



## Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@latticesemi.com">custreq@latticesemi.com</a>		<b>Package Code:</b> <b>FTN256</b>			Assembly: ASEM Size (mm): 17 x 17 Lead pitch (mm): 1.0 MSL: 3 Reflow max (°C): 260			
<b>Package:</b> 256 ftBGA (v.1) <b>Total Device Weight:</b> 0.705 Grams		<b>Products:</b> XO, XP2						
October, 2020								
	% 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	55.88%	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%	
			46.10%	0.3250	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	4.58%	0.0323	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			1.30%	0.0092	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			1.79%	0.0126	Barium Sulfate	7727-43-7	22.00%	
			0.24%	0.0017	Talc	14807-96-6	3.00%	
			0.04%	0.0003	Naphthalene	91-20-3	0.50%	
			0.19%	0.0013	Trade secret ingredients	-	2.30%	

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

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

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

October, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	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
<b>Mold Compound</b>	55.88%	0.3940	48.90%	0.3447	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%	
<b>D/A Epoxy</b>	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%	
<b>Wire</b>	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%	
<b>Solder Balls</b>	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%	
<b>Substrate</b>	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%	
<b>Foil</b>	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%	
<b>Solder Mask</b>	8.15%	0.0575	4.58%	0.0323	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			1.30%	0.0092	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			1.79%	0.0126	Barium Sulfate	7727-43-7	22.00%	
			0.24%	0.0017	Talc	14807-96-6	3.00%	
			0.04%	0.0003	Naphthalene	91-20-3	0.50%	
			0.19%	0.0013	Trade secret ingredients	-	2.30%	

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Rev. R



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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

October, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	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
<b>Mold Compound</b>	55.88%	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%	
			47.50%	0.3349	Silica	60676-86-0	85.00%	
			1.40%	0.0098	Metal Hydroxide	-	2.50%	
			0.28%	0.0020	Carbon Black	1333-86-4	0.50%	
<b>D/A Epoxy</b>	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%	
<b>Wire</b>	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%	
<b>Solder Balls</b>	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%	
<b>Substrate</b>	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%	
<b>Foil</b>	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%	
<b>Solder Mask</b>	8.15%	0.0575	4.58%	0.0323	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			1.30%	0.0092	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			1.79%	0.0126	Barium Sulfate	7727-43-7	22.00%	
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