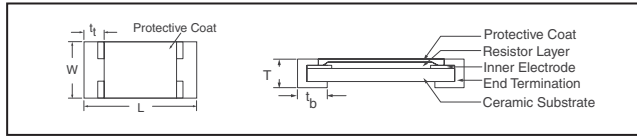


YAGEO Surface Mount 1% & 5% Thick Film Chip Resistors



Description: The resistors are constructed on a high grade ceramic body (aluminum oxide). Internal metal electrodes are added at each end and connected by a resistive paste which is applied to the top surface of the substrate. The composition of the paste is adjusted to give the approximate resistance required and the value is trimmed to within tolerance, by laser cutting of the resistive layer. The resistive layer is covered with a protective coat. Finally, the two external end terminations are added. For ease of soldering the outer layer of these end terminations is a lead/tin alloy. End terminations on RoHS Compliant parts are pure tin.



Size	Power Rating at 70°	Working Voltage (Maximum)	Dimensions (mm)					Resistance Range	Temperature Coefficient
			L	W	T	t _t	t _b		
0402	1/16W	50V	1.00	0.50	0.35	0.20	0.25	5% 1% 10Ω < R ≤ 10MΩ ±100ppm/°C 1Ω < R ≤ 10MΩ ±200ppm/°C	
0603	1/10W	50V	1.60	0.80	0.45	0.25	0.25	5% 1% 10Ω < R ≤ 10MΩ ±100ppm/°C R ≤ 10Ω; R > 10MΩ ±200ppm/°C	
0805	1/8W	150V	2.00	1.25	0.50	0.35	0.35	5% 1% 10Ω < R ≤ 10MΩ ±100ppm/°C R ≤ 10Ω; R > 10MΩ ±200ppm/°C	
1206	1/4 W	200V	3.10	1.60	0.55	0.45	0.40	5% 1% 10Ω < R ≤ 10MΩ ±100ppm/°C R ≤ 10Ω; R > 10MΩ ±200ppm/°C	

1%, 1/10 Watt — 0603 Series

Resistor Values

1.00	17.4	43.2	115	301	750	2.05K	5.10K	13.3K	34.8K	88.7K	240K	590K
2.00	17.8	44.2	118	309	768	2.10K	5.11K	13.7K	35.7K	90.9K	243K	604K
2.10	18.0	45.3	120	316	787	2.15K	5.23K	14.0K	36.0K	91.0K	249K	619K
2.15	18.2	46.4	121	324	806	2.20K	5.36K	14.3K	36.5K	93.1K	255K	620K
2.21	18.7	47.0	124	330	820	2.21K	5.49K	14.7K	37.4K	95.3K	261K	634K
2.43	19.1	47.5	127	332	825	2.26K	5.60K	15.0K	38.3K	97.6K	267K	649K
2.49	19.6	48.7	130	340	845	2.32K	5.62K	15.4K	39.0K	100K	270K	665K
2.74	20.0	49.9	133	348	866	2.37K	5.76K	15.8K	39.2K	102K	274K	680K
3.01	20.5	51.0	137	357	887	2.40K	5.90K	16.0K	40.2K	105K	280K	681K
3.32	21.0	51.1	140	360	909	2.43K	6.04K	16.2K	41.2K	107K	287K	698K
3.92	21.5	52.3	143	365	910	2.49K	6.19K	16.5K	42.2K	110K	294K	715K
4.02	22.0	53.6	147	374	931	2.55K	6.20K	16.9K	43.0K	113K	300K	732K
4.42	22.1	54.9	150	383	953	2.61K	6.34K	17.4K	43.2K	115K	301K	750K
4.75	22.6	56.0	154	390	976	2.67K	6.49K	17.8K	44.2K	118K	309K	768K
4.99	23.2	56.2	158	392	1000	2.70K	6.65K	18.0K	45.3K	120K	316K	787K
5.11	23.7	57.6	160	402	102K	2.74K	6.80K	18.2K	46.4K	121K	324K	806K
5.23	24.0	59.0	162	412	105K	2.80K	6.81K	18.7K	47.0K	124K	330K	820K
5.62	24.3	60.4	165	422	107K	2.87K	6.98K	19.1K	47.5K	127K	332K	825K
5.76	24.9	61.9	169	430	110K	2.94K	7.15K	19.6K	48.7K	130K	340K	845K
6.04	25.5	62.0	174	432	113K	3.00K	7.32K	20.0K	49.9K	133K	348K	866K
6.81	26.1	63.4	178	442	115K	3.01K	7.50K	20.5K	51.0K	137K	357K	887K
7.50	26.7	64.9	180	453	118K	3.09K	7.68K	21.0K	51.1K	140K	360K	909K
10.0	27.0	66.5	182	464	120K	3.16K	7.87K	21.5K	52.3K	143K	365K	910K
10.2	27.4	68.0	187	470	1.21K	3.24K	8.06K	22.0K	53.6K	147K	374K	931K
10.5	28.0	68.1	191	475	1.24K	3.30K	8.20K	22.1K	54.9K	150K	383K	953K
10.7	28.7	69.8	196	487	1.27K	3.32K	8.25K	22.6K	56.2K	154K	390K	976K
11.0	29.4	71.5	200	499	1.30K	3.40K	8.45K	23.2K	57.6K	158K	392K	1.00K
11.3	30.0	73.2	205	511	1.33K	3.48K	8.66K	23.7K	59.0K	160K	402K	1.10M
11.5	30.1	75.0	210	511	1.37K	3.57K	8.87K	24.0K	60.4K	162K	412K	1.21M
11.8	30.9	76.8	215	523	1.40K	3.60K	9.09K	24.3K	61.9K	165K	422K	1.50M
12.0	31.6	78.7	220	536	1.43K	3.65K	9.10K	24.9K	62.0K	169K	430K	2.00M
12.1	32.4	80.6	221	549	1.47K	3.74K	9.31K	25.5K	63.4K	174K	432K	2.21M
12.4	33.0	82.0	226	560	1.50K	3.83K	9.53K	26.1K	64.9K	178K	442K	2.49M
12.7	33.2	82.5	232	562	1.54K	3.90K	9.76K	26.7K	66.5K	180K	453K	2.94M
13.0	34.0	84.5	237	576	1.58K	3.92K	10.0K	27.0K	68.0K	182K	464K	3.01M
13.3	34.8	88.7	240	590	1.60K	4.02K	10.2K	27.4K	68.1K	187K	470K	4.70M
13.7	35.7	90.9	243	604	1.62K	4.12K	10.5K	28.0K	69.8K	191K	475K	4.75M
14.0	36.0	91.0	249	619	1.65K	4.22K	10.7K	28.7K	71.5K	196K	487K	7.00M
14.3	36.5	93.1	255	620	1.69K	4.30K	11.0K	29.4K	73.2K	200K	499K	
14.7	37.4	95.3	261	634	1.74K	4.32K	11.3K	30.0K	75.0K	205K	510K	
15.0	38.3	97.6	267	649	1.78K	4.42K	11.5K	30.1K	76.8K	210K	511K	
15.4	39.0	100	270	665	1.80K	4.53K	11.8K	30.9K	78.7K	215K	523K	
15.8	39.2	102	274	680	1.82K	4.64K	12.0K	31.6K	80.6K	220K	536K	
16.0	40.2	105	280	681	1.87K	4.70K	12.1K	32.4K	82.0K	221K	549K	
16.2	41.2	107	287	698	1.91K	4.75K	12.4K	33.0K	82.5K	226K	560K	
16.5	42.2	110	294	715	1.96K	4.87K	12.7K	33.2K	84.5K	232K	562K	
16.9	43.0	113	300	732	2.00K	4.99K	13.0K	34.0K	86.6K	237K	576K	

Value Range	Digi-Key Part No.	Cut Tape Pricing 10 50 200	Tape and Reel Qty.		Yageo Part No.
			Qty.	Price	
2.10 - 5.23Ω	311-(Value)HCT-ND	.77 2.07 4.76	—	—	9C06031AxxxxFGHFT
10.2 - 1.20MΩ	311-(Value)HCT-ND	.77 2.07 4.76	—	—	9C06031AxxxxFKHFT
RoHS Compliant					
1.00 - 10.0MΩ	311-(Value)HRC-ND	.77 2.07 4.76	5,000	4.80/M	RC0603FR-07xxxxL

For Tape and Reel part number, change CT-ND to TR-ND.

