



## Device Material Content

5555 NE Moore Ct.  
Hillsboro OR 97124  
[custreq@lsc.com](mailto:custreq@lsc.com)

February, 2019

**Package: 256 ftBGA (option 3)**  
**Total Device Weight 0.803 Grams**

**Package Code:**

**FTG256**

**Products:**

XO2

Assembly: ASEM

Size (mm): 17 x 17

Lead pitch (mm): 1.0

MSL: 3

Reflow max (°C): 260

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	1.39%	0.0112	1.39%	0.0112	Silicon chip	7440-21-3	100.00%	Die size: 4.41 x 4.36 mm
<b>Mold Compound</b>	54.23%	0.4353	3.80%	0.0305	Epoxy Resin	-	7.00%	Mold Compound: Sumitomo G750SE (ULA)
			2.71%	0.0218	Phenol Novolac	9003-35-4	5.00%	
			2.71%	0.0218	Metal Hydroxide	-	5.00%	
			0.27%	0.0022	Carbon Black	1333-86-4	0.50%	
			44.74%	0.3591	Silica Fused	60676-86-0	82.50%	
<b>D/A Epoxy</b>	0.20%	0.0016	0.16%	0.00128	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.04%	0.00032	Esters & resins	-	20.00%	
<b>Wire</b>	0.19%	0.0015	0.19%	0.0015	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0000	Palladium	7440-05-3	1.50%	
<b>Solder Balls</b>	15.49%	0.1243	14.95%	0.1200	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.46%	0.0037	Silver (Ag)	7440-22-4	3.00%	
			0.08%	0.0006	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	13.02%	0.1045	8.85%	0.0711	Glass fiber	65997-17-3	68.00%	BT Resin CCL-HL832NX-A*
			4.17%	0.0334	BT Resins	-	32.00%	
<b>Solder Mask</b>	5.97%	0.0479	3.25%	0.0261	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.44%	0.0035	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.20%	0.0016	Morpholine derivative	71868-10-5	3.32%	
			0.18%	0.0014	Silicon dioxide	7631-86-9	3.00%	
			0.18%	0.0014	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.0001	Carbon black	1333-86-4	0.24%	
			1.72%	0.0138	Trade secret ingredients	-	28.74%	
<b>Foil</b>	9.50%	0.0762	8.09%	0.0649	Copper	7440-50-8	85.15%	
			1.36%	0.0109	Nickel plating	7440-02-0	14.28%	
			0.05%	0.0004	Gold plating	7440-57-5	0.57%	

**Notes:** \* 0.13% 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.

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February, 2019

**Package: 256 ftBGA (option 3)**  
**Total Device Weight 0.803 Grams**

**Package Code:**

**FTG256**

**Products:**

XO2

Assembly: ASET

Size (mm): 17 x 17

Lead pitch (mm): 1.0

MSL: 3

Reflow max (°C): 260

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	1.39%	0.0112	1.39%	0.0112	Silicon chip	7440-21-3	100.00%	Die size: 4.41 x 4.36 mm
<b>Mold Compound</b>	54.23%	0.4353	47.45%	0.3809	Silica	60676-86-0	87.50%	Mold Compound: Kyocera KEG-2250LKDS
			3.52%	0.0283	Epoxy resin	-	6.50%	
			2.98%	0.0239	Phenol Resin	-	5.50%	
			0.27%	0.0022	Carbon Black	1333-86-4	0.50%	
<b>D/A Epoxy</b>	0.20%	0.0016	0.16%	0.00128	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.04%	0.00032	Esters & resins	-	20.00%	
<b>Wire</b>	0.19%	0.0015	0.19%	0.0015	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0000	Palladium	7440-05-3	1.50%	
<b>Solder Balls</b>	15.49%	0.1243	15.26%	0.1225	Tin (Sn)	7440-31-5	98.50%	SAC105
			0.15%	0.0012	Silver (Ag)	7440-22-4	1.00%	
			0.08%	0.0006	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	13.02%	0.1045	8.85%	0.0711	Glass fiber	65997-17-3	68.00%	BT Resin CCL-HL832NX-A*
			4.17%	0.0334	BT Resins	-	32.00%	
<b>Solder Mask</b>	5.97%	0.0479	3.25%	0.0261	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.44%	0.0035	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
			0.20%	0.0016	Morpholine derivative	71868-10-5	3.32%	
			0.18%	0.0014	Silicon dioxide	7631-86-9	3.00%	
			0.18%	0.0014	Silica, amorphous	112945-52-5	3.00%	
			0.01%	0.0001	Carbon black	1333-86-4	0.24%	
			1.72%	0.0138	Trade secret ingredients	-	28.74%	
<b>Foil</b>	9.50%	0.0762	8.09%	0.0649	Copper	7440-50-8	85.15%	
			1.36%	0.0109	Nickel plating	7440-02-0	14.28%	
			0.05%	0.0004	Gold plating	7440-57-5	0.57%	

**Notes:** \* 0.13% max. concentration of Bisphenol A (CAS# 80-05-7) in substrate laminate material as impurity - not intentionally added.

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**Package: 256 ftBGA (option 3)**  
**Total Device Weight 0.803 Grams**

**Package Code:**

**FTG256**

**Products:**

XO2

Assembly: ATP

Size (mm): 17 x 17

Lead pitch (mm): 1.0

MSL: 3

Reflow max (°C): 260

	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:
<b>Die</b>	1.39%	0.0112	1.39%	0.0112	Silicon chip	7440-21-3	100.00%	Die size: 4.41 x 4.36 mm
<b>Mold Compound</b>	54.23%	0.4353	3.80%	0.0305	Epoxy Resin	-	7.00%	Mold Compound: Hitachi GE-110LS-V (ULA)
			2.71%	0.0218	Phenol Resin	-	5.00%	
			46.10%	0.3700	Silica Fused	60676-86-0	85.00%	
			1.36%	0.0109	Metal Hydroxide	-	2.50%	
			0.27%	0.0022	Carbon Black	1333-86-4	0.50%	
<b>D/A Epoxy</b>	0.20%	0.0016	0.16%	0.00128	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2300
			0.04%	0.00032	Esters & resins	-	20.00%	
<b>Wire</b>	0.19%	0.0015	0.19%	0.0015	Copper	7440-50-8	98.50%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0000	Palladium	7440-05-3	1.50%	
<b>Solder Balls</b>	15.49%	0.1243	14.79%	0.1187	Tin (Sn)	7440-31-5	95.50%	SAC405
			0.62%	0.0050	Silver (Ag)	7440-22-4	4.00%	
			0.08%	0.0006	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	13.02%	0.1045	8.85%	0.0711	Glass fiber	65997-17-3	68.00%	BT Resin CCL-HL832NX-A*
			4.17%	0.0334	BT Resins	-	32.00%	
<b>Solder Mask</b>	5.97%	0.0479	3.25%	0.0261	Quartz	14808-60-7	54.37%	Solder mask PSR4000 AUS 308
			0.44%	0.0035	Dipropylene glycol monomethyl ether	34590-94-8	7.33%	
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<b>Foil</b>	9.50%	0.0762	8.09%	0.0649	Copper	7440-50-8	85.15%	
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