Device Material Content

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

April, 2018

Package: 672 fpBGA
Total Device Weight 3.17 **Grams**

Package Code: FN672
Products: FE2, FE3, XP2

Assembly: ASEM
Size (mm): 23 x 23
Lead pitch (mm): 1.0
MSL: 3
Reflow max (^{o}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	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	40.89%	1.2980	21.91%	0.6953	Laminate*	-	53.57%	BT Resin CCL-HL832NX-A
			3.80%	0.1206	Solder mask PSR4000 AUS 308	-	9.29%	
			13.80%	0.4381	Copper	7440-50-8	33.75%	
			1.31%	0.0417	Nickel plating	7440-02-0	3.21%	
			0.07%	0.0023	Gold plating	7440-57-5	0.18%	

Notes: * 0.22% max. concentration of Bisphenol A (CAS# 80-05-7) in substrate laminate material as impurity - not intentionally added.

The values listed above are nominal values based on studies of representatives of this particular package type, and are believed to be as accurate as possible.
Constituent substances and proportions in epoxy materials are before curing.
The information provided above is representative of the package as of the date listed, and is subject to change at any time.

www.latticesemi.com

PCN#05A-17
Rev. H1

Device Material Content

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Hillsboro OR 97124
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April, 2018

Package: 672 fpBGA
Total Device Weight 3.17 **Grams**

Package Code: FN672
Products: FE2, FE3, XP2

Assembly: ASET
Size (mm): 23 x 23
Lead pitch (mm): 1.0
MSL: 3
Reflow max (^{o}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	40.89%	1.2980	21.91%	0.6953	Laminate*	-	53.57%	BT Resin CCL-HL832NX-A
			3.80%	0.1206	Solder mask PSR4000 AUS 308	-	9.29%	
			13.80%	0.4381	Copper	7440-50-8	33.75%	
			1.31%	0.0417	Nickel plating	7440-02-0	3.21%	
			0.07%	0.0023	Gold plating	7440-57-5	0.18%	

Notes: * 0.22% max. concentration of Bisphenol A (CAS# 80-05-7) in substrate laminate material as impurity - not intentionally added.

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April, 2018

Package: 672 fpBGA
Total Device Weight 3.17 Grams

Package Code: FN672
Products: FE2, FE3, XP2

Assembly: ATP
Size (mm): 23 x 23
Lead pitch (mm): 1.0
MSL: 3
Reflow max (^oC): 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	2.58%	0.0818	Solid Epoxy Resin	-	7.00%	Mold Compound: Hitachi GE-110LS-V (ULA)
			1.84%	0.0584	Phenol Resin	-	5.00%	
			31.29%	0.9933	Silica	60676-86-0	85.00%	
			0.92%	0.0292	Metal Hydroxide	-	2.50%	
			0.18%	0.0058	Carbon Black	1333-86-4	0.50%	
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	19.61%	0.6226	Tin (Sn)	7440-31-5	95.50%	SAC405
			0.82%	0.0261	Silver (Ag)	7440-22-4	4.00%	
			0.10%	0.0033	Copper (Cu)	7440-50-8	0.50%	
Substrate	40.89%	1.2980	21.91%	0.6953	Laminate*	-	53.57%	BT Resin CCL-HL832NX-A
			3.80%	0.1206	Solder mask PSR4000 AUS 308	-	9.29%	
			13.80%	0.4381	Copper	7440-50-8	33.75%	
			1.31%	0.0417	Nickel plating	7440-02-0	3.21%	
			0.07%	0.0023	Gold plating	7440-57-5	0.18%	

Notes: * 0.22% max. concentration of Bisphenol A (CAS# 80-05-7) in substrate laminate material as impurity - not intentionally added.

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