

ULTRA HIGH POWER THICK FILM CHIP RESISTORS


- UPR SERIES -

■ UPR20 - 2010

NO.	BREAKDOWN OF COMPONENT	MATERIAL NAME	CAS NO.	SUBSTANCE MASS (mg/pc)	PERCENTAGE OF HOMOGENEOUS MATERIAL	REMARK
1	Substrate	Aluminium Trioxide	1344-28-1	41.7888000	96%	
		Silicon Dioxide	14808-60-7	1.0882500	2.5%	
		Magnesium Oxide	1309-48-4	0.6529500	1.5%	
2	Termination Inner (C1)	Silver	7440-22-4	0.9003594	91%	
		Palladium	7440-05-3	0.0062094	1%	
		Glass	65997-18-4	0.0248375	3%	
		Ethyl Cellulose	9004-57-3	0.0248375	3%	
		Acrylic Resin	26044-94-0	0.0372563	4%	
3	Termination Inner (C2)	Silver	7440-22-4	0.1445200	40%	
		Glass	65997-18-4	0.0325170	9%	
		Ethyl cellulose	9004-57-3	0.0361300	10%	
		Terpineol	8000-41-7	0.1481330	41%	
4	Termination Inner (C3)	Nickel	7440-02-0	0.0764800	80%	
		Chromium	7440-47-3	0.0191200	20%	
5	Resistive Element	Ruthenium Oxide	12036-10-1	0.0188600	5%	RoHS Exemption No.: 7(c)-I (Pb in glass of electronic components)
		Silver	7440-22-4	0.0943000	25%	
		Palladium	7440-05-3	0.0377200	10%	
		Glass	65997-18-4	0.2263200	60%	
6	Protective Coating (G1)	Glass	65997-18-4	0.1708500	67%	
		Ethyl Cellulose	9004-57-3	0.0076500	3%	
		Turpentine Alcoholize	10482-56-1	0.0765000	30%	
7	Protective Coating (G2)	Resin	25068-38-6	0.2142240	48%	
		Color Pigment	68186-91-4	0.0594918	13.33%	
		Silicon Dioxide	60676-86-0	0.1487518	33.33%	
		Talc	14807-96-6	0.0238324	5.34%	
8	Termination Between	Nickel	7440-02-0	0.8819000	100%	
9	Termination Outer	Tin	7440-31-5	0.8448000	100%	
10	Marking	Epoxy Resin	25085-99-8	0.0019473	52.63%	
		Barium Sulfate	7727-43-7	0.0005842	15.79%	
		Titanium Dioxide	13463-67-7	0.0011685	31.58%	
TOTAL				47.789300		

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- UPR SERIES -

 UPR25 - 2512

NO.	BREAKDOWN OF COMPONENT	MATERIAL NAME	CAS NO.	SUBSTANCE MASS (mg/pc)	PERCENTAGE OF HOMOGENEOUS MATERIAL	REMARK
1	Substrate	Aluminium Trioxide	1344-28-1	58.1007360	96%	
		Silicon Dioxide	14808-60-7	1.5130400	3%	
		Magnesium Oxide	1309-48-4	0.9078240	2%	
2	Termination Inner (C1)	Silver	7440-22-4	2.4407125	91%	
		Palladium	7440-05-3	0.0168325	1%	
		Glass	65997-18-4	0.0673300	3%	
		Ethyl Cellulose	9004-57-3	0.0673300	3%	
		Acrylic Resin	26044-94-0	0.1009950	4%	
3	Termination Inner (C2)	Silver	7440-22-4	0.8533600	40%	
		Glass	65997-18-4	0.1920060	9%	
		Ethyl Cellulose	9004-57-3	0.2133400	10%	
		Terpineol	8000-41-7	0.8746940	41%	
4	Termination Inner (C3)	Nickel	7440-02-0	0.1573600	80%	
		Chromium	7440-47-3	0.0393400	20%	
5	Resistive Element	Ruthenium Oxide	12036-10-1	0.1373100	5%	RoHS Exemption No.: 7(c)-I (Pb in glass of electronic components)
		Silver	7440-22-4	0.6865500	25%	
		Palladium	7440-05-3	0.2746200	10%	
		Glass	65997-18-4	1.6477200	60%	
6	Protective Coating (G1)	Glass	65997-18-4	0.4257850	67%	
		Ethyl Cellulose	9004-57-3	0.0190650	3%	
		Turpentine Alcoholize	10482-56-1	0.1906500	30%	
7	Protective Coating (G2)	Resin	25068-38-6	0.9768000	48%	
		Color Pigment	68186-91-4	0.2712655	13.33%	
		Silicon Dioxide	60676-86-0	0.6782655	33.33%	
		Talc	14807-96-6	0.1086690	5.34%	
8	Termination Between	Nickel	7440-02-0	2.2469000	100%	
9	Termination Outer	Tin	7440-31-5	2.2090000	100%	
10	Marking	Epoxy Resin	25085-99-8	0.1234174	52.63%	
		Barium Sulfate	7727-43-7	0.0370276	15.79%	
		Titanium Dioxide	13463-67-7	0.0740551	31.58%	
TOTAL				75.652000		



