



Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com	Package: 132 csBGA Total Device Weight 0.124 Grams	Package Code: <div style="border: 1px solid black; padding: 2px; display: inline-block; background-color: #e0e0e0;">MN132</div> Products: <div style="border: 1px solid black; padding: 2px; display: inline-block;">LC4kZE, XO, XP2</div>	Assembly: ASEM Size (mm): 8 x 8 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 260
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January, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	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	49.38%	0.0612	Silica	60676-86-0	87.00%	Mold Compound: Sumitomo EME-G750SE
			2.84%	0.0035	Epoxy Resin	-	5.00%	
			2.84%	0.0035	Phenol Resin	-	5.00%	
			1.56%	0.0019	Metal Hydroxide	-	2.75%	
			0.14%	0.0002	Carbon Black	1333-86-4	0.25%	
D/A Epoxy	1.12%	0.0014	0.90%	0.00111	Silver (Ag)	7440-22-4	80.00%	Die attach: Ablebond 2100A
			0.22%	0.00028	Organic esters and resins	-	20.00%	
Wire	1.44%	0.0018	1.41%	0.0018	Copper (Cu)	7440-50-8	97.90%	MKE Cu wire(Pd coated), 0.02mm dia
			0.03%	0.0000	Palladium (Pd)	7440-05-3	2.10%	
Solder Balls	11.20%	0.0139	10.81%	0.0134	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.34%	0.0004	Silver (Ag)	7440-22-4	3.00%	
			0.06%	0.0001	Copper (Cu)	7440-50-8	0.50%	
Substrate	14.66%	0.0182	4.69%	0.0058	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			9.97%	0.0124	Glass fiber	65997-17-3	68.00%	
Foil	5.48%	0.0068	4.63%	0.0057	Copper	7440-50-8	84.56%	
			0.80%	0.0010	Nickel plating	7440-02-0	14.70%	
			0.04%	0.0001	Gold plating	7440-57-5	0.74%	
Solder Mask	2.41%	0.0030	1.31%	0.00163	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.18%	0.00022	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.08%	0.00010	Morpholine derivative**	71868-10-5	3.32%	
			0.07%	0.00009	Silicon dioxide	7631-86-9	3.00%	
			0.07%	0.00009	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.00001	Carbon black	1333-86-4	0.24%	
			0.69%	0.00086	Trade secret ingredients	-	28.74%	

Notes: SVHC: * 0.15% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.
 ** 0.08% max. concentration of Morpholine derivative (CAS# 71868-10-5), contained in solder mask material.

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.
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5555 NE Moore Ct. Hillsboro OR 97124 custreq@latticesemi.com				Package Code: MN132			Assembly: ASEK Size (mm): 8 x 8 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 260		
Package: 132 csBGA		Total Device Weight 0.1240 Grams		Products: XO, XP2					
January, 2020									
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:	
Die	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 (Ag)	7440-22-4	80.00%	Die attach: Ablebond 2100A	
			0.22%	0.00028	Organic esters and resins	-	20.00%		
Wire	1.44%	0.0018	1.42%	0.0018	Copper (Cu)	7440-50-8	98.50%	Pd coated Copper, 0.8 mil diameter	
			0.02%	0.0000	Palladium (Pd)	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	14.66%	0.0182	4.69%	0.0058	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*	
			9.97%	0.0124	Glass fiber	65997-17-3	68.00%		
Foil	5.48%	0.0068	4.63%	0.0057	Copper	7440-50-8	84.56%		
			0.80%	0.0010	Nickel plating	7440-02-0	14.70%		
			0.04%	0.0001	Gold plating	7440-57-5	0.74%		
Solder Mask	2.41%	0.0030	1.31%	0.00163	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308	
			0.18%	0.00022	Dipropylene glycol monomethyl ether	34590-94-8	7.33%		
			0.08%	0.00010	Morpholine derivative**	71868-10-5	3.32%		
			0.07%	0.00009	Silicon dioxide	7631-86-9	3.00%		
			0.07%	0.00009	Silica, amorphous	112945-52-5	3.00%		
			0.01%	0.00001	Carbon black	1333-86-4	0.24%		
			0.69%	0.00086	Trade secret ingredients	-	28.74%		

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Assembly: ATP

Size (mm): 8 x 8

Lead pitch (mm): 0.5

MSL: 3

Reflow max (°C): 260

January, 2020

Package: 132 csBGA
Total Device Weight 0.1240 Grams

Package Code:

MN132

Products:

XO, XP2

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	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	3.97%	0.0049	Solid Epoxy Resin	-	7.00%	Mold Compound: Hitachi GE-110LS-V (ULA)
			2.84%	0.0035	Phenol Resin	-	5.00%	
			48.24%	0.0598	Silica	60676-86-0	85.00%	
			1.42%	0.0018	Metal Hydroxide	-	2.50%	
			0.28%	0.0004	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	1.12%	0.0014	0.90%	0.00111	Silver (Ag)	7440-22-4	80.00%	Die attach: Ablebond 2300
			0.22%	0.00028	Organic esters and resins	-	20.00%	
Wire	1.44%	0.0018	1.42%	0.0018	Copper (Cu)	7440-50-8	98.50%	Pd coated Copper, 0.8 mil diameter
			0.02%	0.0000	Palladium (Pd)	7440-05-3	1.50%	
Solder Balls	11.20%	0.0139	11.04%	0.0137	Tin (Sn)	7440-31-5	98.50%	SAC105
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Rev. P