Digi-Key® Assortment Kits 0603 Series 1% Thick Film Chip Resistor Kits - 1/10 Watt — RoHS Compliant					
PHH1-KIT-ND	50 each of values 1.00Ω - 7.50Ω (22 values (1,100 total pieces))	PHH4-KIT-ND	50 each of values 1.00KΩ - 9.76KΩ (114 values (5,700 total pieces))		\$19.95
PHH2-KIT-ND	50 each of values 10.0Ω - 97.6Ω (113 values (5,650 total pieces))	PHH5-KIT-ND	50 each of values 10.0KΩ - 97.6KΩ (114 values (5,700 total pieces))		\$19.95
PHH3-KIT-ND	50 each of values 100Ω - 976Ω (114 values (5,700 total pieces))	PHH6-KIT-ND	50 each of values 100KΩ - 1.00MΩ (115 values (5,750 total pieces))		\$19.95

1%, 1/16 Watt — 0402 Series

Resistor Values

1.00	36.0	150	470	1.20K	3.30K	6.49K	11.0K	18.0K	30.1K	47.0K	68.0K	110K	226K	470K
1.50	39.0	160	499	1.21K	3.74K	6.80K	11.3K	19.1K	33.0K	47.5K	78.7K	120K	240K	499K
2.20	49.0	180	510	1.50K	3.90K	7.50K	11.5K	20.0K	35.7K	49.0K	80.6K	121K	249K	510K
3.30	51.0	220	511	1.80K	3.92K	7.87K	12.0K	21.0K	36.0K	51.0K	82.0K	124K	261K	560K
4.70	56.0	280	560	1.82K	4.30K	8.06K	12.1K	22.0K	39.0K	51.1K	82.5K	127K	270K	562K
10.0	62.0	300	620	1.96K	4.64K	8.20K	13.0K	22.1K	39.2K	53.6K	88.7K	150K	300K	620K
22.0	68.0	301	680	2.20K	5.10K	8.87K	14.0K	24.9K	42.0K	56.0K	90.9K	180K	301K	649K
24.9	68.1	330	715	2.21K	5.36K	9.10K	15.0K	26.1K	42.2K	60.4K	91.0K	187K	332K	768K
26.1	75.0	332	910	2.40K	5.49K	9.53K	16.0K	27.0K	43.0K	61.9K	95.3K	200K	360K	1.00M
28.0	100	430	1.00K	2.70K	5.62K	10.0K	16.2K	28.0K	45.3K	62.0K	97.6K	210K	430K	3.30M
33.0	120	464	1.10K	3.01K	6.20K	10.7K	17.4K	30.0K	46.4K	64.9K	100K	220K	442K	3.60M

Value Range	Digi-Key Part No.	Cut Tape Pricing 10 50 200	Tape and Reel Qty.		Yageo Part No.
			Qty.	Price	
26.1 - 768KΩ	311-(Value)LCT-ND	.94 2.52 5.78	10,000	7.56/M	RC04021AxxxxFLHF3
RoHS Compliant					
1.00 - 3.60MΩ	311-(Value)LRCT-ND	.94 2.52 5.78	10,000	7.56/M	RC0402FR-07xxxxL

For Tape and Reel part number, change CT-ND to TR-ND.

Digi-Key® Assortment Kits 0402 Series 1% Thick Film Chip Resistor Kits - 1/16 Watt — RoHS Compliant					
PH3-KIT-ND	50 each of values 1.00Ω - 9.53KΩ (33 values (1,650 total pieces))	PH4-KIT-ND	50 each of values 10.0KΩ - 97.6KΩ (56 values (2,800 total pieces))		\$39.95
PH1-KIT-ND	50 each of values 1.00Ω - 75.0Ω (17 values (850 total pieces))	PH5-KIT-ND	50 each of values 100Ω - 910Ω (22 values (1,100 total pieces))		\$29.95
PH2-KIT-ND	50 each of values 100Ω - 910Ω (22 values (1,100 total pieces))				\$29.95

1%, 1/8 Watt — 0805 Series

Resistor Values

1.00	3.01	8.66	24.9	63.4	180	470	1.27K	3.48K	9.09K	25.5K	64.9K	182K	475K	1.37M	4.22M
1.02	3.09	8.87	25.5	64.9	182	475	1.30K	3.57K	9.10K	26.1K	66.5K	187K	487K	1.40M	4.32M
1.05	3.16	9.09	26.1	66.5	187	487	1.33K	3.60K	9.31K	26.7K	68.0K	191K	499K	1.43M	4.42M
1.10	3.24	9.31	26.7	68.0	191	499	1.37K	3.65K	9.53K	27.0K	68.1K	196K	510K	1.47M	4.53M
1.10	3.32	9.53	27.0	68.1	196	510	1.40K	3.74K	9.76K	27.4K	69.8K	200K	511K	1.50M	4.64M
1.13	3.40	9.76	27.4	69.8	200	511	1.43K	3.83K	10.0K	28.0K	71.5K	205K	523K	1.54M	4.70M
1.15	3.48	10.0	28.0	71.5	205	523	1.47K	3.90K	10.2K	28.7K	73.2K	210K	536K	1.58M	4.75M
1.18	3.57	10.2	28.7	73.2	210	536	1.50K	3.92K	10.5K	29.4K	75.0K	215K	549K	1.62M	4.87M
1.21	3.65	10.5	29.4	75.0	215	549	1.54K	4.02K	10.7K	30.0K	76.8K	220K	560K	1.65M	4.99M
1.24	3.74	10.7	30.0	76.8	220	560	1.58K	4.12K	11.0K	30.1K	78.7K	221K			

YAGEO Surface Mount 1% & 5% Thick Film Chip Resistors (Cont.)



