



## Device Material Content

5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@latticesemi.com">custreq@latticesemi.com</a>				<b>Package Code:</b> <b>CM49</b>			Assembly: ASEM Size (mm): 3 x 3 Lead pitch (mm): 0.4 MSL: 3 Reflow max (°C): 260		
<b>Package:</b> <b>49 ucBGA</b>		<b>Total Device Weight</b> <b>0.015 Grams</b>		<b>Products:</b> <b>ICE40LP</b>					
<b>June, 2022</b>									
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:	
Die	8.59%	0.00129	8.59%	0.0013	Silicon chip	7440-21-3	100.00%	Die size: 1.50 x 1.50mm	
Mold Compound	55.74%	0.00836	48.77%	0.00732	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G1250LKDS	
			3.62%	0.00054	Epoxy resin	-	6.50%		
			3.07%	0.00046	Phenol Resin	-	5.50%		
			0.28%	0.00004	Carbon Black	1333-86-4	0.50%		
D/A Tape	0.42%	0.00006	0.34%	0.00005	Silver	7440-22-4	80.00%	Hitachi FH-900 HR-9004 series	
			0.08%	0.00001	Esters & resins	-	20.00%		
Wire	0.54%	0.00008	0.53%	0.000080	Copper	7440-50-8	98.50%	0.7 MIL Pd coated	
			0.01%	0.000001	Palladium	7440-05-3	1.50%		
Solder Balls	2.79%	0.00042	2.75%	0.000412	Tin (Sn)	7440-31-5	98.50%	SAC105	
			0.03%	0.000004	Silver (Ag)	7440-22-4	1.00%		
			0.01%	0.000002	Copper (Cu)	7440-50-8	0.50%		
Substrate	15.23%	0.0023	4.87%	0.00073	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A	
			10.36%	0.00155	Glass fiber	65997-17-3	68.00%		
Foil	12.12%	0.0018	9.67%	0.00145	Copper	7440-50-8	79.78%		
			2.25%	0.00034	Nickel	7440-02-0	18.58%		
			0.20%	0.00003	Gold	7440-57-5	1.64%		
Solder Mask	4.57%	0.0007	2.57%	0.00039	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308	
			0.73%	0.00011	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%		
			1.01%	0.000151	Barium Sulfate	7727-43-7	22.00%		
			0.14%	0.000021	Talc (containing no asbestiform fibers)	14807-96-6	3.00%		
			0.13%	0.000019	Trade secret ingredients	-	2.80%		

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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5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@latticesemi.com">custreq@latticesemi.com</a>	<b>Package:</b> 49 ucBGA <b>Total Device Weight</b> 26.19 Milligrams	<b>Package Code:</b> <b>CM49</b> <b>Products:</b> ICE40LM	Assembly: ASEK Size (mm): 3 x 3 Lead pitch (mm): 0.4 MSL: 3 Reflow max (°C): 260
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	% of Total Pkg. Wt.	Weight (mg)	% of Total Pkg. Wt.	Weight (mg)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	2.56%	0.670	2.56%	0.670	Silicon chip	7440-21-3	100.00%	Die size: 1.68 x 1.68mm
Mold Compound	66.64%	17.453	58.31%	15.271	Silica	60676-86-0	87.50%	Mold Compound: KE-G1250AAS (ULA)
			4.33%	1.134	Epoxy resin	-	6.50%	
			3.67%	0.960	Phenol Resin	-	5.50%	
			0.33%	0.087	Carbon Black	1333-86-4	0.50%	
D/A Epoxy	0.95%	0.249	0.49%	0.130	SiO2 Filler	99439-28-8	52.00%	Hitachi FH-SC13T-HR-5104
			0.13%	0.035	Acrylic Copolymer	-	14.00%	
			0.06%	0.015	Epoxy resin A	-	6.00%	
			0.13%	0.035	Epoxy resin B	-	14.00%	
			0.13%	0.035	Phenol Resin	-	14.00%	
Wire	1.79%	0.469	1.73%	0.453	Copper	7440-50-8	96.60%	0.7 Mil CuPdAu+
			0.06%	0.015	Palladium	7440-05-3	3.10%	
			0.01%	0.001	Gold	7440-57-5	0.30%	
Solder Balls	8.97%	2.349	8.83%	2.314	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.09%	0.023	Silver (Ag)	7440-22-4	1.00%	
			0.04%	0.012	Copper (Cu)	7440-50-8	0.50%	
Substrate	6.24%	1.634	2.00%	0.523	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A
			4.24%	1.111	Glass fiber	65997-17-3	68.00%	
Foil	11.46%	3.000	11.46%	3.000	Copper	7440-50-8	100.00%	
Solder Mask	1.40%	0.367	0.79%	0.206	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.22%	0.059	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			0.31%	0.081	Barium Sulfate	7727-43-7	22.00%	
			0.04%	0.011	Talc (containing no asbestiform fibers)	14807-96-6	3.00%	
			0.04%	0.010	Trade secret ingredients	-	2.80%	

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