ULTRA HIGH POWER THICK FILM CHIP RESISTORS

- UPR SERIES -

■ UPR28 - 2817

NO.	BREAKDOWN OF COMPONENT	MATERIAL NAME	CAS NO.	SUBSTANCE MASS (mg/pc)	PERCENTAGE OF HOMOGENEOUS MATERIAL	REMARK
1	Substrate	Aluminium Trioxide	1344-28-1	110.0558218	96%	
		Silicon Dioxide	14808-60-7	2.8660370	2.5%	
		Magnesium Oxide	1309-48-4	1.7196222	1.5%	
2	Termination Inner (C1)	Silver	7440-22-4	2.0839599	91%	
		Palladium	7440-05-3	0.0143721	1%	
		Glass	65997-18-4	0.0574885	3%	
		Ethyl Cellulose	9004-57-3	0.0574885	3%	
		Acrylic Resin	26044-94-0	0.0862328	4%	
3	Termination Inner (C2)	Silver	7440-22-4	0.3345041	40%	
		Glass	65997-18-4	0.0752634	9%	
		Ethyl cellulose	9004-57-3	0.0836260	10%	
		Terpineol	8000-41-7	0.3428667	41%	
4	Termination Inner (C3)	Nickel	7440-02-0	0.1770196	80%	
		Chromium	7440-47-3	0.0442549	20%	
5	Resistive Element	Ruthenium Oxide	12036-10-1	0.0436531	5%	RoHS Exemption No.: 7(c)-I (Pb in glass of electronic components)
		Silver	7440-22-4	0.2182655	25%	
		Palladium	7440-05-3	0.0873062	10%	
		Glass	65997-18-4	0.5238373	60%	
6	Protective Coating (G1)	Glass	65997-18-4	0.3954471	67%	
		Ethyl Cellulose	9004-57-3	0.0177066	3%	
		Turpentine Alcoholize	10482-56-1	0.1770659	30%	
7	Protective Coating (G2)	Resin	25068-38-6	0.4958400	48.00%	
		Color Pigment	68186-91-4	0.1376989	13.33%	
		Silicon Dioxide	60676-86-0	0.3442989	33.33%	
		Talc	14807-96-6	0.0551622	5.34%	
8	Termination Between	Nickel	7440-02-0	2.0412340	100%	
9	Termination Outer	Tin	7440-31-5	1.9553629	100%	
10	Marking	Epoxy Resin	25085-99-8	0.0045072	52.63%	
		Barium Sulfate	7727-43-7	0.0013523	15.79%	
		Titanium Dioxide	13463-67-7	0.0027045	31.58%	
TOTAL				124.500		

