



Device Material Content

5555 NE Moore Ct.
Hillsboro OR 97124
custreq@latticesemi.com

Assembly: ASEM

Size (mm): 6 x 6

Lead pitch (mm): 0.5

MSL: 3

Reflow max (°C): 260

July, 2019

Package: 121 csBGA
Total Device Weight 0.057 Grams

Package Code:

CB121

Products:

ICE40LP

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	6.32%	0.00360	6.32%	0.0036	Silicon chip	7440-21-3	100.00%	Die size: 2.49 x 2.51 mm
Mold Compound	61.19%	0.0349	4.28%	0.0024	Epoxy Resin	-	7.00%	Mold Compound: Kyocera KE-G1250 series
			3.06%	0.0017	Phenol Novolac	9003-35-4	5.00%	
			3.06%	0.0017	Metal Hydroxide	-	5.00%	
			0.31%	0.0002	Carbon Black	1333-86-4	0.50%	
			50.48%	0.0288	Silica Fused	60676-86-0	82.50%	
D/A Tape	0.31%	0.00018	0.05%	0.00003	Epoxy Resin	-	15.00%	Die attach: Hitachi FH-900 HR-9004 series
			0.05%	0.00003	Phenol Resin	-	15.00%	
			0.02%	0.00001	SiO2 Filler	99439-28-8	5.00%	
			0.20%	0.00011	(Meta)Acrylic Copolymer	-	65.00%	
Wire	1.92%	0.0011	1.89%	0.00108	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.03%	0.00002	Palladium	7440-05-3	1.50%	
Solder Balls	1.82%	0.00104	1.79%	0.00102	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.02%	0.00001	Silver (Ag)	7440-22-4	1.00%	
			0.01%	0.00001	Copper (Cu)	7440-50-8	0.50%	
Substrate	18.48%	0.0105	5.9134%	0.0000	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			0.00%	0.0000	Glass fiber	65997-17-3	68.00%	
Foil	4.11%	0.0023	3.04485300%	0.0017	Copper	7440-50-8	74.07%	
			0.00%	0.0000	Nickel plating	7440-02-0	24.69%	
			0.00%	0.0000	Gold plating	7440-57-5	1.24%	
Solder Mask	5.84%	0.0033	3.17%	0.00181	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.43%	0.00024	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.19%	0.00011	Morpholine derivative	71868-10-5	3.32%	
			0.18%	0.00010	Silicon dioxide	7631-86-9	3.00%	
			0.18%	0.00010	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.00001	Carbon black	1333-86-4	0.24%	
			1.68%	0.00096	Trade secret ingredients	-	28.74%	

Notes: * 0.18% max. concentration (of total pkg wt.) of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.

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