MICROCHIP

**Semiconductor Device Type: MR / RG (NTX) 064 QFN 9x9x0.9mm Matte Tin**

**Termination Base Alloy: Copper Alloy (Cu)**

**Package Homogeneous Materials**

**JEDEC 97 Product Marking and/or Pkg. Labeling e3**

| Basic Substance | CAS Number | "Contained In" Sub-Component | % Total Weight | mg/part | ppm |
|---|---|---|---|---|---|
| Silica, vitreous | 60676-86-0 | Mold Compound | 38.353 | 89.133 | 383,534 |
| Epoxy Resin | 834893-60-6 | Mold Compound | 3.385 | 7.866 | 33,848 |
| Phenolic Resin | 628290-34-6 | Mold Compound | 2.255 | 5.241 | 22,550 |
| Carbon Black | 1333-86-4 | Mold Compound | 0.137 | 0.318 | 1,368 |
| Copper | 7440-50-8 | Lead Frame | 40.126 | 93.252 | 401,258 |
| Iron | 7439-89-6 | Lead Frame | 0.987 | 2.294 | 9,870 |
| Silver | 7440-22-4 | Lead Frame | 0.800 | 1.859 | 8,001 |
| Zinc | 7440-66-6 | Lead Frame | 0.053 | 0.122 | 525 |
| Phosphorous | 7723-14-0 | Lead Frame | 0.035 | 0.081 | 347 |
| Silver | 7440-22-4 | Die Attach | 1.863 | 4.331 | 18,634 |
| Acrylic Resin | Trade secret | Die Attach | 0.206 | 0.478 | 2,057 |
| Epoxy Resin | Trade secret | Die Attach | 0.061 | 0.141 | 605 |
| Acrylate | Trade secret | Die Attach | 0.133 | 0.309 | 1,331 |
| Polybutadiene derivative & Coplolymer | Trade secret | Die Attach | 0.157 | 0.366 | 1,573 |
| Silicon | 7440-21-3 | Chip (Die) | 6.000 | 13.944 | 60,000 |
| Copper | 7440-50-8 | Wire Bond palladium coated copper (CuPd) | 0.953 | 2.215 | 9,530 |
| Palladium | 7440-05-3 | Wire Bond palladium coated copper (CuPd) | 0.017 | 0.039 | 170 |
| Tin | 7440-31-5 | Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour | 4.480 | 10.412 | 44,800 |
| | | **TOTALS:** | **100.000** | **232.400** | **1,000,000** |

**0.2324 g Total Mass**

| 102.56 | (mg) Total | Mold Compound | % ot Total Weight | 44.13 |
|---|---|---|---|---|
| | Silica, vitreous | 60676-86-0 | 86.91 | |
| | Epoxy Resin | 834893-60-6 | 7.67 | |
| | Phenolic Resin | 628290-34-6 | 5.11 | |
| | Carbon Black | 1333-86-4 | 0.31 | |
| | | **Total** | **100.00** | |

| 97.61 | (mg) Total | Lead Frame | % of Total Weight | 42 |
|---|---|---|---|---|
| | Copper | 7440-50-8 | 95.54 | |
| | Iron | 7439-89-6 | 2.35 | |
| | Silver | 7440-22-4 | 1.91 | |
| | Zinc | 7440-66-6 | 0.13 | |
| | Phosphorous | 7723-14-0 | 0.08 | |
| | | **Total** | **100.00** | |

| 5.62 | (mg) Total | Die Attach | % of Total Weight | 2.42 |
|---|---|---|---|---|
| | Silver | 7440-22-4 | 77.00 | |
| | Acrylic Resin | Trade secret | 8.50 | |
| | Epoxy Resin | Trade secret | 2.50 | |
| | Acrylate | Trade secret | 5.50 | |
| Polybutadiene derivative & Coplolymer | | Trade secret | 6.50 | |
| | | **Total** | **100.00** | |

| 13.94 | Total (mg) | Chip (Die) | % of Total Weight | 6 |
|---|---|---|---|---|
| | Doped Silicon | 7440-21-3 | 100.00 | |
| | | **Total** | **100.00** | |

| 2.25 | (mg) Total | Wire Bond palladium coated copper (CuPd) | % of Total Weight | 0.97 |
|---|---|---|---|---|
| | Copper | 7440-50-8 | 98.25 | |
| | Palladium | 7440-05-3 | 1.75 | |
| | | **Total** | **100.00** | |

| 10.41 | (mg) Total | Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour | % of Total Weight | 4.48 |
|---|---|---|---|---|
| | Tin | 7440-31-5 | 100.00 | |
| | | **Total** | **100.00** | |

**232.400** **100.000**

**This semiconductor device and its homogenous materials comply with EU Directives: 2002/95/EC (27 January 2003) & Directive 2011/65/EU (08 June 2011) and 2015/863/EU (31 March 2015) and 2002/53/EC (End-of-Life Vehicles (ELV) without exemption (zero)**

**Compliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data.**

**If a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology Incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide.**

**Molding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at http://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/**

**The protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box and certain "reels" may be made from PVC plastic.**

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**Assembled package referenced above is EU REACH compliant based on the latest SVHC candidate list of ECHA which can be found at http://echa.europa.eu/web/guest/candidate-list-table**