



Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com				Package Code: MG132		Assembly: ASEM Size (mm): 8 x 8 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 250		
Package: 132 csBGA		Total Device Weight 0.124 Grams		Products: XO2				
June, 2022								
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	6.93%	0.0086	6.93%	0.0086	Silicon chip	7440-21-3	100.00%	Die size: 4.71 x 2.90 mm
Mold Compound	56.76%	0.0704	2.84% 0.85% 2.84% 2.84% 0.17% 47.22%	0.0035 0.0011 0.0035 0.0035 0.0002 0.0586	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	1.12%	0.0014	0.90% 0.22%	0.00111 0.00028	Silver Esters & resins	7440-22-4 -	80.00% 20.00%	Die attach epoxy: Henkel (Ablebond) 2100A
Wire	1.44%	0.0018	1.42% 0.02%	0.00176 0.00003	Copper Palladium	7440-50-8 7440-05-3	98.50% 1.50%	0.8 mil diameter; 1 wire per solder ball
Solder Balls	11.20%	0.0139	10.81% 0.34% 0.06%	0.0134 0.0004 0.0001	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	96.50% 3.00% 0.50%	SAC305
Substrate	14.65%	0.0182	4.69% 9.96%	0.0058 0.0124	BT Resins Glass fiber	- 65997-17-3	32.00% 68.00%	BT Resin CCL-HL832NX-A
Foil	5.48%	0.0068	4.63% 0.81% 0.04%	0.0057 0.0010 0.0001	Copper Nickel Gold	7440-50-8 7440-02-0 7440-57-5	84.57% 14.70% 0.74%	
Solder Mask	2.42%	0.0030	1.36% 0.39% 0.53% 0.07% 0.07%	0.00169 0.00048 0.00066 0.00009 0.00008	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: 132 csBGA		Total Device Weight 0.124 Grams		Products: XO2				
June, 2022								
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	6.93%	0.0086	6.93%	0.0086	Silicon chip	7440-21-3	100.00%	Die size: 4.71 x 2.90 mm
Mold Compound	56.76%	0.0704	49.66%	0.0616	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G2250 series (ULA)
			3.69%	0.0046	Epoxy resin	-	6.50%	
			3.12%	0.0039	Phenol Resin	-	5.50%	
			0.28%	0.0004	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	1.12%	0.0014	0.90%	0.00111	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.22%	0.00028	Esters & resins	-	20.00%	
Wire	1.44%	0.0018	1.42%	0.0018	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.02%	0.0000	Palladium	7440-05-3	1.50%	
Solder Balls	11.20%	0.0139	11.04%	0.0137	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.11%	0.0001	Silver (Ag)	7440-22-4	1.00%	
			0.06%	0.0001	Copper (Cu)	7440-50-8	0.50%	
Substrate	14.65%	0.0182	4.69%	0.0058	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A
			9.96%	0.0124	Glass fiber	65997-17-3	68.00%	
Foil	5.48%	0.0068	4.63%	0.0057	Copper	7440-50-8	84.57%	
			0.81%	0.0010	Nickel	7440-02-0	14.70%	
			0.04%	0.0001	Gold	7440-57-5	0.74%	
Solder Mask	2.42%	0.0030	1.36%	0.00169	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.39%	0.00048	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			0.53%	0.00066	Barium Sulfate	7727-43-7	22.00%	
			0.07%	0.00009	Talc (containing no asbestiform fibers)	14807-96-6	3.00%	
			0.07%	0.00008	Trade secret ingredients	-	2.80%	

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