1%, 1/4 Watt — 1206 Series

Resistor Values

1.00	3.09	8.87	27.4	78.7	243	681	2.20K	6.19K	19.1K	56.0K	174K	499K	1.54M	4.42M
1.02	3.16	9.09	28.0	80.6	249	698	2.21K	6.20K	19.6K	56.2K	178K	510K	1.58M	4.53M
1.05	3.24	9.10	28.7	82.0	255	715	2.26K	6.34K	20.0K	57.6K	180K	511K	1.60M	4.64M
1.07	3.30	9.31	29.4	82.5	261	732	2.32K	6.49K	20.5K	59.0K	182K	523K	1.62M	4.70M
1.10	3.32	9.53	30.0	84.5	267	750	2.37K	6.65K	21.0K	60.4K	187K	536K	1.65M	4.75M
1.13	3.40	9.76	30.1	86.6	270	768	2.40K	6.80K	21.5K	61.9K	191K	549K	1.69M	4.87M
1.15	3.48	10.0	30.9	88.7	274	787	2.43K	6.81K	22.0K	62.0K	196K	560K	1.74M	4.99M
1.18	3.57	10.2	31.6	90.9	280	806	2.49K	6.98K	22.1K	63.4K	200K	562K	1.78M	5.10M
1.20	3.60	10.5	32.4	91.0	287	820	2.55K	7.15K	22.6K	64.9K	205K	576K	1.80M	5.11M
1.21	3.65	10.7	33.0	93.1	294	825	2.61K	7.32K	23.2K	66.5K	210K	590K	1.82M	5.23M
1.24	3.74	11.0	33.2	95.3	300	845	2.67K	7.50K	23.7K	68.0K	215K	604K	1.87M	5.36M
1.27	3.83	11.3	34.0	97.6	301	866	2.70K	7.68K	24.0K	68.1K	220K	619K	1.91M	5.49M
1.30	3.90	11.5	34.8	100	309	887	2.74K	7.87K	24.3K	69.8K	221K	620K	1.96M	5.60M
1.33	3.92	11.8	35.7	102	316	909	2.80K	8.06K	24.9K	71.5K	226K	634K	2.00M	5.62M
1.37	4.02	12.0	36.0	105	324	910	2.87K	8.20K	25.5K	73.2K	232K	649K	2.05M	5.76M
1.40	4.12	12.1	36.5	107	330	931	2.94K	8.25K	26.1K	75.0K	237K	665K	2.10M	5.90M
1.43	4.22	12.4	37.4	110	332	953	3.00K	8.45K	26.7K	76.8K	240K	680K	2.15M	6.04M
1.47	4.30	12.7	38.3	113	340	976	3.01K	8.66K	27.0K	78.7K	243K	681K	2.20M	6.19M
1.50	4.32	13.0	39.0	115	348	1000	3.09K	8.87K	28.0K	80.6K	249K	698K	2.21M	6.20M
1.54	4.42	13.3	39.2	118	357	102K	3.16K	9.09K	28.7K	82.0K	255K	715K	2.26M	6.34M
1.58	4.53	13.7	40.2	120	360	105K	3.24K	9.10K	29.4K	82.5K	261K	732K	2.32M	6.49M
1.60	4.64	14.0	41.2	121	365	107K	3.30K	9.31K	30.0K	84.5K	267K	750K	2.37M	6.65M
1.62	4.70	14.3	42.2	124	374	110K	3.32K	9.53K	30.1K	86.6K	270K	768K	2.40M	6.80M
1.65	4.75	14.7	43.0	127	383	113K	3.40K	9.76K	30.9K	88.7K	274K	787K	2.43M	6.81M
1.69	4.87	15.0	43.2	130	390	115K	3.48K	10.0K	31.6K	90.9K	280K	806K	2.49M	6.98M
1.74	4.99	15.4	44.2	133	392	118K	3.57K	10.2K	32.4K	91.0K	287K	820K	2.55M	7.15M
1.78	5.10	15.8	45.3	137	402	120K	3.60K	10.5K	33.0K	93.1K	294K	825K	2.61M	7.32M
1.80	5.11	16.0	46.4	140	412	121K	3.65K	10.7K	33.2K	95.3K	300K	845K	2.67M	7.50M
1.82	5.23	16.2	47.0	143	422	124K	3.74K	11.0K	34.0K	97.6K	301K	866K	2.70M	7.68M
1.87	5.36	16.5	47.5	147	430	127K	3.83K	11.3K	34.8K	100K	309K	887K	2.74M	7.87M
1.91	5.49	16.9	48.7	150	432	130K	3.90K	11.5K	35.7K	102K	316K	909K	2.80M	8.06M
1.96	5.60	17.4	49.9	154	442	133K	3.92K	11.8K	36.0K	105K	324K	910K	2.87M	8.20M
2.00	5.62	17.8	51.0	158	453	137K	4.02K	12.0K	36.5K	107K	330K	931K	2.94M	8.25M
2.05	5.76	18.0	51.1	160	464	140K	4.12K	12.1K	37.4K	110K	332K	953K	3.00M	8.45M
2.10	5.80	18.2	52.9	162	470	143K	4.22K	12.4K	38.3K	113K	340K	976K	3.01K	8.66M
2.15	6.04	18.7	53.6	165	475	147K	4.30K	12.7K	39.0K	115K	348K	1000K	3.09M	8.87M
2.20	6.19	19.1	54.9	169	487	150K	4.32K	13.0K	39.2K	118K	357K	102K	3.16M	9.09M
2.21	6.20	19.6	56.0	174	499	154K	4.42K	13.3K	40.2K	120K	360K	105K	3.24M	9.10M
2.26	6.34	20.0	56.2	178	510	158K	4.53K	13.7K	41.2K	121K	365K	107K	3.30M	9.31M
2.32	6.49	20.5	57.6	180	511	160K	4.64K	14.0K	42.2K	124K	374K	110K	3.32M	9.53M
2.37	6.65	21.0	59.0	182	523	162K	4.70K	14.3K	43.0K	127K	383K	113K	3.40M	9.76M
2.40	6.80	21.5	60.4	187	536	165K	4.75K	14.7K	43.2K	130K	390K	115K	3.48M	10.0M
2.43	6.81	22.0	61.9	191	549	169K	4.87K	15.0K	44.2K	133K	392K	118K	3.57M	10.2M
2.49	6.98	22.1	62.0	196	560	174K	4.99K	15.4K	45.3K	137K	402K	120K	3.60M	10.5M
2.55	7.15	22.6	63.4	200	562	178K	5.10K	15.8K	46.4K	140K	412K	121K	3.65M	10.7M
2.61	7.32	23.2	64.9	205	576	180K	5.11K	16.0K	47.0K	143K	422K	124K	3.74M	11.0M
2.67	7.50	23.7	66.5	210	590	182K	5.23K	16.2K	47.5K	147K	430K	127K	3.83M	11.3M
2.70	7.68	24.0	68.0	215	604	187K	5.36K	16.5K	48.7K	150K	432K	130K	3.90M	11.5M
2.74	7.87	24.3	68.1	220	619	191K	5.49K	16.9K	49.9K	154K	442K	133K	3.92M	11.8K
2.80	8.06	24.9	69.8	221	620	196K	5.60K	17.4K	51.0K	158K	453K	137K	4.02M	12.0M
2.87	8.20	25.5	71.5	226	634	200K	5.62K	17.8K	51.1K	160K	464K	140K	4.12M	12.1M
2.94	8.25	26.1	73.2	232	649	205K	5.76K	18.0K	52.3K	162K	470K	143K	4.22M	12.4M
3.00	8.45	26.7	75.0	237	665	210K	5.90K	18.2K	53.6K	165K	475K	147K	4.30M	12.7M
3.01	8.66	27.0	76.8	240	680	215K	6.04K	18.7K	54.9K	169K	487K	150K	4.32M	13.0M

5%, 1/10 Watt — 0603 Series

Resistor Values

0.0	3.3	10	33	100	330	1.0K	3.3K	10K	33K	100K	330K	1.0M	3.3M
1.0	3.6	11	36	110	360	1.1K	3.6K	11K	36K	110K	360K	1.1M	3.6M
1.1	3.9	12	39	120	390	1.2K	3.9K	12K	39K	120K	390K	1.2M	3.9M
1.2	4.3	13	43	130	430	1.3K	4.3K	13K	43K	130K	430K	1.3M	4.3M
1.3	4.7	15	47	150	470	1.5K	4.7K	15K	47K	150K	470K	1.5M	4.7M
1.5	5.1	16	51	160	510	1.6K	5.1K	16K	51K	160K	510K	1.6M	5.1M
1.6	5.6	18	56	180	560	1.8K	5.6K	18K	56K	180K	560K	1.8M	5.6M
1.8	6.2	20	62	200	620	2.0K	6.2K	20K	62K	200K	620K	2.0M	6.2M
2.2	6.8	22	68	220	680	2.2K	6.8K	22K	68K	220K	680K	2.2M	6.8M
2.4	7.5	24	75	240	750	2.4K	7.5K	24K	75K	240K	750K	2.4M	7.5M
2.7	8.2	27	82	270	820	2.7K	8.2K	27K	82K	270K	820K	2.7M	8.2M
3.0	9.1	30	91	300	910	3.0K	9.1K	30K	91K	300K	910K	3.0M	9.1M

Value Range	Digi-Key Part No.	Cut Tape Pricing	Tape and Reel Qty.	Price	Yageo Part No.
1.1 - 8.2MΩ	311-(Value)GCT-ND	.70	1.89	4.34	—
RoHS Compliant					
0.0 - 10MΩ	311-(Value)GRCT-ND	.70	1.89	4.34	3.30M/RC0603JR-07xxxxL

For Tape and Reel part number, change CT-ND to TR-ND.

