



Device Material Content

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

Assembly: ASEM
Size (mm): 23 x 23

Package Code:

FN672

Lead pitch (mm): 1.0

Package: 672 fpBGA
Total Device Weight: 3.174 Grams

Products:

FE2, FE3, XP2

MSL: 3

Reflow max (°C): 250

January, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.33%	0.0422			Silicon chip	7440-21-3	100.00%	Die size: 8.79 x 8.31 mm
Mold Compound	36.81%	1.1686	2.58%	0.0818	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G750SE
			1.84%	0.0584	Phenol Novolac	9003-35-4	5.00%	
			1.84%	0.0584	Metal Hydroxide	-	5.00%	
			0.18%	0.0058	Carbon Black	1333-86-4	0.50%	
			30.37%	0.9641	Silica Fused	60676-86-0	82.50%	
D/A Epoxy	0.19%	0.0061	0.15%	0.00490	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.04%	0.00122	Esters & resins	-	20.00%	
Wire	0.23%	0.0074	0.23%	0.0073	Copper	7440-50-8	98.45%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0001	Palladium	7440-05-3	1.55%	
Solder Balls	20.54%	0.6520	19.82%	0.6292	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.62%	0.0196	Silver (Ag)	7440-22-4	3.00%	
			0.10%	0.0033	Copper (Cu)	7440-50-8	0.50%	
Substrate	21.91%	0.6953	7.01%	0.2225	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			14.90%	0.4728	Glass fiber	65997-17-3	68.00%	
Foil	15.19%	0.4821	13.80%	0.4381	Copper	7440-50-8	90.87%	
			1.31%	0.0417	Nickel plating	7440-02-0	8.64%	
			0.07%	0.0023	Gold plating	7440-57-5	0.48%	
Solder Mask	3.80%	0.1206	2.07%	0.0656	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.28%	0.0088	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.13%	0.0040	Morpholine derivative**	71868-10-5	3.32%	
			0.11%	0.0036	Silicon dioxide	7631-86-9	3.00%	
			0.11%	0.0036	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.0003	Carbon black	1333-86-4	0.24%	
			1.09%	0.0347	Trade secret ingredients	-	28.74%	

Notes: SVHC: * 0.22% max. concentration of Bisphenol A (CAS# 80-05-7), contained in substrate laminate material as impurity - not intentionally added.
** 0.13% max. concentration of Morpholine derivative (CAS# 71868-10-5), contained in solder mask material.

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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FN672

Products:

FE2, FE3, XP2

Assembly: ASEK
Size (mm): 23 x 23

Lead pitch (mm): 1.0

MSL: 3

Reflow max (°C): 250

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.33%	0.0422			Silicon chip	7440-21-3	100.00%	Die size: 8.79 x 8.31 mm
Mold Compound	36.81%	1.1686	1.84%	0.0584	Epoxy Resin	-	5.00%	Mold Compound: Hitachi CEL9750ZHF10AKL-U (ULA)
			1.84%	0.0584	Phenol Resin	-	5.00%	
			0.07%	0.0023	Carbon Black	1333-86-4	0.20%	
			32.32%	1.0260	Silica	60676-86-0	87.80%	
			0.74%	0.0234	Others	-	2.00%	
D/A Epoxy	0.19%	0.0061	0.15%	0.00490	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.04%	0.00122	Esters & resins	-	20.00%	
Wire	0.23%	0.0074	0.23%	0.0073	Copper	7440-50-8	98.45%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0001	Palladium	7440-05-3	1.55%	
Solder Balls	20.54%	0.6520	19.82%	0.6292	Tin (Sn)	7440-31-5	96.50%	Ag 3.5
			0.72%	0.0228	Silver (Ag)	7440-22-4	3.50%	
Substrate	21.91%	0.6953	7.01%	0.2225	BT Resins	-	32.00%	BT Resin CCL-HL832NX-A*
			14.90%	0.4728	Glass fiber	65997-17-3	68.00%	
Foil	15.19%	0.4821	13.80%	0.4381	Copper	7440-50-8	90.87%	
			1.31%	0.0417	Nickel plating	7440-02-0	8.64%	
			0.07%	0.0023	Gold plating	7440-57-5	0.48%	
Solder Mask	3.80%	0.1206	2.07%	0.0656	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.28%	0.0088	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.13%	0.0040	Morpholine derivative**	71868-10-5	3.32%	
			0.11%	0.0036	Silicon dioxide	7631-86-9	3.00%	
			0.11%	0.0036	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.0003	Carbon black	1333-86-4	0.24%	
			1.09%	0.0347	Trade secret ingredients	-	28.74%	

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Assembly: ATP
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Package Code:

FN672

Lead pitch (mm): 1.0

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FE2, FE3, XP2

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January, 2020

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
Die	1.33%	0.0422			Silicon chip	7440-21-3	100.00%	Die size: 8.79 x 8.31 mm
Mold Compound	36.81%	1.1686	2.58% 1.84% 31.29% 0.92% 0.18%	0.0818 0.0584 0.9933 0.0292 0.0058	Solid Epoxy Resin Phenol Resin Silica Metal Hydroxide Carbon Black	- - 60676-86-0 - 1333-86-4	7.00% 5.00% 85.00% 2.50% 0.50%	Mold Compound: Hitachi GE-110LS-V (ULA)
D/A Epoxy	0.19%	0.0061	0.15% 0.04%	0.00490 0.00122	Silver Esters & resins	7440-22-4 -	80.00% 20.00%	Die attach epoxy: Henkel (Ablebond) 2100A
Wire	0.23%	0.0074	0.23% 0.00%	0.0073 0.0001	Copper Palladium	7440-50-8 7440-05-3	98.45% 1.55%	0.8 mil diameter; 1 wire per solder ball
Solder Balls	20.54%	0.6520	19.61% 0.82% 0.10%	0.6226 0.0261 0.0033	Tin (Sn) Silver (Ag) Copper (Cu)	7440-31-5 7440-22-4 7440-50-8	95.50% 4.00% 0.50%	SAC405
Substrate	21.91%	0.6953	7.01% 14.90%	0.2225 0.4728	BT Resins Glass fiber	- 65997-17-3	32.00% 68.00%	BT Resin CCL-HL832NX-A*
Foil	15.19%	0.4821	13.80% 1.31% 0.07%	0.4381 0.0417 0.0023	Copper Nickel plating Gold plating	7440-50-8 7440-02-0 7440-57-5	90.87% 8.64% 0.48%	
Solder Mask	3.80%	0.1206	2.07% 0.28% 0.13% 0.11% 0.11% 0.01% 1.09%	0.0656 0.0088 0.0040 0.0036 0.0036 0.0003 0.0347	Quartz Dipropylene glycol monomethyl ether Morpholine derivative** Silicon dioxide Silica, amorphous Carbon black Trade secret ingredients	14808-60-7 34590-94-8 71868-10-5 7631-86-9 112945-52-5 1333-86-4 -	54.37% 7.33% 3.32% 3.00% 3.00% 0.24% 28.74%	Solder mask PSR4000 AUS 308

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