

Standard for resistance value and resistance tolerance

Basis standard

IEC Publication 60062 : Marking codes for resistors and capacitors.

IEC Publication 60063 : Preferred number series for resistors and capacitors.

JIS C 5062 : Marking codes for resistors and capacitors.

JIS C 5063 : Preferred number series for resistors and capacitors.

Resistance values

The resistance values are notched by "Ratio" below in each series.

Series	Resistance tolerance (Standard)	Ratio	Remarks
E6	±20 %	$\sqrt[6]{10}=1.46$	Please refer to standard resistance values shown on this catalog.
E12	±10 %	$\sqrt[12]{10}=1.21$	
E24	± 5 %	$\sqrt[24]{10}=1.10$	
E48	± 2 %	$\sqrt[48]{10}=1.05$	
E96	± 1 %	$\sqrt[96]{10}=1.02$	

How to express the resistance value with a Panasonic part number

The resistance value expressed in ohms is identified by a three digit number or a four digit number.

The last digit specifies the number of zeroes to follow.

The letter "R" shall be used as the decimal point for less than 10 Ω.

The examples of a three digit number

Resistance code	Value in ohms (Ω)
R56	0.56
5R6	5.6
100	10
271	270
102	1 k
273	27 k
104	100 k
275	2.7 M
106	10 M
107	100 M

The examples of a four digit number

Resistance code	Value in ohms (Ω)
R562	0.562
5R62	5.62
56R2	56.2
1000	100
2711	2.71 k
1002	10 k
2713	271 k
1004	1 M
2751	2.71 M
1006	100 M

How to express the resistance tolerance with a Panasonic part number

The resistance tolerance is identified by a single letter in accordance with the following table and the code is placed just before the resistance code in the following examples.

Tolerance code	Tolerance (%)	Examples
W	± 0.05	W1001 : 1000 Ω ± 0.05 %
B	± 0.1	B1001 : 1000 Ω ± 0.1 %
C	± 0.25	C1001 : 1000 Ω ± 0.25 %
D	± 0.5	D1001 : 1000 Ω ± 0.5 %
F	± 1	F1001 : 1000 Ω ± 1 %
G	± 2	G1001 : 1000 Ω ± 2 %
J	± 5	J101 : 100 Ω ± 5 %
K	± 10	K101 : 100 Ω ± 10 %
M	± 20	M101 : 100 Ω ± 20 %

Standard resistance values

E6	E12	E24	E48	E96	E6	E12	E24	E48	E96	E6	E12	E24	E48	E96
10	10	10	100	100	22	22	22	215	215	47	47	47	464	464
				102					221					475
			105	105				226	226				487	487
				107					232					499
		11	110	110			24	237	237			51	511	511
				113					243					523
			115	115				249	249				536	536
				118					255					549
	12	12	121	121				261	261			56	562	562
				124					267					576
			127	127				274	274				590	590
				130					280					604
		13	133	133			27	287	287			62	619	619
				137					294					634
			140	140				301	301				649	649
				143					309					665
	15	15	147	147				316	316			68	681	681
				150					324					698
			154	154			33	332	332			75	715	715
				158					340					732
		16	162	162				348	348				750	750
				165					357					768
			169	169				365	365				787	787
				174					374					806
15	18	18	178	178			39	383	383			82	825	825
				182					392					845
			187	187				402	402				866	866
				191					412					887
		20	196	196				422	422			91	909	909
				200					432					931
			205	205				442	442				953	953
				210					453					976
	15	15	154	154			33	332	332			68	715	715
				158					340					732
			162	162				348	348				750	750
				165					357					768
		16	169	169				365	365				787	787
				174					374					806
			178	178				383	383				825	825
				182					392					845
	18	18	187	187				402	402				866	866
				191					412					887
			196	196				422	422				909	909
				200					432					931
		20	205	205				442	442				953	953
				210					453					976
			205	205				442	442				953	953
				210					453					976