

Material Data Sheet

Date : Jun/17/2010
 Company : Panasonic Electronic Devices Co., Ltd.
 Address : 401 Sadamasa-cho, Fukui City, Fukui Japan
 Department : Circuit Components Business Unit, Environment Management Team
 Approved by : Hidemitsu Kura
 Prepared by : Yasuo Katsuki
 Telephone : +81-776-56-8028

Product P/N	ER114NF0000			Weight TOTAL(mg)	15.9252
Product Classification	Electric/Electronic component (Passive component)				
Product Name	Chip Resistor	Substitute P/N	No		
Pb	Pb free	Packaging Material	Not included		

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; Al2O3	1344-28-1		13.524	14	96.6	87.910903	84.921929
			Silica; Silicon dioxide	7631-86-9		0.294		2.1		1.846131
			Magnesium oxide; MgO	1309-48-4		0.14		1		0.87911
			Calcium oxide; CaO	1305-78-8		0.042		0.3		0.263733
Top Terminal		Other special metals	Silver; Ag	7440-22-4		0.109203	0.1127	96.89707	0.707711	0.88375
			Palladium; Pd	7440-05-3		0.001466		1.300799		0.009206
		Glass	Lead(II) oxide; Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-36-8		0.001015		0.900622		0.006374
			Cupric oxide; CuO	1317-38-0		0.000677		0.60071		0.004252
			Silica; Silicon dioxide	7631-86-9		0.000339		0.300799		0.002129
Bottom Terminal		Other special metals	Silver; Ag	7440-22-4		0.102033	0.10465	97.499283	0.657142	0.640708
		Glass	Lead(II) oxide; Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-36-8		0.00157		1.500239		0.009859
Resistive Element		Glass	Silica; Silicon dioxide	7631-86-9		0.001047	0.12535	1.000478	0.787125	0.006575
			Lead(II) oxide; Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-36-8		0.055153		43.9992		0.346332
			Ruthenium(IV) oxide; RuO2	12036-10-1		0.047884		38.20024		0.300681
			Boron oxide; B2O3	1303-86-2		0.018803		15.000399		0.118071
			Other antimony compounds	---		0.002344		1.869965		0.014719
First Protective Coating		Glass	Manganese dioxide; MnO2	1313-13-9		0.001166	0.08555	0.930196	0.537213	0.007322
			Lead(II) oxide; Lead oxide (PbO); C.I. Pigment Yellow 46; Lead monooxide; Lead(2+) oxide	1317-36-8		0.047051		54.998245		0.295463
			Silica; Silicon dioxide	7631-86-9		0.021901		25.600234		0.137525
			Boron oxide; B2O3	1303-86-2		0.011036		12.900059		0.069299
			Zinc oxide; ZnO	1314-13-2		0.003594		4.201052		0.022568
			Chromium(III) oxide; Pigment green 17 (C.I.); Cr2O3	1308-38-9		0.001968		2.30041		0.012358
Second Protective Coating		EP (Epoxy resin)	Epichlorohydrin, o-cresol, formaldehyde polymer; Formaldehyde, polymer with (chloromethyl)oxirane and 2-me	29690-82-2		0.125289	0.18158	68.999338	1.140219	0.786747
		Ceramics	Silica; Silicon dioxide	7631-86-9		0.041764		23.000331		0.262251
		Other thermoplastics	Carbon black; C	1333-86-4		0.014527		8.000331		0.091221
Marking 1		EP (Epoxy resin)	Epichlorohydrin, o-cresol, formaldehyde polymer; Formaldehyde, polymer with (chloromethyl)oxirane and 2-me	29690-82-2		0.003275	0.00537	60.989664	0.033728	0.020572
		Ceramics	Silica; Silicon dioxide	7631-86-9		0.001638		30.502794		0.010286
		Other thermoplastics	Titanium dioxide; Pigment white 6; TiO2	13463-67-7		0.000457		8.510242		0.00287
Side Terminal		Other special metals	Silver; Ag	7440-22-4		0.16695	0.35	47.7	2.197776	1.048339
		EP (Epoxy resin)	Bisphenol A, epichlorohydrin polymer; Epoxy resin; Epon 820; Araldite GY 250	25068-38-6		0.14595		41.7		0.916472
		Other thermoplastics	Carbon black; C	1333-86-4		0.02065		5.9		0.129669
		Other nonferrous metal	Potassium titanate; Potassium titanium oxide; K2Ti6O13	12056-51-8		0.01645		4.7		0.103296
Middle Terminal		Nickel and Nickel alloy	Nickel; Ni	7440-02-0		0.501	0.501	100	3.145958	3.145958
Outer Terminal		Other nonferrous metal	Tin; Sn	7440-31-5		0.459	0.459	100	2.882225	2.882225