



## Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@latticesemi.com">custreq@latticesemi.com</a>  March, 2021		<b>Package:</b> I21 csfBGA <b>Total Device Weight:</b> 70.07 Milligrams			<b>Package Code:</b> <span style="border: 1px solid black; padding: 2px;">MG121</span> <b>Products:</b> <span style="border: 1px solid black; padding: 2px;">LIFCL-17</span>	Assembly: ASEK Size (mm): 6 x 6 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 260		
	% of Total Pkg. Wt.	Weight (mg)	% of Total Pkg. Wt.	Weight (mg)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	10.24%	7.174	10.24%	7.1740	Silicon chip	7440-21-3	100.00%	Die size: 4.085 x 3.767mm
Mold Compound	34.73%	24.338	4.17% 1.74% 26.05% 2.61% 0.17%	2.9206 1.2169 18.2535 1.8254 0.1217	Epoxy Resins Phenol Resins Silica(Amorphous) Aluminum Hydroxide Carbon Black	- - 7631-86-9 21645-51-2 1333-86-4	12.00% 5.00% 75.00% 7.50% 0.50%	Hitachi G311SAC
Substrate	11.61%	8.133	3.71% 7.89%	2.6026 5.5304	BT Resins Glass fiber	- 65997-17-3	32.00% 68.00%	MGC CCL-HL832NS
Foil	19.82%	13.891	19.82% 0.01%	13.8861 0.0042	Copper (Cu) OSP	7440-50-8 -	99.97% 0.03%	
Solder Mask	1.02%	0.716	0.24% 0.06% 0.15% 0.15% 0.18% 0.15% 0.09%	0.1684 0.0421 0.1053 0.1053 0.1262 0.1053 0.0636	Solvent naphtha (petroleum) Naphthalene Phosphin oxide derivative Talc (containing no asbestiform fibers) Dipropylene glycol monomethyl Ether Epoxy Resin Barium Sulfate	64742-94-5 91-20-3 - 14807-96-6 34590-94-8 85954-11-6 7727-43-7	23.52% 5.87% 14.70% 14.70% 17.63% 14.70% 8.88%	PFR800 AUS 320
Bump	1.73%	1.214	0.62% 0.01% 0.66% 0.44%	0.4350 0.0080 0.4610 0.3100	Tin (Sn) Silver (Ag) Nickel (Ni) Copper (Cu)	7440-31-5 7440-22-4 7440-02-0 7440-50-8	35.83% 0.66% 37.97% 25.54%	
RDL	1.04%	0.727	0.11% 0.93%	0.0780 0.6490	Titanium (Ti) Copper (Cu)	7440-32-6 7440-50-8	10.73% 89.27%	
UBM	0.55%	0.387	0.11% 0.44%	0.0780 0.3090	Titanium (Ti) Copper (Cu)	7440-32-6 7440-50-8	20.16% 79.84%	
Repassivation polyimide	0.11%	0.078	0.061% 0.006% 0.001% 0.044%	0.0429 0.0039 0.0004 0.0308	N-Methyl-2-pyrrolidone Proprietary Monomer Methanol Non regulated ingredients	872-50-4 - 67-56-1 -	55.00% 5.00% 0.50% 39.50%	HD4000E
Solder Balls	19.14%	13.410	18.47% 0.57% 0.10%	12.9407 0.4023 0.0671	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	96.50% 3.00% 0.50%	SAC305

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