



## Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@latticesemi.com">custreq@latticesemi.com</a>		<b>Package:</b> <b>81 csfBGA</b> <b>Total Device Weight</b> <b>35.82</b> <b>Milligrams (mg)</b>		<b>Package Code:</b> <b>MG81</b> <b>Products:</b> LIF-MD6000		<b>Assembly:</b> ASEK Size (mm): 4.5 x 4.5 Lead pitch (mm): 0.5 MSL: 3 Reflow max (°C): 260			
November, 2020									
	% of Total Pkg. Wt.	Weight (mg)	% of Total Pkg. Wt.	Weight (mg)	Substance	CAS #	% of Subst.	Notes / Assumptions:	
Die	14.59%	5.225	14.59%	5.225	Silicon chip	7440-21-3	100.00%	Die size: 2.0 x 2.0 x 0.177mm	
Mold Compound	49.52%	17.737	3.06%	1.0961	Epoxy resins	-	6.18%	Sumitomo EME-G311SA Type C	
			2.80%	1.0039	Phenol resins	-	5.66%		
			1.40%	0.5020	Metal Hydroxide	-	2.83%		
			2.57%	0.9206	Carbon Black	1333-86-4	5.19%		
			32.69%	11.7082	Silica fused	60676-86-0	66.01%		
			7.00%	2.5080	Silica fused	7631-86-9	14.14%		
Substrate	6.66%	2.3849	2.06%	0.7393	Thermosetting resin	-	32.00%	MGC CCL-HL832NS	
			4.53%	1.6217	Continuous Filament Glass	-	68.00%		
Solder Mask	1.15%	0.4130	0.125%	0.0448	Diethylene glycol monoethyl ether acetate	112-15-2	10.85%	PFR800 Aus410	
			0.002%	0.0008	Phthalocyanine blue	147-14-8	0.19%		
			0.036%	0.0129	Talc (containing no asbestiform fibers)	14807-96-6	3.13%		
			0.062%	0.0222	Dipropylene glycol monomethyl ether	34590-94-8	5.36%		
			0.113%	0.0406	Solvent naphtha(petroleum), Heavy arom.	64742-94-5	9.83%		
			0.009%	0.0032	Silica, amorphous	7631-86-9	0.78%		
			0.164%	0.0586	Barium sulfate	7727-43-7	14.19%		
			0.018%	0.0066	Dipropylene glycol monomethyl ether acetate	88917-22-0	1.59%		
			0.009%	0.0033	Naphthalene (Carc. Cat. 3 ; R40 )	91-20-3	0.81%		
			0.007%	0.0025	Deionized water	7732-18-5	0.59%		
			0.607%	0.2175	Other (Trade secret)	-	52.67%		
Foil	10.63%	3.8073	10.623%	3.8050	Copper	7440-50-8	99.94%		
			0.006%	0.0023	OSP	-	0.06%		
Repassivation polyimide	0.07%	0.024	0.037%	0.0132	N-Methyl-2-pyrrolidone	872-50-4	55.00%	HD4000E	
			0.0034%	0.0012	Proprietary Monomer	-	5.0%		
			0.0003%	0.0001	Methanol	67-56-1	0.50%		
			0.026%	0.0095	Non regulated ingredients	-	39.50%		
UBM	0.04%	0.016	0.009%	0.0032	Titanium (Ti)	7440-32-6	20.25%		
			0.036%	0.0128	Copper (Cu)	7440-50-8	79.75%		
Bump	3.81%	1.363	3.072%	1.1002	Tin (Sn)	7440-31-5	80.72%		
			0.056%	0.0202	Silver (Ag)	7440-22-4	1.48%		
			0.537%	0.1922	Nickel (Ni)	7440-02-0	14.10%		
			0.141%	0.0506	Copper (Cu)	7440-50-8	3.71%		
Solder Balls	13.54%	4.851	13.306%	4.7661	Tin (Sn)	7440-31-5	98.25%	Sn0.9825Ag1.2Cu0.5Ni0.05	
			0.163%	0.0582	Silver (Ag)	7440-22-4	1.20%		
			0.068%	0.0243	Copper (Cu)	7440-50-8	0.50%		
			0.007%	0.0024	Nickel (Ni)	7440-02-0	0.05%		

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