



## Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@latticesemi.com">custreq@latticesemi.com</a>		<b>Package: 381 caBGA</b> <b>Total Device Weight 1.020 Grams</b>			<b>Package Code:</b> <b>BG381</b>	Assembly: ASEM Size (mm): 17 x 17 Lead pitch (mm): 0.8 MSL: 3 Reflow max (°C): 260		
<b>October, 2020</b>					<b>Products:</b> LAE5			
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.54%	0.0157	1.54%	0.0157	Silicon chip	7440-21-3	100.00%	Die size: 5.02 x 5.42mm
Mold Compound	42.22%	0.4306	2.11% 0.63% 2.11% 2.11% 0.13% 35.13%	0.0215 0.0065 0.0215 0.0215 0.0013 0.3583	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	0.22%	0.0023	0.18% 0.04%	0.00183 0.00046	Silver Esters & resins	7440-22-4 -	80.00% 20.00%	Die attach epoxy: Henkel (Ablebond) 2100A
Wire	0.65%	0.0067	0.65% 0.01%	0.0066 0.0001	Gold Palladium	7440-57-5 7440-05-3	99.00% 1.00%	0.8 mil diameter; 1 wire per solder ball
Solder Balls	9.31%	0.0949	8.98% 0.28% 0.05%	0.0916 0.0028 0.0005	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	96.50% 3.00% 0.50%	SAC305
Substrate	29.43%	0.3002	9.42% 20.02%	0.0961 0.2041	BT Resins Glass fiber	- 65997-17-3	32.00% 68.00%	BT Resin CCL-HL832NX-A
Foil	11.68%	0.1191	9.95% 1.64% 0.08%	0.1015 0.0168 0.0008	Copper Nickel plating Gold plating	7440-50-8 7440-02-0 7440-57-5	85.21% 14.08% 0.71%	
Solder Mask	4.93%	0.0503	2.77% 0.79% 1.08% 0.15% 0.02% 0.11%	0.0283 0.0080 0.0111 0.0015 0.0003 0.0012	Quartz 3-methoxy-3-methylbutylacetate Barium Sulfate Talc Naphthalene Trade secret ingredients	14808-60-7 103429-90-9 7727-43-7 14807-96-6 91-20-3 -	56.20% 16.00% 22.00% 3.00% 0.50% 2.30%	Solder mask PSR4000 AUS 308

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