ULTRA HIGH POWER THICK FILM CHIP RESISTORS

- UPR SERIES -

■ UPR43 - 4320

NO.	BREAKDOWN OF COMPONENT	MATERIAL NAME	CAS NO.	SUBSTANCE MASS (mg/pc)	PERCENTAGE OF HOMOGENEOUS MATERIAL	REMARK
1	Substrate	Aluminium Trioxide	1344-28-1	200.5245677	96%	
		Silicon Dioxide	14808-60-7	5.2219940	2.5%	
		Magnesium Oxide	1309-48-4	3.1331964	1.5%	
2	Termination Inner (C1)	Silver	7440-22-4	3.7476472	96.67%	
		Palladium	7440-05-3	0.0259742	0.67%	
		Glass	65997-18-4	0.1031214	2.66%	
3	Termination Inner (C2)	Silver	7440-22-4	1.1508451	81.63%	
		Glass	65997-18-4	0.2589860	18.37%	
4	Termination Inner (C3)	Nickel	7440-02-0	0.2984331	80%	
		Chromium	7440-47-3	0.0746083	20%	
5	Resistive Element	Ruthenium Oxide	12036-10-1	0.0735937	5%	RoHS Exemption No.: 7(c)-I (Pb in glass of electronic components)
		Silver	7440-22-4	0.3679686	25%	
		Palladium	7440-05-3	0.1471875	10%	
		Glass	65997-18-4	0.8831247	60.00%	
6	Protective Coating (G1)	Glass	65997-18-4	0.6666749	67%	
		Ethyl Cellulose	9004-57-3	0.0298511	3%	
		Turpentine Alcoholize	10482-56-1	0.2985111	30%	
7	Protective Coating (G2)	Resin	25068-38-6	0.8359249	48.00%	
		Color Pigment	68186-91-4	0.2321433	13.33%	
		Silicon Dioxide	60676-86-0	0.5804453	33.33%	
		Talc	14807-96-6	0.0929966	5.34%	
8	Termination Between	Nickel	7440-02-0	3.4412677	100%	
9	Termination Outer	Tin	7440-31-5	3.2964995	100%	
10	Marking	Epoxy Resin	25085-99-8	0.0075986	52.63%	
		Barium Sulfate	7727-43-7	0.0022797	15.79%	
		Titanium Dioxide	13463-67-7	0.0045595	31.58%	
TOTAL				225.500000		



ULTRA HIGH POWER THICK FILM CHIP RESISTORS

- UPR SERIES -

■ UPR45 - 4527

NO.	BREAKDOWN OF COMPONENT	MATERIAL NAME	CAS NO.	SUBSTANCE MASS (mg/pc)	PERCENTAGE OF HOMOGENEOUS MATERIAL	REMARK
1	Substrate	Aluminium Trioxide	1344-28-1	294.8624938	96%	
		Silicon Dioxide	14808-60-7	7.6787108	2.5%	
		Magnesium Oxide	1309-48-4	4.6072265	1.5%	
2	Termination Inner (C1)	Silver	7440-22-4	5.0399864	96.67%	
		Palladium	7440-05-3	0.0349311	0.67%	
		Glass	65997-18-4	0.1386817	2.66%	
3	Termination Inner (C2)	Silver	7440-22-4	1.5477027	81.63%	
		Glass	65997-18-4	0.3482947	18.37%	
4	Termination Inner (C3)	Nickel	7440-02-0	0.4013448	80%	
		Chromium	7440-47-3	0.1003362	20%	
5	Resistive Element	Ruthenium Oxide	12036-10-1	0.0989718	5%	RoHS Exemption No.: 7(c)-I (Pb in glass of electronic components)
		Silver	7440-22-4	0.4948590	25%	
		Palladium	7440-05-3	0.1979436	10%	
		Glass	65997-18-4	1.1876616	60.00%	
6	Protective Coating (G1)	Glass	65997-18-4	0.8965712	67%	
		Ethyl Cellulose	9004-57-3	0.0401450	3%	
		Turpentine Alcoholize	10482-56-1	0.4014498	30%	
7	Protective Coating (G2)	Resin	25068-38-6	1.1241853	48.00%	
		Color Pigment	68186-91-4	0.3121956	13.33%	
		Silicon Dioxide	60676-86-0	0.7806062	33.33%	
		Talc	14807-96-6	0.1250656	5.34%	
8	Termination Between	Nickel	7440-02-0	4.6279549	100%	
9	Termination Outer	Tin	7440-31-5	4.4332649	100%	
10	Marking	Epoxy Resin	25085-99-8	0.0102189	52.63%	
		Barium Sulfate	7727-43-7	0.0030659	15.79%	
		Titanium Dioxide	13463-67-7	0.0061317	31.58%	
TOTAL				329.500000		