0.0524	6.01%	0.0424	Copper	7440-50-8	80.89%	
			1.37%	0.0096	Nickel plating	7440-02-0	18.38%	
			0.05%	0.0004	Gold plating	7440-57-5	0.73%	
Solder Mask	8.15%	0.0575	4.43%	0.0312	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.60%	0.0042	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.27%	0.0019	Morpholine derivative	71868-10-5	3.32%	
			0.24%	0.0017	Silicon dioxide	7631-86-9	3.00%	
			0.24%	0.0017	Silica, amorphous	112945-52-5	3.00%	
			0.02%	0.0001	Carbon Black	1333-86-4	0.24%	
			2.34%	0.0165	Trade secret ingredients	-	28.74%	

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Package: 256 ftBGA (v.1)
Total Device Weight: 0.705 Grams

Package Code: FTN256
Products: XO, XP2

Assembly: ATP
Size (mm): 17 x 17
Lead pitch (mm): 1.0
MSL: 3
Reflow max (°C): 260

December-18

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.00%	0.0071	1.00%	0.0071	Silicon chip	7440-21-3	100.00%	Die size: 5.1 x 4.9 x 0.228 mm
Mold Compound	55.89%	0.3940	3.91%	0.0276	Solid Epoxy Resin	-	7.00%	Mold Compound: Hitachi (Nitto) GE-110LS-V
			2.79%	0.0197	Phenol Resin	-	5.00%	
			47.51%	0.3349	Silica	60676-86-0	85.00%	
			1.40%	0.0099	Metal Hydroxide	-	2.50%	
			0.28%	0.0020	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	0.16%	0.0011	0.13%	0.00090	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00023	Esters & resins	-	20.00%	
Wire	0.49%	0.0035	0.48%	0.0034	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	13.78%	0.0971	13.16%	0.0928	Tin (Sn)	7440-31-5	95.50%	SAC405
			0.55%	0.0039	Silver (Ag)	7440-22-4	4.00%	
			0.07%	0.0005	Copper (Cu)	7440-50-8	0.50%	
Substrate	13.11%	0.0924	4.20%	0.0296	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			8.91%	0.0628	Glass Fiber	65997-17-3	68.00%	
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