Digi-Key® Assortment Kits 0603 Series	
5% Thick Film Chip Resistor Kits - 1/10 Watt — RoHS Compliant	
PHG1A-KIT-ND 50 each of every other value from 1.0, 1.2, 1.5, 1.8, etc. - 910KΩ 72 values (3,600 total pieces).....	PHG2A-KIT-ND 50 each of every other value from 1.1, 1.3, 1.6, 2.0, etc. - 1.0MΩ 72 values (3,600 total pieces).....
PHG1-KIT-ND 200 each of every other value from 1.0, 1.2, 1.5, 1.8, etc. - 910KΩ 72 values (14,400 total pieces).....	PHG2-KIT-ND 200 each of every other value from 1.1, 1.3, 1.6, 2.0, etc. - 1.0MΩ 72 values (14,400 total pieces).....
\$49.95	\$49.95
\$89.95	\$89.95

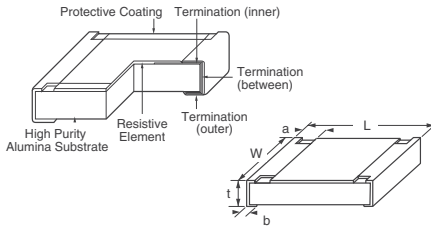
5%, 1/8 Watt — 0805 Series

Resistor Values

0.0	3.3	11	39	130	470	1.6K	5.6K	20K	68K	240K	820K	3.0M	10M
1.0	3.6	12	43	150	510	1.8K	6.2K	22K	75K	270K	910K	3.3M	11M
1.1	3.9	13	47	160	560	2.0K	6.8K	24K	82K	300K	1.0M	3.6M	12M
1.2	4.3	15	51	180	620	2.2K	7.5K	27K	91K	330K	1.1M	3.9M	13M
1.3	4.7	16	56	200	680	2.4K	8.2K	30K	100K	360K	1.2M	4.3M	14M
1.5	5.1	18	62	220	750	2.7K	9.1K	33K	110K	390K	1.3M	4.7M	15M
1.6	5.6	20	68	240	820	3.0K	10K	36K	120K	430K	1.5M	5.1M	16M
1.8	6.2	22	75	270	910	3.3K	11K	39K	130K	470K	1.6M	5.6M	17M
2.0	6.8	24	82	300	1.0K	3.6K	12K	43K	150K	510K	1.8M	6.2M	20M
2.2	7.5	27	91	330	1.1K	3.9K	13K	47K	160K	560K	2.0M	6.8M	22M
2.4	8.2	30	100	360	1.2K	4.3K	15K	51K	180K	620K	2.2M	7.5M	24M
2.7	9.1	33	110	390	1.3K	4.7K	16K	56K	200K	680K	2.4M	8.2M	27M
3.0	10	36	120	430	1.5K	5.1K	18K	62K	220K	750K	2.7M	9.1M	30M

Panasonic 0201, 0402, 0603, 0805, 1206, 1210, 2010 and 2512 1% Precision Thick Film Chip Resistors

Surface Mount Available in 1/20, 1/16, 1/10, 1/8, 1/4, 1/2 and 1 Watt



Size	Power Rating at 70°	Maximum RCWV§	Maximum Overload Voltage	Dimensions					Temperature Coefficient	Panasonic Part No.
				L	W	a	b	t		
0201	1/20W	15V	30V	0.60	0.30	0.10	0.15	0.23	10 - 1MΩ±200ppm/°C	ERJ-1GEFxxxxC
0402	1/16W	50V	100V	1.00	0.50	0.20	0.25	0.35	10 - 1MΩ±100ppm/°C	ERJ-2RKFxxxxX
0603	1/10W	50V	100V	1.60	0.80	0.30	0.30	0.45	10 - 1MΩ±100ppm/°C	ERJ-3EKFxxxxV
0805	1/8W	150V	200V	2.00	1.25	0.40	0.40	0.60	10 - 2.2MΩ±100ppm/°C	ERJ-6ENFxxxxV
1206	1/4W	200V	400V	3.20	1.60	0.50	0.50	0.60		ERJ-8ENFxxxxV
1210	1/4W	200V	400V	3.20	2.50	0.50	0.50	0.60		ERJ-14NFxxxxU
2010	1/2W	200V	400V	5.00	2.50	0.60	0.60	0.60	10 - 1MΩ±100ppm/°C	ERJ-12SFxxxxU
2512	1W	200V	400V	6.40	3.20	0.65	0.60	0.60		ERJ-1TNFxxxxU

§ Rated Continuous Working Voltage (RCWV) shall be determined from $RCWV = \sqrt{\text{Power Rating} \times \text{Resistance Values}}$, or max. RCWV listed above, whichever is less.

0201, 0402, 0603, 0805, 1206 and 1210 Series Standard Resistor Values

10.0	24.9	61.9	154	383	953	2.37K	5.90K	14.7K	36.5K	90.9K	226K	562K
10.2	25.5	63.4	158	392	976	2.43K	6.04K	15.0K	37.4K	93.1K	232K	576K
10.5	26.1	64.9	162	402	1.00K	2.49K	6.19K	15.4K	38.3K	95.3K	237K	590K
10.7	26.7	66.5	165	412	1.02K	2.55K	6.34K	15.8K	39.2K	97.6K	243K	604K
11.0	27.4	68.1	169	422	1.05K	2.61K	6.49K	16.2K	40.2K	100K	249K	619K
11.3	28.0	69.8	174	432	1.07K	2.67K	6.65K	16.5K	41.2K	102K	255K	634K
11.5	28.7	71.5	178	442	1.10K	2.74K	6.81K	16.9K	42.2K	105K	261K	649K
11.8	29.4	73.2	182	453	1.13K	2.80K	6.98K	17.4K	43.2K	107K	267K	665K
12.1	30.1	75.0	187	464	1.15K	2.87K	7.15K	17.8K	44.2K	110K	274K	681K
12.4	30.9	76.8	191	475	1.18K	2.94K	7.32K	18.2K	45.3K	113K	280K	698K
12.7	31.6	78.7	196	487	1.21K	3.01K	7.50K	18.7K	46.4K	115K	287K	715K
13.0	32.4	80.6	200	499	1.24K	3.09K	7.68K	19.1K	47.5K	118K	294K	732K
13.3	33.2	82.5	205	511	1.27K	3.16K	7.87K	19.6K	48.7K	121K	301K	750K
13.7	34.0	84.5	210	523	1.30K	3.24K	8.06K	20.0K	49.9K	124K	309K	768K
14.0	34.8	86.5	215	536	1.33K	3.32K	8.25K	20.5K	51.1K	127K	316K	787K
14.3	35.7	88.7	221	549	1.37K	3.40K	8.45K	21.0K	52.3K	130K	324K	806K
14.7	36.5	90.9	226	562	1.40K	3.48K	8.66K	21.5K	53.6K	133K	332K	825K
15.0	37.4	93.1	232	576	1.43K	3.57K	8.87K	22.1K	54.9K	137K	340K	845K
15.4	38.3	95.3	237	590	1.47K	3.65K	9.09K	22.6K	56.2K	140K	348K	865K
15.8	39.2	97.6	243	604	1.50K	3.74K	9.31K	23.2K	57.6K	143K	357K	887K
16.2	40.2	100	249	619	1.54K	3.83K	9.53K	23.7K	59.0K	147K	365K	909K
16.5	41.2	102	255	634	1.58K	3.92K	9.76K	24.3K	60.4K	150K	374K	931K
16.9	42.2	105	261	649	1.62K	4.02K	10.0K	24.9K	61.9K	154K	383K	953K
17.4	43.2	107	267	665	1.65K	4.12K	10.2K	25.5K	63.4K	158K	392K	976K
17.8	44.2	110	274	681	1.69K	4.22K	10.5K	26.1K	64.9K	162K	402K	1.00M
18.2	45.3	113	280	698	1.74K	4.32K	10.7K	26.7K	66.5K	165K	412K	1.10M
18.7	46.4	115	287	715	1.78K	4.42K	11.0K	27.4K	68.1K	169K	422K	1.20M
19.1	47.5	118	294	732	1.82K	4.53K	11.3K	28.0K	69.8K	174K	432K	1.30M
19.6	48.7	121	301	750	1.87K	4.64K	11.5K	28.7K	71.5K	178K	442K	1.50M
20.0	49.9	124	309	768	1.91K	4.75K	11.8K	29.4K	73.2K	182K	453K	1.60M
20.5	51.1	127	316	787	1.96K	4.87K	12.1K	30.1K	75.0K	187K	464K	1.80M
21.0	52.3	130	324	806	2.00K	4.99K	12.4K	30.9K	76.8K	191K	475K	2.00M
21.5	53.6	133	332	825	2.05K	5.11K	12.7K	31.6K	78.7K	196K	487K	2.20M
22.1	54.9	137	340	845	2.10K	5.23K	13.0K	32.4K	80.6K	200K	499K	
22.6	56.2	140	348	866	2.15K	5.36K	13.3K	33.2K	82.5K	205K	511K	
23.2	57.6	143	357	887	2.21K	5.49K	13.7K	34.0K	84.5K	210K	523K	
23.7	59.0	147	365	909	2.26K	5.62K	14.0K	34.8K	86.6K	215K	536K	
24.3	60.4	150	374	931	2.32K	5.76K	14.3K	35.7K	88.7K	221K	549K	

