# Device Material Content

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**Package:** 324 csfBGA
**Total Device Weight** 0.1704 Grams

**Package Code:** MG324
**Products:** XO3

Assembly: ATP
Size (mm): 9 x 9
Lead pitch (mm): 0.5
MSL: 3
Reflow max (ºC): 260

| | % of Total Pkg. Wt. | Weight (g) | % of Total Pkg. Wt. | Weight (g) | Substance | CAS # | % of Subst. | Notes / Assumptions: |
|---|---|---|---|---|---|---|---|---|
| **Die** | 3.51% | 0.0060 | 3.51% | 0.0060 | Silicon chip | 7440-21-3 | 100.00% | Die size: 3.7 x 3.8 x 0.177mm |
| **Mold Compound** | 46.46% | 0.0792 | 8.36% | 0.01425 | Epoxy Resin | - | 18.00% | Hitachi(Nitto) GE-110BH83-FC |
| | | | 38.10% | 0.06492 | Silica filler | 60676-86-0 | 82.00% | |
| **Cu Pillar** | 0.212% | 0.00036 | | | Pillar: | | | Oval Type |
| | | | 0.128% | 0.00022 | Copper (Cu) | 7440-50-8 | 60.39% | |
| | | | | | Cap: | | | |
| | | | 0.084% | 0.00014 | Tin (Sn) | 7440-31-5 | 39.42% | |
| | | | 0.002% | 0.0000026 | Silver (Ag) | 7440-22-4 | 0.72% | |
| **Sputter 1** | 0.002% | 0.000003 | 0.000% | 0.0000001 | Titanium (Ti) | 7440-32-6 | 4.98% | |
| | | | 0.001% | 0.0000012 | Tungsten (W) | 7440-33-7 | 44.84% | |
| | | | 0.001% | 0.0000013 | Copper (Cu) | 7440-50-8 | 50.18% | |
| **Sputter 2** | 0.015% | 0.000026 | 0.001% | 0.000002 | Titanium (Ti) | 7440-32-6 | 7.74% | |
| | | | 0.014% | 0.000024 | Copper (Cu) | 7440-50-8 | 92.26% | |
| **RDL** | 0.140% | 0.000238 | 0.14% | 0.00024 | Copper (Cu) | 7440-50-8 | 100.00% | |
| **Polymide & PBO** | 0.095% | 0.000162 | 0.086% | 0.000146 | Proprietary Polymer | - | 90.00% | |
| | | | 0.010% | 0.000016 | Additives | - | 10.00% | |
| **Solder Balls** | 19.91% | 0.0339 | 19.211% | 0.03274 | Tin (Sn) | 7440-31-5 | 96.50% | SAC305 |
| | | | 0.597% | 0.00102 | Silver (Ag) | 7440-22-4 | 3.00% | |
| | | | 0.100% | 0.00017 | Copper (Cu) | 7440-50-8 | 0.50% | |
| **Substrate** | 14.30% | 0.0244 | 4.58% | 0.0078 | BT Resins | - | 32.00% | BT Resin CCL-HL832NS* |
| | | | 9.72% | 0.0166 | Glass fiber | 65997-17-3 | 68.00% | |
| **Foil** | 10.20% | 0.0174 | 7.03% | 0.0120 | Copper | 7440-50-8 | 68.91% | |
| | | | 2.57% | 0.0044 | Nickel plating | 7440-02-0 | 25.22% | |
| | | | 0.60% | 0.0010 | Gold plating | 7440-57-5 | 5.87% | |
| **Solder Mask** | 4.70% | 0.0080 | 2.55% | 0.00435 | Quartz | 14808-60-7 | 54.37% | Solder mask PSR4000 AUS 308 |
| | | | 0.34% | 0.00059 | Dipropylene glycol monomethyl ether | 34590-94-8 | 7.33% | |
| | | | 0.16% | 0.00027 | Morpholine derivative | 71868-10-5 | 3.32% | |
| | | | 0.14% | 0.00024 | Silicon dioxide | 7631-86-9 | 3.00% | |
| | | | 0.14% | 0.00024 | Silica, amorphous | 112945-52-5 | 3.00% | |
| | | | 0.01% | 0.00002 | Carbon black | 1333-86-4 | 0.24% | |
| | | | 1.35% | 0.00230 | Trade secret ingredients | - | 28.74% | |

**Notes:** * 0.14% 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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