



Semiconductor Device Type: ST (D4X) 014 TSSOP 4.4mm Matte Tin				Termination Base Alloy: Copper Alloy (Cu)			Package Homogeneous Materials: 8.1 Electronics (e.g. pc boards, displays)			JEDEC 97 Product Marking and/or Pkg. Labeling e3																																																																																																																																																																																		
Basic Substance	CAS Number	Contained In Sub-Component	% Total Weight	mg/part	ppm	28.10	(mg) Total	Mold Compound	% of Total Weight	46.84																																																																																																																																																																																		
Silica, vitreous (or fused)	60676-86-0	Mold Compound	39.814	23.888	398,140	<table border="1"> <tr> <td>Silica, vitreous (or fused)</td> <td>60676-86-0</td> <td>85.00</td> </tr> <tr> <td>Epoxy Resin</td> <td>Trade Secret</td> <td>8.70</td> </tr> <tr> <td>Phenolic Resin</td> <td>Trade Secret</td> <td>6.00</td> </tr> <tr> <td>Carbon Black</td> <td>1333-86-4</td> <td>0.30</td> </tr> <tr> <td colspan="2">Total</td> <td>100.00</td> </tr> </table>	Silica, vitreous (or fused)	60676-86-0	85.00	Epoxy Resin	Trade Secret	8.70	Phenolic Resin	Trade Secret	6.00	Carbon Black	1333-86-4	0.30	Total		100.00	<table border="1"> <tr> <td>(mg) Total</td> <td>Lead Frame</td> <td>% of Total Weight</td> </tr> <tr> <td>Copper</td> <td>7440-50-8</td> <td>95.24</td> </tr> <tr> <td>Nickel</td> <td>7440-02-0</td> <td>2.54</td> </tr> <tr> <td>Silver</td> <td>7440-22-4</td> <td>1.67</td> </tr> <tr> <td>Silicon</td> <td>7440-21-3</td> <td>0.45</td> </tr> <tr> <td>Magnesium</td> <td>7439-95-4</td> <td>0.10</td> </tr> <tr> <td colspan="2">Total</td> <td>100.00</td> </tr> </table>	(mg) Total	Lead Frame	% of Total Weight	Copper	7440-50-8	95.24	Nickel	7440-02-0	2.54	Silver	7440-22-4	1.67	Silicon	7440-21-3	0.45	Magnesium	7439-95-4	0.10	Total		100.00	<table border="1"> <tr> <td>(mg) Total</td> <td>Die Attach</td> <td>% of Total Weight</td> </tr> <tr> <td>Silver</td> <td>7440-22-4</td> <td>74.00</td> </tr> <tr> <td>Epoxy resin</td> <td>Trade Secret</td> <td>20.00</td> </tr> <tr> <td>Metal oxide</td> <td>Trade Secret</td> <td>3.00</td> </tr> <tr> <td>Gamma-butyrolactone</td> <td>96-48-0</td> <td>3.00</td> </tr> <tr> <td colspan="2">Total</td> <td>100.00</td> </tr> </table>	(mg) Total	Die Attach	% of Total Weight	Silver	7440-22-4	74.00	Epoxy resin	Trade Secret	20.00	Metal oxide	Trade Secret	3.00	Gamma-butyrolactone	96-48-0	3.00	Total		100.00	<table border="1"> <tr> <td>Total (mg)</td> <td>Chip (Die)</td> <td>% of Total Weight</td> </tr> <tr> <td>Doped Silicon</td> <td>7440-21-3</td> <td>100.00</td> </tr> <tr> <td colspan="2">Total</td> <td>100.00</td> </tr> </table>	Total (mg)	Chip (Die)	% of Total Weight	Doped Silicon	7440-21-3	100.00	Total		100.00	<table border="1"> <tr> <td>(mg) Total</td> <td>Wire Bond</td> <td>% of Total Weight</td> </tr> <tr> <td>Doped Gold</td> <td>7440-57-5</td> <td>100.00</td> </tr> <tr> <td colspan="2">Total</td> <td>100.00</td> </tr> </table>	(mg) Total	Wire Bond	% of Total Weight	Doped Gold	7440-57-5	100.00	Total		100.00	<table border="1"> <tr> <td>(mg) Total</td> <td>Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour</td> <td>% of Total Weight</td> </tr> <tr> <td>Tin</td> <td>7440-31-5</td> <td>100.00</td> </tr> <tr> <td colspan="2">Total</td> <td>100.00</td> </tr> </table>	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	Tin	7440-31-5	100.00	Total		100.00																																																																																																
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Microchip Technology Incorporated cannot guarantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts.</td> <td></td> <td></td> <td></td> <td></td> <td colspan="2">Total</td> <td>100.00</td> <td></td> </tr> <tr> <td colspan="3">Microchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. 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