



## Device Material Content

5555 NE Moore Ct.  
Hillsboro OR 97124  
[custreq@latticesemi.com](mailto:custreq@latticesemi.com)

Assembly: ASEM  
Size (mm): 14 x 14  
Lead pitch (mm): 0.8  
MSL: 3  
Reflow max (°C): 260

**Package:** 256 caBGA  
**Total Device Weight:** 0.532 Grams

**Package Code:** BG256

**Products:** XO2, XO3, ECP5

May, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	1.74%	0.0093	1.74%	0.0093	Silicon chip	7440-21-3	100.00%	Die size: 3.53 x 4.17 mm
<b>Mold Compound</b>	51.18%	0.2723	3.58%	0.0191	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G750SE (ULA)
			2.56%	0.0136	Phenol Novolac	9003-35-4	5.00%	
			2.56%	0.0136	Metal hydroxide	-	5.00%	
			0.26%	0.0014	Carbon Black	1333-86-4	0.50%	
			42.23%	0.2246	Silica Fused	60676-86-0	82.50%	
<b>D/A Epoxy</b>	0.28%	0.0015	0.22%	0.00120	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.06%	0.00030	Epoxy Resin	-	20.00%	
<b>Wire</b>	0.65%	0.0035	0.64%	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>	18.26%	0.0971	17.62%	0.0937	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.55%	0.0029	Silver (Ag)	7440-22-4	3.00%	
			0.09%	0.0005	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	17.53%	0.0933	5.44%	0.0289	BT Resins	-	31.00%	BT Resin CCL-HL832NX-A*
			11.92%	0.0634	Glass fiber	65997-17-3	68.00%	
			0.18%	0.0009	Bisphenol A	80-05-7	1.00%	
<b>Foil</b>	6.17%	0.0328	4.82%	0.0256	Copper	7440-50-8	78.16%	
			1.13%	0.0060	Nickel plating	7440-02-0	18.31%	
			0.22%	0.0012	Gold plating	7440-57-5	3.53%	
<b>Solder Mask</b>	4.18%	0.0222	2.35%	0.0125	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.67%	0.0036	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			0.92%	0.0049	Barium Sulfate	7727-43-7	22.00%	
			0.13%	0.0007	Talc	14807-96-6	3.00%	
			0.02%	0.0001	Naphthalene	91-20-3	0.50%	
			0.10%	0.0005	Trade secret ingredients	-	2.30%	

**Notes:** SVHC: \* 0.18% 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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Assembly: ASEK  
Size (mm): 14 x 14  
Lead pitch (mm): 0.8  
MSL: 3  
Reflow max (°C): 260

**Package:** 256 caBGA  
**Total Device Weight:** 0.532 Grams

**Package Code:** BG256

**Products:** XO2

May, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	1.74%	0.0093	1.74%	0.0093	Silicon chip	7440-21-3	100.00%	Die size: 3.53 x 4.17 mm
<b>Mold Compound</b>	51.18%	0.2723	44.78%	0.2383	Silica Epoxy resin Phenol Resin Carbon Black	60676-86-0	87.50%	Kyocera KE-G2250 series (ULA)
			3.33%	0.0177		-	6.50%	
			2.82%	0.0150		-	5.50%	
			0.26%	0.0014		1333-86-4	0.50%	
<b>D/A Epoxy</b>	0.28%	0.0015	0.22%	0.00120	Silver Epoxy Resin	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.06%	0.00030		-	20.00%	
<b>Wire</b>	0.65%	0.0035	0.64%	0.0034	Copper Palladium	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.01%	0.0001		7440-05-3	1.50%	
<b>Solder Balls</b>	18.26%	0.0971	17.99%	0.0957	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.18%	0.0010	Silver (Ag)	7440-22-4	1.00%	
			0.09%	0.0005	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	17.53%	0.0933	5.61%	0.0298	BT Resins Glass fiber	-	32.00%	BT Resin CCL-HL832NX-A*
			11.92%	0.0634		65997-17-3	68.00%	
<b>Foil</b>	6.17%	0.0328	4.82%	0.0256	Copper Nickel plating Gold plating	7440-50-8	78.16%	
			1.13%	0.0060		7440-02-0	18.31%	
			0.22%	0.0012		7440-57-5	3.53%	
<b>Solder Mask</b>	4.18%	0.0222	2.35%	0.0125	Quartz 3-methoxy-3-methylbutylacetate Barium Sulfate Talc Naphthalene Trade secret ingredients	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.67%	0.0036		103429-90-9	16.00%	
			0.92%	0.0049		7727-43-7	22.00%	
			0.13%	0.0007		14807-96-6	3.00%	
			0.02%	0.0001		91-20-3	0.50%	
			0.10%	0.0005		-	2.30%	

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**Package Code:** BG256

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May, 2020

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<b>Mold Compound</b>	51.18%	0.2723	3.58%	0.0191	Solid Epoxy Resin	-	7.00%	Mold Compound: Hitachi GE-110LS-V (ULA)
			2.56%	0.0136	Phenol Resin	-	5.00%	
			43.50%	0.2314	Silica	60676-86-0	85.00%	
			1.28%	0.0068	Metal Hydroxide	-	2.50%	
			0.26%	0.0014	Carbon Black	1333-86-4	0.50%	
<b>D/A Epoxy</b>	0.28%	0.0015	0.22%	0.00120	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2300
			0.06%	0.00030	Esters & resins	-	20.00%	
<b>Wire</b>	0.65%	0.0035	0.64%	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%	
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