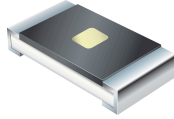


# MATERIAL DECLARATION SHEET



Material Number	CR0402-AS Series			
Product Line	Chip Resistor			
Compliance Date	11/19/2015			
RoHS Compliant	Yes	MSL	1	

No.	Construction Element (subpart)	Homogeneous Material	Material weight [mg]	Homogeneous Material\ Substances	CASRN if applicable	Materials Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)
1	Ceramic substrate	Alumina	0.468	Magnesium oxide	1309-48-4	1.3	1.0787	82.9787
				Crystalline silica	14808-60-7	3.0	2.4894	
				Aluminum oxide	1344-28-1	95.0	78.8298	
				Calcium oxide	1305-78-8	0.7	0.5809	
2	Rear electrode	Silver glass	0.003	Lead	7439-92-1	5.0	0.0266	0.5319
				Boron	7440-42-8	1.0	0.0053	
				Cupric oxide	1317-38-0	5.0	0.0266	
				Silver	7440-22-4	85.0	0.4521	
				Crystalline silica	14808-60-7	4.0	0.0213	
3	Surface electrode	AgPd glass	0.003	Lead	7439-92-1	2.0	0.0106	0.5319
				Boron	7440-42-8	1.0	0.0053	
				Palladium	7440-05-3	21.0	0.1117	
				Silver	7440-22-4	73.0	0.3883	
				Crystalline silica	14808-60-7	2.0	0.0106	
				Zirconium oxide	1314-23-4	1.0	0.0053	
4	Resistance Element	RuO2 glass	0.003	Lead	7439-92-1	22.0	0.1170	0.5319
				Boron	7440-42-8	3.0	0.0160	
				Cupric oxide	1317-38-0	1.0	0.0053	
				Palladium	7440-05-3	12.0	0.0638	
				Silver	7440-22-4	22.0	0.1170	
				Crystalline silica	14808-60-7	13.0	0.0691	
				Zinc oxide	1314-13-2	0.4	0.0021	
				Manganese oxide	1313-13-9	0.8	0.0043	
				Aluminum oxide	1344-28-1	0.8	0.0043	
Ruthenium oxide	12036-10-1	25.0	0.1330					

# MATERIAL DECLARATION SHEET



5	Protective Coat 1	Glass	0.003	Lead	7439-92-1	50.0	0.2660	0.5319
				Boron	7440-42-8	10.0	0.0532	
				Crystalline silica	14808-60-7	37.0	0.1968	
				Chromium oxide	1308-38-9	3.0	0.0160	
6	Protective Coat 2	Resin	0.002	Crystalline silica	14808-60-7	35.0	0.1241	0.3546
				Epoxy resin	Proprietary	65.0	0.2305	
7	Marking stamp	Resin	0.002	Nickel	7440-02-0	4.0	0.0142	0.3546
				Crystalline silica	14808-60-7	22.0	0.0780	
				Titanium dioxide	13463-67-7	22.0	0.0780	
				Epoxy resin	Proprietary	52.0	0.1844	
8	Side electrode	Resin-based Ag	0.012	Silver	7440-22-4	85.0	1.8085	2.1277
				Epoxy resin	Proprietary	15.0	0.3191	
9	Internal coating	Nickel	0.038	Nickel	7440-02-0	99.75	6.7207	6.7376
				Misc., not to declare	N/A	0.25	0.0168	
10	External coating	Tin	0.030	Tin	7440-31-5	99.75	5.3059	5.3192
				Misc., not to declare	N/A	0.25	0.0133	
Total weight			0.564					

**This Document was updated on:** January 5, 2017

**Important remarks:**

1. It is the responsibility of the user to verify they are accessing the latest version.