

# Material Data Sheet

Date : December 10, 2013  
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Product P/N	ER18CEY100V		
Product Classification	Electric/Electronic component(Passive component)		
Product Name	Chip Resistor	Substitute P/N	No
Pb	Pb free	Packaging Material	Not included
			Weight TOTAL(mg) 9.49487

Part Name	Material Name	Chemical Name	CASNo.	Remark	Weight of each chemical material in a part (mg)	Weight of a part (mg)	Rate of each chemical material in a part (%)	Rate of each chemical material in a product (wt%)	Rate of each part in a product (wt%)
Substrate	Ceramics	Aluminum oxide ; Alumina; Corundum; Al <sub>2</sub> O <sub>3</sub>	1344-28-1		8.1144	8.4	96.6	88.468676	85.460734
		Silica; Silicon dioxide	7631-86-9		0.1764		2.1		1.857846
		Magnesium oxide; MgO	1309-48-4		0.084		1		0.884689
		Calcium oxide; CaO	1305-78-8		0.0252		0.3		0.265407
Top Terminal	Other special metals	Silver; Ag	7440-22-4		0.064	0.06605	96.89629	0.695672	0.67408
		Palladium; Pd	7440-05-3		0.000859		1.30053		0.009047
	Glass	Lead(II) oxide; Lead oxide (PbO) RolS exemption 7c(1)	1317-36-8		0.000595		1.500833		0.006267
		Cupric oxide; CuO	1317-38-0		0.000397		0.60106		0.004182
		Silica; Silicon dioxide	7631-86-9		0.000199		0.301287		0.002096
		Silver; Ag	7440-22-4		0.048593		97.497993		0.511793
Bottom Terminal	Glass	Lead(II) oxide; Lead oxide (PbO) RolS exemption 7c(1)	1317-36-8		0.000748	0.04984	1.500833	0.524927	0.007878
		Silica; Silicon dioxide	7631-86-9		0.000499		1.001204		0.005256
		Silver; Ag	7440-22-4		0.048593		97.497993		0.511793
Resistive Element	Glass	Lead(II) oxide; Lead oxide (PbO) RolS exemption 7c(1)	1317-36-8		0.01102	0.02505	43.992015	0.26385	0.116084
		Ruthenium(IV) oxide; RuO <sub>2</sub>	12036-10-1		0.00957		38.203593		0.100792
		Boron oxide; B <sub>2</sub> O <sub>3</sub>	1303-86-2		0.003758		15.001996		0.039558
		Other antimony compounds	-		0.000469		1.872256		0.00494
		Manganese dioxide; MnO <sub>2</sub>	1313-13-9		0.000233		0.93014		0.002454
First Protective Coating	Glass	Lead(II) oxide; Lead oxide (PbO) RolS exemption 7c(1)	1317-36-8		0.019578	0.0356	54.99438	0.374962	0.206217
		Silica; Silicon dioxide	7631-86-9		0.009114		25.601124		0.095989
		Boron oxide; B <sub>2</sub> O <sub>3</sub>	1303-86-2		0.004593		12.901686		0.048374
		Zinc oxide; ZnO	1314-13-2		0.001496		4.202248		0.015756
		Chromium(III) oxide; Pigment green 17 (C.I.); Cr <sub>2</sub> O <sub>3</sub>	1308-38-9		0.000819		2.300562		0.008626
		Silver; Ag	7440-22-4		0.000199		0.301287		0.002096
Second Protective Coating	EP (Epoxy resin)	Epichlorohydrin, o-cresol, formaldehyde polymer; Formaldehyde, polymer with (chloromethyl)oxirane and 2-methylphenol	29690-82-2		0.069889	0.10129	68.998913	1.066809	0.736093
	Ceramics	Silica; Silicon dioxide	7631-86-9		0.023297		23.000297		0.245364
	Others (Powder, etc)	Carbon black; C	1333-86-4		0.008104		8.00079		0.085352
Marking 1	EP (Epoxy resin)	Epichlorohydrin, o-cresol, formaldehyde polymer; Formaldehyde, polymer with (chloromethyl)oxirane and 2-methylphenol	29690-82-2		0.002488	0.00408	60.980392	0.042983	0.026215
	Ceramics	Silica; Silicon dioxide	7631-86-9		0.001245		30.514706		0.013113
	Others (Powder, etc)	Titanium dioxide; Pigment white 6; TiO <sub>2</sub>	13463-67-7		0.000347		8.504902		0.003655
Side Terminal	Other special metals	Silver; Ag	7440-22-4		0.102534	0.21496	47.699105	2.263983	1.07991
		EP (Epoxy resin)	Bisphenol A, epichlorohydrin polymer; Epoxy resin; Epon 820; Araldite	25068-38-6			0.089639		41.700317
	Others (Powder, etc)	Carbon black; C	1333-86-4		0.012683		5.900168		0.133578
		Other nonferrous metal	Potassium titanate; Potassium titanium oxide; K <sub>2</sub> Ti <sub>6</sub> O <sub>13</sub>	12056-51-8			0.010104		4.70041
Middle Terminal	Nickel and Nickel alloy	Nickel; Ni	7440-02-0		0.333	0.333	100	3.507157	
Outer Terminal	Other nonferrous metal	Tin; Sn	7440-31-5		0.265	0.265	100	2.790981	

RolS exemption 7c(1)  
 Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound