



## Device Material Content

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

June, 2018

**Package:** 484 fpBGA  
**Total Device Weight** 2.214 Grams

**Package Code:**

**FG484**

**Products:**

XO2

Assembly: ASEM

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:
<b>Die</b>	0.99%	0.0219	0.99%	0.0219	Silicon chip	7440-21-3	100.00%	Die size: 5.66 x 6.71mm
<b>Mold Compound</b>	34.35%	0.7604	2.23%	0.0494	Epoxy Resin	-	6.50%	Mold Compound: Sumitomo G750SE
			1.72%	0.0380	Phenol Novolac	9003-35-4	5.00%	
			1.72%	0.0380	Metal Hydroxide	-	5.00%	
			0.10%	0.0023	Carbon Black	1333-86-4	0.30%	
			28.58%	0.6327	Silica Fused	60676-86-0	83.20%	
<b>D/A Epoxy</b>	0.14%	0.0032	0.12%	0.00255	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00064	Esters & resins	-	20.00%	
<b>Wire</b>	0.22%	0.0050	0.22%	0.0049	Copper	7440-50-8	98.55%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0001	Palladium	7440-05-3	1.45%	
<b>Solder Balls</b>	21.21%	0.4696	20.47%	0.4531	Tin (Sn)	7440-31-5	96.50%	SAC305
			0.64%	0.0141	Silver (Ag)	7440-22-4	3.00%	
			0.11%	0.0023	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	43.07%	0.9535	16.70%	0.3696	Copper	7440-50-8	38.76%	BT Resin CCL-HL832NX-A
			1.54%	0.0340	Nickel plating	7440-02-0	3.57%	
			0.08%	0.0017	Gold plating	7440-57-5	0.18%	
			11.62%	0.2572	BT Resins*	-	26.97%	
			8.53%	0.1889	Continuous Filament Fiber Glass	65997-17-3	19.81%	
			4.61%	0.1021	Solder mask PSR4000 AUS 308	-	10.71%	

**Notes:** \* 0.17% 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.

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5555 NE Moore Ct. Hillsboro OR 97124 <a href="mailto:custreq@lsc.com">custreq@lsc.com</a>				<b>Package: 484 fpBGA</b> <b>Total Device Weight 2.214 Grams</b>			<b>Package Code:</b> <b>FG484</b>		Assembly: ASET Size (mm): 23 x 23 Lead pitch (mm): 1.0 MSL: 3 Reflow max (°C): 250	
June, 2018				<b>Products:</b> XO2						
	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	% of Subst.	Notes / Assumptions:		
<b>Die</b>	0.99%	0.0219	0.99%	0.0219	Silicon chip	7440-21-3	100.00%	Die size: 5.66 x 6.71mm		
<b>Mold Compound</b>	34.35%	0.7604	1.72%	0.0380	Epoxy Resin	-	5.00%	Mold Compound: Hitachi CEL-9750ZHF10AKL-U		
			1.72%	0.0380	Phenol Resin	-	5.00%			
			0.07%	0.0015	Carbon Black	1333-86-4	0.20%			
			30.16%	0.6676	Silica	60676-86-0	87.80%			
			0.69%	0.0152	Others	-	2.00%			
<b>D/A Epoxy</b>	0.14%	0.0032	0.12%	0.00255	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A		
			0.03%	0.00064	Esters & resins	-	20.00%			
<b>Wire</b>	0.22%	0.0050	0.22%	0.0049	Copper	7440-50-8	98.55%	0.8 mil diameter; 1 wire per solder ball		
			0.00%	0.0001	Palladium	7440-05-3	1.45%			
<b>Solder Balls</b>	21.21%	0.4696	20.47%	0.4531	Tin (Sn)	7440-31-5	96.50%	Ag 3.5		
			0.74%	0.0164	Silver (Ag)	7440-22-4	3.50%			
<b>Substrate</b>	43.07%	0.9535	16.70%	0.3696	Copper	7440-50-8	38.76%	BT Resin CCL-HL832NX-A		
			1.54%	0.0340	Nickel plating	7440-02-0	3.57%			
			0.08%	0.0017	Gold plating	7440-57-5	0.18%			
			11.62%	0.2572	BT Resins*	-	26.97%			
			8.53%	0.1889	Continuous Filament Fiber Glass	65997-17-3	19.81%			
			4.61%	0.1021	Solder mask PSR4000 AUS 308	-	10.71%			

**Notes:** \* 0.17% max. concentration of Bisphenol A (CAS# 80-05-7) in substrate laminate material as impurity - not intentionally added.

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**Package Code:**

**FG484**

**Products:**

XO2

**Assembly:** ATP  
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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:
<b>Die</b>	0.99%	0.0219	0.99%	0.0219	Silicon chip	7440-21-3	100.00%	Die size: 5.66 x 6.71mm
<b>Mold Compound</b>	34.35%	0.7604	2.40%	0.0532	Solid Epoxy Resin	-	7.00%	Mold Compound: Hitachi (Nitto) GE-110LS-V
			1.72%	0.0380	Phenol Resin	-	5.00%	
			29.20%	0.6464	Silica	60676-86-0	85.00%	
			0.86%	0.0190	Metal Hydroxide	-	2.50%	
			0.17%	0.0038	Carbon Black	1333-86-4	0.50%	
<b>D/A Epoxy</b>	0.14%	0.0032	0.12%	0.00255	Silver	7440-22-4	80.00%	Die attach epoxy: Henkel (Ablebond) 2100A
			0.03%	0.00064	Esters & resins	-	20.00%	
<b>Wire</b>	0.22%	0.0050	0.22%	0.0049	Copper	7440-50-8	98.55%	0.8 mil diameter; 1 wire per solder ball
			0.00%	0.0001	Palladium	7440-05-3	1.45%	
<b>Solder Balls</b>	21.21%	0.4696	20.26%	0.4484	Tin (Sn)	7440-31-5	95.50%	SAC405
			0.85%	0.0188	Silver (Ag)	7440-22-4	4.00%	
			0.11%	0.0023	Copper (Cu)	7440-50-8	0.50%	
<b>Substrate</b>	43.07%	0.9535	16.70%	0.3696	Copper	7440-50-8	38.76%	BT Resin CCL-HL832NX-A
			1.54%	0.0340	Nickel plating	7440-02-0	3.57%	
			0.08%	0.0017	Gold plating	7440-57-5	0.18%	
			11.62%	0.2572	BT Resins*	-	26.97%	
			8.53%	0.1889	Continuous Filament Fiber Glass	65997-17-3	19.81%	
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