2010 Series Resistor Values

10.0	28.7	82.5	237	681	1.96K	5.62K	16.2K	46.4K	133K	383K
10.5	30.1	86.6	249	715	2.05K	5.90K	16.9K	48.7K	140K	402K
11.0	31.6	90.9	261	750	2.15K	6.19K	17.8K	51.1K	147K	422K
11.5	33.2	95.3	274	787	2.26K	6.49K	18.7K	53.6K	154K	442K
12.1	34.8	100	287	825	2.37K	6.81K	19.6K	56.2K	162K	464K
12.7	36.5	105	301	866	2.49K	7.15K	20.5K	59.0K	169K	487K
13.3	38.3	110	316	909	2.61K	7.50K	21.5K	61.9K	178K	511K
14.0	40.2	115	332	953	2.74K	7.87K	22.6K	64.9K	187K	536K
14.7	42.2	121	348	1.00K	2.87K	8.25K	23.7K	68.1K	196K	562K
15.4	44.2	127	365	1.05K	3.01K	8.66K	24.9K	71.5K	205K	590K
16.2	46.4	133	383	1.10K	3.16K	9.09K	26.1K	75.0K	215K	619K
16.9	48.7	140	402	1.15K	3.32K	9.53K	27.4K	78.7K	226K	649K
17.8	51.1	147	422	1.21K	3.48K	10.0K	28.7K	82.5K	237K	681K
18.7	53.6	154	442	1.27K	3.65K	10.5K	30.1K	86.6K	249K	715K
19.6	56.2	162	464	1.33K	3.83K	11.0K	31.6K	90.9K	261K	750K
20.5	59.0	169	487	1.40K	4.02K	11.5K	33.2K	95.3K	274K	787K
21.5	61.9	178	511	1.47K	4.22K	12.1K	34.8K	100K	287K	825K
22.6	64.9	187	536	1.54K	4.42K	12.7K	36.5K	105K	301K	866K
23.7	68.1	196	562	1.62K	4.64K	13.3K	38.3K	110K	316K	909K
24.9	71.5	205	590	1.69K	4.87K	14.0K	40.2K	115K	332K	953K
26.1	75.0	215	619	1.78K	5.11K	14.7K	42.2K	121K	348K	1.00M
27.4	78.7	226	649	1.87K	5.36K	15.4K	44.2K	127K	365K	

2512 Series Resistor Values

10.0	27.4	68.1	191	487	1.30K	3.48K	8.87K	24.3K	61.9K	169K	432K
10.5	28.7	71.5	200	510	1.37K	3.60K	9.10K	25.5K	63.4K	178K	453K
11.0	30.0	75.0	210	523	1.43K	3.74K	9.53K	26.7K	66.5K	182K	470K
11.5	30.9	78.7	220	549	1.50K	3.90K	10.0K	27.4K	68.1K	191K	487K
12.0	32.4	82.0	226	562	1.58K	4.02K	10.5K	28.7K	71.5K	200K	510K
12.4	33.2	84.5	237	590	1.62K	4.22K	11.0K	30.0K	75.0K	210K	523K
13.0	34.8	88.7	243	619	1.69K	4.32K	11.5K	30.9K	78.7K	220K	549K
13.7	36.0	91.0	255	634	1.78K	4.53K	12.0K	32.4K	82.0K	226K	562K
14.3	37.4	95.3	267	665	1.82K	4.70K	12.4K	33.2K	84.5K	237K	590K
15.0	39.0	100	274	681	1.91K	4.87K	13.0K	34.8K	88.7K	243K	619K
15.8	40.2	105	287	715	2.00K	5.10K	13.7K	36.0K	91.0K	255K	634K
16.2	42.2	110	300	750	2.10K	5.23K	14.3K	37.4K	95.3K	267K	665K
16.9	43.2	115	309	787	2.20K	5.49K	15.0K	39.0K	100K	274K	681K
17.8	45.3	120	324	820	2.26K	5.62K	15.8K	40.2K	105K	287K	715K
18.2	47.0	124	332	845	2.37K	5.90K	16.2K	42.2K	110K	300K	750K
19.1	48.7	130	348	887	2.43K	6.19K	16.9K	43.2K	115K	309K	787K
20.0	51.0	137	360	910	2.55K	6.34K	17.8K	45.3K	120K	324K	820K
21.0	52.3	143	374	953	2.67K	6.65K	18.2K	47.0K	124K	332K	845K
22.0	54.9	150	390	1.00K	2.74K	6.81K	19.1K	48.7K	130K	348K	887K
22.6	56.2	158	402	1.05K	2.87K	7.15K	20.0K	51.0K	137K	360K	910K
23.7	59.0	162	422	1.10K	3.00K	7.50K	21.0K	52.3K	143K	374K	953K
24.3	61.9	169	432	1.15K	3.09K	7.87K	22.0K	54.9K	150K	390K	1.00M
25.5	63.4	178	453	1.20K	3.24K	8.20K	22.6K	56.2K	158K	402K	
26.7	66.5	182	470	1.24K	3.32K	8.45K	23.7K	59.0K	162K	422K	

Additional 0201, 0402, 0603, 0805 and 1206 Series Resistor Values

12.0◆	39.0◆	120◆	390◆	1.20K◆	3.90K◆	12.0K◆	39.0K◆	120K◆	390K◆
16.0◆	43.0◆	160◆	430◆	1.60K◆	4.30K◆	16.0K◆	43.0K◆	160K◆	430K◆
18.0◆	47.0◆	180◆	470◆	1.80K◆	4.70K◆	18.0K◆	47.0K◆	180K◆	470K◆
22.0◆	51.0◆	220◆	510◆	2.20K◆	5.10K◆	22.0K◆	51.0K◆	220K◆	510K◆
24.0◆	56.0◆	240◆	560◆	2.40K◆	5.60K◆	24.0K◆	56.0K◆	240K◆	560K◆
27.0◆	62.0◆	270◆	620◆	2.70K◆	6.20K◆	27.0K◆	62		

Panasonic 01005, 0201, 0402, 0603, 0805, 1206, 1210, 2010 and 2512 Surface Mount 5% Thick Film Chip Resistors — 1/32, 1/20, 1/16, 1/10, 1/8, 1/4, 1/2 and 1 Watt

01005 Series Standard Resistor Values		
10	680	47K
15	1.0K	68K
22	1.5K	100K
33	2.2K	150K
47	3.3K	220K
68	4.7K	330K
100	6.8K	470K
150	10K	680K
220	15K	1.0M
330	22K	
470	33K	

0201 Series Standard Resistor Values		
10	82	680
12	100	820
15	120	1.0K
18	150	1.2K
22	180	1.5K
27	220	1.8K
33	270	2.2K
39	330	2.7K
47	390	3.3K
56	470	3.9K
68	560	4.7K

0402, 0603, 0805, 1206, 1210, 2010 and 2512 Series Standard Resistor Values															
1.0	3.0	8.2	24	68	200	560	1.6K	4.7K	13K	39K	110K	330K	910K	2.7M	7.5M
1.1	3.3	9.1	27	75	220	620	1.8K	5.1K	15K	43K	120K	360K	1.0M	3.0M	8.2M
1.2	3.6	10	30	82	240	680	2.0K	5.6K	16K	47K	130K	390K	1.1M	3.3M	9.1M
1.3	3.9	11	33	91	270	750	2.2K	6.2K	18K	51K	150K	430K	1.2M	3.6M	10M
1.5	4.3	12	36	100	300	820	2.4K	6.8K	20K	56K	160K	470K	1.3M	3.9M	12M
1.6	4.7	13	39	110	330	910	2.7K	7.5K	22K	62K	180K	510K	1.5M	4.3M	15M
1.8	5.1	15	43	120	360	1.0K	3.0K	8.2K	24K	68K	200K	560K	1.6M	4.7M	18M
2.0	5.6	16	47	130	390	1.1K	3.3K	9.1K	27K	75K	220K	620K	1.8M	5.1M	22M
2.2	6.2	18	51	150	430	1.2K	3.6K	10K	30K	82K	240K	680K	2.0M	5.6M	
2.4	6.8	20	56	160	470	1.3K	3.9K	11K	33K	91K	270K	750K	2.2M	6.2M	
2.7	7.5	22	62	180	510	1.5K	4.3K	12K	36K	100K	300K	820K	2.4M	6.8M	

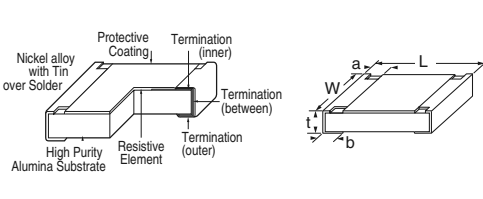
‡ 12M, 15M, 18M and 22M are 10% Tolerance

Digi-Key® 1206, 1/4W, 5% Chip Resistor Assortments	
CR1A-KIT-ND 50 ea. of every other value from 10, 12, 15, 18, etc. 1.0M (3,050).....	\$79.95
CR1-KIT-ND 200 ea. (same values as kit above).....	\$129.00
CR2A-KIT-ND 50 ea. of every other value from 11, 13, 16, 20, etc. 910K (3,000).....	\$79.95
CR2-KIT-ND 200 ea. (same values as kit above).....	\$129.00

Digi-Key® 0805, 1/8W, 5% Chip Resistor Assortments	
CR3A-KIT-ND 50 ea. of every other value from 10, 12, 15, 18, etc. 1.0M (3,050).....	\$79.95
CR3-KIT-ND 200 ea. (same values as kit above).....	\$129.00
CR4A-KIT-ND 50 ea. of every other value from 11, 13, 16, 20, etc. 910K (3,000).....	\$79.95
CR4-KIT-ND 200 ea. (same values as kit above).....	\$129.00

Digi-Key® 0603, 1/10W, 5% Chip Resistor Assortments	
CR5A-KIT-ND 50 ea. of every other value from 10, 12, 15, 18, etc. 1.0M (3,050).....	\$85.95
CR5-KIT-ND 200 ea. (same values as kit above).....	\$129.00
CR6A-KIT-ND 50 ea. of every other value from 11, 13, 16, 20, etc. 910K (3,000).....	\$85.95
CR6-KIT-ND 200 ea. (same values as kit above).....	\$129.00

Digi-Key® 0402, 1/16W, 5% Chip Resistor Assortments	
CR7A-KIT-ND 50 ea. of every other value from 10, 12, 15, 18, 22, etc. 1.0M (3,050).....	\$89.95
CR7-KIT-ND 200 ea. (same values as kit above).....	\$169.00
CR8A-KIT-ND 50 ea. of every other value from 11, 13, 16, 20, etc. 910K (3,000).....	\$89.95
CR8-KIT-ND 200 ea. (same values as kit above).....	\$169.00



Type	Power Rating	Max. RCWV	Overload Voltage	Dimensions (mm)			Temperature Coefficient	Panasonic Part No.
				L	W	t		
01005	1/32W	15V	30V	0.40	0.20	0.13	0.10	ERJ-XGEJ
0201	1/20W	15V	30V	0.60	0.30	0.20	0.15	ERJ-1GEJ
0402	1/16W	50V	100V	1.00	0.50	0.35	0.20	ERJ-2GEJ
0603	1/10W	50V	100V	1.60	0.80	0.45	0.30	ERJ-3GEJ
0805	1/8W	150V	200V	2.00	1.25	0.60	0.40	ERJ-6GEJ
1206	1/4W	200V	400V	3.20	1.60	0.60	0.50	ERJ-8GEJ
1210	1/4W	200V	400V	3.20	2.50	0.60	0.50	ERJ-14Y
2010	1/2W	200V	400V	5.00	2.50	0.60	0.60	ERJ-12ZY
2512	1W	250V	500V	6.40	3.20	0.60	0.60	ERJ-1TY

Description	Value Range	Digi-Key* Part No.	Pricing				Digi-Key* Part No.	Reel Qty.	Tape and Reel Pricing					Panasonic Part No.	
			10	50	200	1,000			4,000	5,000	10,000	12,000	15,000		20,000
01005, 1/32W, 5%	(1.0 - 1.0M)	P(Value)ANCT-ND	1.94	6.86	22.61	96.90	P(Value)ANTR-ND	20,000	—	—	—	—	—	47.00/M	ERJ-XGEJxxxY
0201, 1/20W, 5%	(1.0 - 1.0M)	P(Value)AGCT-ND†	.96	2.59	5.95	20.30	P(Value)AGTR-ND†	15,000	—	—	—	8.00/M	—	—	ERJ-1GEJxxxY
0402, 1/16W, 5%	(1.0 - 10M)	P(Value)JCT-ND†	.81	2.18	5.02	17.11	P(Value)JTR-ND†	10,000	—	—	5.00/M	—	—	—	ERJ-2GEJxxxX
0603, 1/10W, 5%	(1.0 - 22M)‡	P(Value)GCT-ND†	.71	1.91	4.39	14.99	P(Value)GTR-ND†	5,000	—	2.70/M	2.43/M	—	—	—	ERJ-3GEYJxxxV
0805, 1/8W, 5%	(1.0 - 22M)‡	P(Value)ACT-ND†	.77	2.07	4.76	16.24	P(Value)ATR-ND†	5,000	—	4.80/M	4.32/M	—	—	—	ERJ-6GEYJxxxV
1206, 1/4W, 5%	(1.0 - 22M)‡	P(Value)ECT-ND†	.94	2.53	5.82	19.87	P(Value)ETR-ND†	5,000	—	8.55/M	7.70/M	—	—	—	ERJ-8GEYJxxxV
1210, 1/4W, 5%	(1.0 - 10M)	P(Value)VCT-ND	2.70	7.25	16.66	56.84	P(Value)VTR-ND	5,000	—	46.80/M	42.12/M	—	—	—	ERJ-14YJxxxU
2010, 1/2W, 5%	(1.0 - 10M)	P(Value)WCT-ND	4.00	10.77	24.74	84.39	P(Value)WTR-ND	5,000	—	75.30/M	67.77/M	—	—	—	ERJ-12ZYJxxxU
2512, 1W, 5%	(1.0 - 2.2M)‡	PT(Value)XCT-ND	3.96	14.03	46.20	191.40	PT(Value)XTR-ND	4,000	148.80/M	—	—	124.00/M	—	—	ERJ-1TYJxxxU

† 0.0Ω (zerohm) value also available ‡ 12M, 15M, 18M and 22M are 10% tolerance * For complete part number, substitute the value from Standard Resistor Values charts for (Value).

