

LTM9012- BGA-PBF 221LD 15mm X 11.25mm X 2.82mm (TABLE OF MATERIAL DECLARATION)

The LTM9012 is RoHS compliant per EU RoHS Directive 2003/95/EC.

It contains less than 100ppm cadmium (Cd) and less than 1,000ppm of each - lead (Pb), mercury (Hg), hexavalent chromium (Cr+),
polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE)

| No. | Part Name | Material Name | Component Weight (gram) | Materials Analysis (element) | CAS Number | Material Mass (gram) | Materials Analysis (weight %) |
|-----|---------------------------|---------------|-------------------------|--|---|----------------------|-------------------------------|
| 1 | Substrate | Circuit Board | 0.2529 | Barium Compounds | 7727-43-7 | 0.00688 | 2.72 |
| | | | | Bismaleimide/Triazine/Resin/Filler Substance(Silica Crystalline) | 105391-33-1,1156-51-0/9003-36-5/21645-512 | 0.04631 | 18.31 |
| | | | | Copper Metal | 7440-50-8 | 0.16729 | 66.14 |
| | | | | Copper Compounds | 1328-53-6 | 0.00006 | 0.02 |
| | | | | Ecotoxic substances | 7440-38-2, 7440-28-0 | 0.00004 | 0.02 |
| | | | | Gold metal or alloy | 7440-57-5 | 0.00078 | 0.31 |
| | | | | Nickel | 7440-02-0 | 0.00506 | 2.00 |
| | | | | Zinc | 7440-66-6 | 0.00040 | 0.16 |
| | | | | Continuous Filament Fiber Glass | 65997-17-3 | 0.02514 | 9.94 |
| | | | | Chromium(III) Oxide | 1308-38-9 | 0.00001 | 0.01 |
| | | | | Silica amorphous | 7631-86-9 | 0.00014 | 0.06 |
| | | | | Talc;not containing fibers like asbestos | 14807-96-9 | 0.00078 | 0.31 |
| | | | | Cyanoguanidine | 461-58-5 | 0.00002 | 0.01 |
| | | | | Calcium caobonate | 471-34-1 | 0.00001 | 0.00 |
| 2 | Solder Paste | Alloy | 0.0177 | Sn | 7440-31-5 | 0.01686 | 95.00 |
| | | | | Sb | 7440-36-0 | 0.00089 | 5.00 |
| 3 | Epoxy I | | 0.0010 | Di-ester resin | non-disclosure | 0.00010 | 10.00 |
| | | | | Functionalized ester | non-disclosure | 0.00010 | 10.00 |
| | | | | Silver | 7440-22-4 | 0.00078 | 80.00 |
| 4 | Passive/Active Components | | 0.0436 | Copper (Cu) | 7440-50-8 | 0.01395 | 32.00 |
| | | | | Nickel (Ni) | 7440-02-0 | 0.00349 | 8.00 |
| | | | | Tin (Sn) | 7440-31-5 | 0.00105 | 2.40 |
| | | | | Ceramic (Ba) Compounds | 12047-27-7 | 0.02511 | 57.60 |
| 5 | LTC-QFN FC | | | | | | |
| | | Active IC | 0.0039 | Silicon (Si) | 7440-21-3 | 0.003904 | 100.00 |
| | | Lead Frame | 0.0209 | Copper (Cu) | 7440-50-8 | 0.02036 | 97.49 |
| | | | | Iron (Fe) | 7439-89-6 | 0.0005 | 2.39 |
| | | | | Phosphorus (P) | 7723-14-0 | 0.000008 | 0.04 |
| | | | | Zinc (Zn) | 7440-66-6 | 0.000016 | 0.08 |
| | | Plating | 0.0001 | Exter. Plating Pb | 7439-92-1 | 0.000116 | 100.00 |
| | | | 0.0007 | Exter. Plating Sn | 7440-31-5 | 0.000664 | 100.00 |
| | | | 0.0004 | Inter. Plating Ag | 7440-22-4 | 0.000412 | 100.00 |
| | | Die Attach | 0.0037 | Silver (Ag) | 7440-22-4 | 0.000076 | 2.04 |
| | | | | Tin (Sn) | 7440-31-5 | 0.003648 | 97.96 |
| | | Encapsulation | 0.0295 | Resin (EP) | non-disclosure | 0.003832 | 13.00 |
| | | | | Silica (SiO2) | 60676-86-0 | 0.025352 | 86.00 |
| | | | | Carbon Black (C) | 1333-86-4 | 0.000296 | 1.00 |
| 6 | Active Ics | Silicon | 0.0177 | Silicon | 7440-21-3 | 0.01775 | 100.00 |
| 7 | Wire | Gold | 0.0007 | Au | 7440-57-5 | 0.00066 | 99.99 |
| 8 | Solder Ball | SAC305 | 0.1069 | Sn | 7440-31-5 | 0.10320 | 96.50 |
| | | | | Ag | 7440-22-4 | 0.00321 | 3.00 |
| | | | | Cu | 7440-50-8 | 0.00053 | 0.50 |

| | | | | | | | |
|----------------------|---------------|-------------|--------|-------------------|----------------|---------|-------|
| 9 | Encapsulation | Epoxy Resin | 0.6485 | Fused Silica | 60676-86-0 | 0.50066 | 77.20 |
| | | | | Epoxy Resin | non-disclosure | 0.05772 | 8.90 |
| | | | | Phenol Resin | non-disclosure | 0.05772 | 8.90 |
| | | | | Crytalline Silica | 14808-60-7 | 0.01946 | 3.00 |
| | | | | Carbon Black | 1333-86-4 | 0.00324 | 0.50 |
| | | | | Metal Hydroxide | non-disclosure | 0.00973 | 1.50 |
| Total Package Weight | | | 1.1483 | | | | |

Note: Composition derived from MSDS and material C of C from Vendors
Component Weight based on assembly of generic parts