

## Material Data Sheet

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Product P/N	ERJ14ROJ@U		
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)	16.260266

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(%)	Rate of each part in a	
Substrate	Ceramics	Aluminum oxide, Alumina, Corundum, Al2O3	1344-28-1		13.524	14	96.6	86.099356	831.71973	
		Silica, Silicon dioxide	7631-86-9		0.294		2.1		1.808089	
		Magnesium oxide, MgO	1309-48-4		0.14		1		0.809955	
		Calcium oxide, CaO	1305-78-9		0.042		0.3		0.232299	
Top Terminal	Other special metals	Silver, Ag	7440-22-4		0.064	0.06605	96.89629	0.406225	0.393616	
		Palladium, Pd	7440-05-3		0.000859		1.00533		0.005283	
	RoHS exemption	Glass	Lead(II) oxide, Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-39-8			0.000595		0.900833	0.00366
			Cupric oxide, CuO	1317-39-0			0.000397		0.80109	0.002442
Bottom Terminal	Other special metals	Silica, Silicon dioxide	7631-86-9		0.000199	0.04984	0.301287	0.306522	0.001224	
		Silver, Ag	7440-22-4		0.043593		97.437983		0.298852	
	RoHS exemption	Glass	Lead(II) oxide, Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-39-8			0.000748		1.500803	0.004601
			Silica, Silicon dioxide	7631-86-9			0.000499		1.001204	0.003069
Resistive Element	Other special metals	Palladium, Pd	7440-05-3		0.138662	0.18995	72.999208	1.168201	0.852779	
		Glass	Ruthenium(IV) oxide, RuO2	12036-10-1	0.029623		15.700448		0.183411	
		Boron oxide, B2O3	1303-66-2	0.009498	5.000264		0.053413			
	Other special metals	Silver, Ag	7440-22-4	0.007978	4.200053		0.049065			
	Glass	Manganese dioxide, MnO2	1313-13-9		0.003989	2.100027	0.024533			
First Protective Coating	RoHS exemption	Glass	Lead(II) oxide, Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-39-8	0.047051	0.08555	54.998245	0.526144	0.288375	
			Silica, Silicon dioxide	7631-86-9	0.021901		25.600234		0.134891	
			Boron oxide, B2O3	1303-66-2	0.011936		12.900059		0.067871	
			Zinc oxide, ZnO	1314-13-2	0.003394		4.201932		0.022103	
			Chromium(III) oxide, Pigment green 17 (C1); Cr2O3	1308-38-9	0.001968		2.30041		0.012104	
Second Protective Coating	EP (Epoxy resin)	Epichlorohydrin, o-cresol, formaldehyde polymer; Formaldehyde, polymer with (chloromethyl oxirane and 2-methylphenol)	29690-82-2		0.125192	0.18144	68.999118	1.115863	0.769939	
	Ceramics	Silica, Silicon dioxide	7631-86-9		0.041732		23.000441		0.256651	
Marking 1	Others (Powder etc)	Carbon black, C	1333-86-4		0.014516	0.00537	8.000441	0.033033	0.088273	
	EP (Epoxy resin)	Epichlorohydrin, o-cresol, formaldehyde polymer; Formaldehyde, polymer with (chloromethyl oxirane and 2-methylphenol)	29690-82-2		0.00275		89.996964		0.020148	
	Ceramics	Silica, Silicon dioxide	7631-86-9		0.001638		30.502794		0.010074	
	Others (Powder etc)	Titanium dioxide, Pigment white 6; TiO2	13463-67-7		0.000457		8.012422		0.002811	
Side Terminal	Other special metals	Silver, Ag	7440-22-4		0.057334	0.1202	47.698833	0.73924	0.352615	
		EP (Epoxy resin)	Bisphenol A, epichlorohydrin polymer; Epoxy resin, Epon 820; Araldite GY 250	25068-38-6	0.000124		41.7005		0.308261	
	Others (Powder etc)	Carbon black, C	1333-86-4	0.007692	5.900167		0.043616			
	Other nonferrous metals	Potassium titanate; Potassium titanium oxide; K2Ti6O13	12056-51-8	0.00059	4.7005		0.034748			
Middle Terminal (cu)	Copper alloys	Copper, Cu	7440-50-8		0.601866	0.601866	100	3.701453	3.701453	
Middle Terminal (ni)	Nickel and Nickel alloys	Nickel, Ni	7440-02-0		0.501	0.501	100	3.081131	3.081131	
Outer Terminal (sn)	Other nonferrous metals	Tin, Sn	7440-31-5		0.459	0.459	100	2.822832	2.822832	

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