Panasonic 5% - 0402, 0603, 0805, 1206, 1210, 2010, 2512 and 1% - 0402, 0603, 0805, 1206, 2512 Surface Mount Ultra Low Ohm Thick Film Chip Resistors — 1/10, 1/8, 1/4, 1/2 and 1 Watt

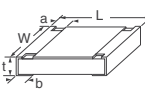
5% and 1% 0402 Series Standard Resistor Values									
.047	.068	.10	.15	.22	.33	.47	.68		
.051	.075	.11	.16	.24	.36	.51	.75		
.056	.082	.12	.18	.27	.39	.56	.82		
.062	.091	.13	.20	.30	.43	.62	.91		

5% - 0603, 1206, 1210, 2010 and 2512 Series 1% - 0603 and 1206 Series Standard Resistor Values									
.010	.015	.022	.033	.047	.068	.10	.22	4.7	9.1
.011	.016	.024	.036	.051	.075	.12	.27	5.6	1.2
.012	.018	.027	.039	.056	.082	.15	.33	6.8	1.5
.013	.020	.030	.043	.062	.091	.18	.39	8.2	1.8

5% and 1% 0805 Series Standard Resistor Values									
.01	.016	.027	.043	.18	.47	1.2	3.3	8.2	
.011	.018	.030	.047	.22	.56	1.5	3.9	9.1	
.012	.020	.033	.10	.27	.68	1.8	4.7		
.013	.022	.036	.12	.33	8.2	2.2	5.6		
.015	.024	.039	.15	.39	1.0	2.7	6.8		

1% - 2512 Series Standard Resistor Values									
.22	.33	.47	.68	1.0	1.5	2.2	3.3	4.7	6.8
.24	.36	.51	.75	1.1	1.6	2.4	3.6	5.1	7.5
.27	.39	.56	.82	1.2	1.8	2.7	3.9	5.6	8.2
.30	.43	.62	.91	1.3	2.0	3.0	4.3	6.2	9.1

Rated Continuous Working Voltage (RCWV):
The rated voltage at each resistance should be calculated from the following equation:
RCWV = √P × R
RCWV(V) = P(W) × R(Ω)
Maximum Overload Voltage = RCWV × 2.5



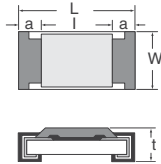
Type	Type (Power Rating)	Dimensions (mm)			Temperature Coefficient (ppm/°C)	Panasonic Part No.
		L	W	t		
0402	1/8 Watt (5%, 1%)	1.00	0.50	0.35	±300ppm/°C	ERJ-2BWJ/F
0402	1/8 Watt (1%)	1.00	0.50	0.20	±250ppm/°C; ±2.2 - 1.0Ω ± ±250ppm/°C	ERJ-2BSJ/Q
0603	1/10 Watt	1.6	0.8	0.45	±300ppm/°C; ±1.0 - 8.2Ω ± ±200ppm/°C	ERJ-3RSJ/Q
0805	1/8 Watt	2.00	1.25	0.60	±300ppm/°C; ±1.0 - 9.1Ω ± ±200ppm/°C	ERJ-6RSJ/Q
0805	1/4 Watt	2.00	1.25	0.60	±300ppm/°C; ±0.15 - 0.47Ω ± ±200ppm/°C	ERJ-6BWJ/F
1206	1/4 Watt	3.20	1.60	0.60	±300ppm/°C; ±1.0 - 9.1Ω ± ±200ppm/°C	ERJ-8RSJ/Q
1206	1/2 Watt	3.20	1.60	0.65	±300ppm/°C; ±0.07 - 1.0Ω ± ±100ppm/°C	ERJ-8BWJ/F
1210	1/4 Watt	3.20	2.50	0.60	±300ppm/°C; ±1.0 - 9.1Ω ± ±100ppm/°C	ERJ-14RSJ/Q
2010	1/2 Watt	5.00	2.50	0.60	±300ppm/°C; ±2.2 - 1.0Ω ± ±200ppm/°C	ERJ-12ZJ/Q
2512	1 Watt	6.40	3.20	0.65	±300ppm/°C; ±1.0 - 9.1Ω ± ±100ppm/°C	ERJ-1TRJ/Q

Description	Value Range	Digi-Key* Part No.	Pricing				Digi-Key* Part No.	Reel Qty.	Tape and Reel Pricing				Panasonic Part No.	
			10	50	200	1,000			4,000	5,000	10,000	12,000		
0402, 1/8W, 5%	(.047 - .091Ω)	P(Value)AMCT-ND	5.18	18.36	60.48	250.56	P(Value)AMTR-ND	10,000	—	—	164.80/M	—	—	ERJ-2BWJRxxxX
0402, 1/8W, 1%	(.047 - .091Ω)	P(Value)ATCT-ND	4.03	14.28	47.04	194.88	P(Value)ATTR-ND	10,000	—	—	126.00/M	—	—	ERJ-2BWFxxxX
0402, 1/8W, 1%	(.10 - .20Ω)	P(Value)AKCT-ND	7.07	19.02	43.69	149.06	P(Value)AKTR-ND	10,000	—	—	128.00/M	—	—	ERJ-2BSFRxxxX
0402, 1/8W, 1%	(.22 - .91Ω)	P(Value)AKCT-ND	6.78	18.24	41.91	P(Value)AKTR-ND	10,000	—	—	122.31/M	—	—	ERJ-2BQFRxxxX	
0603, 1/10W, 5%	(.10 - .18Ω)	P(Value)AHCT-ND	3.12	8.40	19.30	65.83	P(Value)AHTR-ND	5,000	—	56.00/M	50.00/M	—	—	ERJ-3RSJxxxV
0603, 1/10W, 5%	(.22 - 8.2Ω)	P(Value)AHCT-ND	1.84	4.96	11.39	38.86	P(Value)AHTR-ND	5,000	—	28.00/M	25.00/M	—	—	ERJ-3RQJxxxV
0603, 1/10W, 1%	(.10 - .18Ω)	P(Value)AJCT-ND	5.36	14.43	33.15	113.10	P(Value)AJTR-ND	5,000	—	105.00/M	94.50/M	—	—	ERJ-3RSFxxxV
0603, 1/10W, 1%	(.22 - 8.2Ω)	P(Value)AJCT-ND	3.03	8.14	18.70	63.80	P(Value)AJTR-ND	5,000	—	54.00/M	48.60/M	—	—	ERJ-3RQFxxxV
0805, 1/4W, 5%	(.01 - .047Ω)	P(Value)ARCT-ND	19.54	52.58	120.79	412.09	P(Value)ARTR-ND	5,000	—	414.00/M	373.00/M	—	—	ERJ-6BWJRxxxV
0805, 1/8W, 5%	(.10 - .18Ω)	P(Value)BCT-ND	8.14	21.90	50.32	171.68	P(Value)BTR-ND	5,000	—	166.00/M	149.00/M	—</		

Panasonic SMD Thick Film Chip Resistors / Low Resistance Type

0603, 0805, 1206, 1210, 1812, 2010, 2512 — For Current Sensing Applications

Features: • Operating Temperature: ERJ-L: -55°C ~ 125°C, ERJ-M: -55°C ~ 170°C (derating required above 70°C) • Resistance Range: • 1.0 to 100mΩ



Package	Dimensions (mm)				
	L	W	a	t	l
0603	1.60	0.80	0.30	0.45	1.00
0805	2.00	1.25	0.40	0.60	1.20
1206	3.20	1.60	0.50	0.60	2.20
1210	3.20	2.50	0.50	0.60	2.20
1812	4.50	3.20	0.50	0.60	3.50
2010	5.00	2.50	0.60	0.60	3.80
2512 (S Type)	6.40	3.20	1.00	0.80	4.40
2512 (T Type)	6.40	3.20	2.10	0.80	2.20
2512 (L Type)	6.40	3.20	0.65	1.10	5.10

Standard Resistor Values (mΩ) for 0603, 0805, 1206				
Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)
47 (47M)	50 (50M)	75 (75M)*	100 (10C)	
Standard Resistor Values (mΩ) for 1210, 1812, 2010				
Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)
20 (20M)	25 (25M)	39 (39M)	50 (50M)	100 (10C)
22 (22M)	33 (33M)	47 (47M)	75 (75M)*	
Standard Resistor Values (mΩ) for 2512				
Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)	Value (Mfg. Code)
1.0 (10M)	4.0 (4M)	10 (10M)	20 (20M)	
1.5 (15M)	5.0 (5M)	12 (12M)†	47 (47M)	
2.0 (20M)	6.0 (6M)	15 (15M)	50 (50M)	
3.0 (30M)	8.0 (8M)†	16 (16M)†	100 (10C)	

* For 75mΩ parts, change K to U in Manufacturer Part Number † Not in Kit

See below for complete part numbers when ordering.

