

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		
			110	110				237	237				511	511	
		12	11	110	110	24	24	24	237	237	51	51	51	511	511
				113					243					523	
				115	115				249	249				536	536
				118					255					549	
				121	121				261	261				562	562
	12		12	121	121	27	27	27	261	261	56	56	56	562	562
				124					267					576	
				127	127				274	274				590	590
				130					280					604	
				133	133				287	287				619	619
		13	13	133	133	30	30	30	301	301	62	62	62	619	619
				137					294					634	
				140	140				301	301				649	649
				143					309					665	
				147	147				316	316				681	681
15	15		150	150	33	33	33	316	316	68	68	68	681	681	
			154	154				324					698		
			158					332	332				715	715	
			162	162				340					732		
			165					348	348				750	750	
	18	16	162	162	36	36	36	348	348	75	75	75	750	750	
			165					357					768		
			169	169				365	365				787	787	
			174					374					806		
			178	178				383	383				825	825	
18		18	178	178	39	39	39	383	383	82	82	82	825	825	
			182					392					845		
			187	187				402	402				866	866	
			191					412					887		
			196	196				422	422				909	909	
	20	20	196	196	43	43	43	422	422	91	91	91	909	909	
			200					432					931		
			205	205				442	442				953	953	
			210					453					976		
			210	210				453	453						