

# MATERIAL DECLARATION SHEET



Material Number	CRL2010 series			
Product Line	Thick Film Chip Resistors			
Compliance Date	04-01-2003			
RoHS Compliant	Yes	MSL	1	

No.	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous Material/Substances	CASRN	Materials Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)
1	Ceramic Substrate	Ceramic	0.02036	Aluminum oxide	1344-28-1	96%	86.85	90.47
				Silicon dioxide	14808-60-7	4%	3.62	
2	Conductor Layer	Thick Film Conductor	0.00034	Silver	7440-22-4	96%	1.43	1.51
				Bismuth	7440-69-9	1%	0.02	
				Barium	7440-39-3	1%	0.02	
				Silicon	7440-21-3	1%	0.02	
				Boron	7440-42-8	1%	0.02	
3	Resistive Element	Thick Film Resistor	0.00027	Ruthenium dioxide	12036-10-1	25%	0.3	1.21
				Silver	7440-22-4	40%	0.48	
				Palladium	7440-05-3	15%	0.18	
				Lead	7439-92-1	20%	0.24	
4	Over Coating	Epoxy	0.0004	Epoxy	29690-82-2	100%	1.75	1.75
5	Marking	Epoxy	0.00002	Epoxy	25085-99-8	100%	0.11	0.11
6	End Terminal	NI-CR	0.00001	Nickel	7440-02-0	80%	0.03	0.04
				Chromium	7440-47-3	20%	0.01	
7	Ni Plating	Nickel	0.00058	Nickel	7440-02-0	100%	2.59	2.59
8	Sn Plating	Tin	0.00052	Tin	7440-31-5	100%	2.32	2.32
			Total weight	0.0225				

This Document was updated on: **2014/Feb/5**

**Important remarks:**

1. It is the responsibility of the user to verify they are accessing the latest version.
2. Resistive Element contains the Lead (Pb) which can be referred to RoHS Exemption 7(c)-I.