RoHS Compliant Parts Available

Description	Type	Value Range (mΩ)	Temperature Coefficient (ppm/°C)	Digi-Key Part No.	Cut Tape Pricing		Digi-Key Part No.	Tape and Reel		Panasonic Part No.	
					10	200		Qty.	Pricing		
0603, 1/10 W, 5%	—	47 ~ 100	±200ppm	P(Value)NJCT-ND	6.13	18.28	43.00	P(Value)NJTR-ND	5,000	136.50/M	ERJ-L03KJxxxV
0603, 1/10 W, 1%	—	47 ~ 100	±200ppm	P(Value)LJCT-ND	7.20	18.00	50.40	P(Value)LJTR-ND	5,000	144.00/M	ERJ-L03KFxxxV
0805, 1/8 W, 5%	—	47 ~ 100	±100ppm	P(Value)NLCT-ND	6.70	19.98	47.00	P(Value)NLTR-ND	5,000	150.50/M	ERJ-L06KJxxxV
0805, 1/8 W, 1%	—	47 ~ 100	±100ppm	P(Value)LLCT-ND	7.60	19.00	53.20	P(Value)LLTR-ND	5,000	152.00/M	ERJ-L06KFxxxV
1206, 1/4 W, 5%	—	47 ~ 100	±100ppm	P(Value)NPCT-ND	7.70	22.95	54.00	P(Value)NPTR-ND	5,000	175.00/M	ERJ-L08KJxxxV
1206, 1/4 W, 1%	—	47 ~ 100	±100ppm	P(Value)LPCT-ND	9.36	23.40	65.52	P(Value)LPTR-ND	5,000	187.00/M	ERJ-L08KFxxxV
1210, 1/4 W, 1%	—	20 ~ 39 47 ~ 100	±300ppm ±100ppm	P(Value)NACT-ND	5.34	18.91	62.30	P(Value)NATR-ND	5,000	204.00/M	ERJ-L14KFxxxU
1812, 1/2 W, 1%	—	20 ~ 39 47 ~ 100	±300ppm ±100ppm	P(Value)NBCT-ND	6.96	28.28	100.92	P(Value)NBTR-ND	5,000	382.50/M	ERJ-L12KFxxxU
2010, 1/2 W, 1%	—	47 ~ 100	±100ppm	P(Value)NCCT-ND	6.96	28.28	100.92	P(Value)NCTR-ND	5,000	382.50/M	ERJ-L1DKFxxxU
2512, 1 W, 5%	T	1.0 ~ 1.5 2.0	350 ±100ppm 100 ±50ppm	P(Value)TCT-ND	7.76	31.53	112.52	P(Value)TTR-ND	3,000	427.50/M	ERJ-M1WTJxxxU
	S	3.0 ~ 4.0 5.0 ~ 20	±350ppm ±100ppm	P(Value)TCT-ND	7.76	31.53	112.52	P(Value)TTR-ND	3,000	427.50/M	ERJ-M1WSJxxxU
	L	47 ~ 100	±100ppm	P(Value)TCT-ND	7.88	32.01	114.26	P(Value)TTR-ND	3,000	434.25/M	ERJ-L1WKJxxxU
2512, 1 W, 1%	T	1.0 ~ 1.5 2.0 ~ 4.0	350 ±100ppm 100 ±50ppm	P(Value)NDCT-ND	9.58	38.92	138.91	P(Value)NDTR-ND	3,000	529.88/M	ERJ-M1WTFxxxU
	S	3.0 ~ 4.0 5.0 ~ 20	±350ppm ±100ppm	P(Value)MCT-ND	8.16	33.15	118.32	P(Value)MTR-ND	3,000	450.00/M	ERJ-M1WSFxxxU
	L	47	±300ppm	P(Value)MCT-ND	9.24	37.54	133.98	P(Value)MTR-ND	3,000	520.00/M	ERJ-L1WKFxxxU
		50 ~ 100	±100ppm	P(Value)MCT-ND	9.40	38.19	136.30	P(Value)MTR-ND	3,000	519.75/M	

0603, 0805, 1206, 1210 1% Current Sensing Low Resistance Resistor Kit

ERJ1-KIT-ND 20 each of 21 Values (RoHS Compliant) \$39.95

1812, 2010, 2512 1% Current Sensing Low Resistance Resistor Kit

ERJ2-KIT-ND 20 each of 26 Values (RoHS Compliant) \$129.95

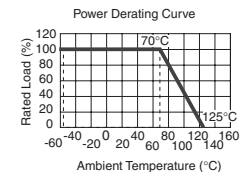
Panasonic Anti-Surge Thick Film Chip Resistors

Features:

- Operating Temperature: -55°C ~ 155°C
- Improved Anti-Surge characteristics compared to metal film resistors
- Metal glaze thick film resistive element and three layers of electrodes result in high reliability
- Suitable for both reflow soldering and flow soldering
- Thick film resistor with excellent Anti-Pulse characteristic and high rated power



Type	Dimensions (mm)					
	L	W	a	b	t	l
0805	2.00	1.25	0.25	0.40	0.60	1.50
1206	3.20	1.60	0.40	0.50	0.60	2.24
1210	3.20	2.50	0.35	0.50	0.60	2.50



Type	Power Rating at 70°C (W)	Limiting Element Voltage (Maximum RCWV) ¹ (V)	Maximum Overload Voltage ² (V)	Resistance Tolerance (%)	Resistance Range (Ω)		Temperature Coefficient x10 ⁻⁶ °C (ppm/°C)	Standard Resistance Values
					Minimum	Maximum		
ERJP06	0.125	150	200	±5	10	30	±300	E24 (3 digits)
ERJP06	0.125	150	200	±5	33	1.0M	±200	E24 (3 digits)
ERJP08	0.25	200	400	±5	10	1.0M	±200	E24 (3 digits)
ERJP14	0.5	200	400	±5	1.0	1.0M	±200	E24 (3 digits)

(1) Rated Continuous Working Voltage (RCWV) shall be determined from RCWV = √Power Rating x Resistance Values, or Limiting Element Voltage (maximum RCWV) listed above, whichever is less.

(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from SOTV = 2.5 x Power Rating or maximum Overload Voltage listed above whichever is less.

Standard Resistor Values (See below for complete part numbers when ordering.)

1.0	2.7	6.8	18	47	120	330	820	2.2K	5.6K	15K	39K	100K	270K	680K
1.1	3.0	7.5	20	51	130	360	910	2.4K	6.2K	16K	43K	110K	300K	750K
1.2	3.3	8.2	22	56	150	390	1.0K	2.7K	6.8K	18K	47K	120K	330K	820K
1.3	3.6	9.1	24	62	160	430	1.1K	3.0K	7.5K	20K	51K	130K	360K	910K
1.5	3.9	10	27	68	180	470	1.2K	3.3K	8.2K	22K	56K	150K	390K	1.0M
1.6	4.3	11	30	75	200	510	1.3K	3.6K	9.1K	24K	62K	160K	430K	
1.8	4.7	12	33	82	220	560	1.5K	3.9K	10K	27K	68K	180K	470K	
2.0	5.1	13	36	91	240	620	1.6K	4.3K	11K	30K	75K	200K	510K	
2.2	5.6	15	39	100	270	680	1.8K	4.7K	12K	33K	82K	220K	560K	
2.4	6.2	16	43	110	300	750	2.0K	5.1K	13K	36K	91K	240K	620K	

Description	Value Range (Ω)	Digi-Key Part No.	Cut Tape Pricing				Digi-Key Part No.	Tape and Reel Pricing				Panasonic Part No.
			10	50	200	1,000		5,000	10,000	25,000	50,000	
0805, 1/8 W, 5%	10 ~ 1.0M	P(Value)ADCT-ND	1.65	4.93	11.60	34.80	P(Value)ADTR-ND	26.60/M	22.80/M	20.90/M	19.00/M	ERJ-P06JxxxV
1206, 1/4 W, 5%	10 ~ 1.0M	P(Value)ALCT-ND	2.01	5.99	14.10	42.30	P(Value)ALTR-ND	35.35/M	30.30/M	27.78/M	25.25/M	ERJ-P08JxxxV
1210, 1/2 W, 5%	1.0 ~ 1.0M	P(Value)ASCT-ND	3.56	10.63	25.00	75.00	P(Value)ASTR-ND	73.50/M	63.00/M	57.75/M	42.00/M	ERJ-P14JxxxU

More Product Available Online: www.digkey.com

Toll-Free: 1-800-344-4539 • Phone 218-681-6674 • Fax: 218-681-3380

(T083) 1813