



Device Material Content

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Assembly: ASEM

Size (mm): 5 x 5

Lead pitch (mm): 0.4

MSL: 3

Reflow max (°C): 260

Package Code:

CM121

Products:

ICE40LP

Package: 121 ucBGA

Total Device Weight 41.84 Milligrams

June, 2020

	% of Total Pkg. Wt.	Weight (mg)	% of Total Pkg. Wt.	Weight (mg)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	3.10%	1.298	3.10%	1.298	Silicon chip	7440-21-3	100.00%	Die size: 1.5 x 1.5mm
Mold Compound	53.98%	22.585	47.23%	19.762	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KE-G1250 series
			3.51%	1.468	Epoxy resin	-	6.50%	
			2.97%	1.242	Phenol Resin	-	5.50%	
			0.27%	0.113	Carbon Black	1333-86-4	0.50%	
D/A Tape	0.15%	0.063	0.02%	0.009	Epoxy Resin	-	15.00%	Die Attach (tape): Hitachi FH-900 HR-9004 series
			0.02%	0.009	Phenol Resin	-	15.00%	
			0.01%	0.003	SiO2 Filler	99439-28-8	5.00%	
			0.10%	0.041	(Meta)Acrylic Copolymer	-	65.00%	
Wire	1.39%	0.582	1.35%	0.566	Copper	7440-50-8	97.30%	0.7 mil diameter; 1 wire per solder ball
			0.04%	0.016	Palladium	7440-05-3	2.70%	
Solder Balls	2.49%	1.042	2.45%	1.026	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.02%	0.010	Silver (Ag)	7440-22-4	1.00%	
			0.01%	0.005	Copper (Cu)	7440-50-8	0.50%	
Substrate	18.51%	7.7465	5.74%	2.4014	BT Resins	-	31.00%	BT Resin CCL-HL832NX-A*
			12.59%	5.2676	Glass fiber	65997-17-3	68.00%	
			0.19%	0.0775	Bisphenol A	80-05-7	1.00%	
Foil	14.81%	6.1962	11.76%	4.9193	Copper	7440-50-8	79.39%	
			2.78%	1.1615	Nickel plating	7440-02-0	18.75%	
			0.28%	0.1155	Gold plating	7440-57-5	1.86%	
Solder Mask	5.56%	2.3246	3.12%	1.3064	Quartz	14808-60-7	56.20%	Solder mask PSR4000 AUS 308
			0.89%	0.3719	3-methoxy-3-methylbutylacetate	103429-90-9	16.00%	
			1.22%	0.5114	Barium Sulfate	7727-43-7	22.00%	
			0.17%	0.0697	Talc	14807-96-6	3.00%	
			0.03%	0.0116	Naphthalene	91-20-3	0.50%	
			0.13%	0.0535	Trade secret ingredients	-	2.30%	

Notes: SVHC: * 0.19% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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