

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	22	215	215	47	47	47	464	464																										
				102						221					475																										
			105	105					226	226				237	237	51	511	511	536	536	562	562																			
				107						232					487			499																							
			11	110					110	249				249	27		27	27	274	274	56	56	56	590	590																
									113					280						604																					
		115		115				301	301	287			287	62					619	619				649	649	681	681														
				118					294				634							665					681		698														
		12		121				121	316	316			33			33			33	332				332	68	68	68	715	715												
								124		340														732																	
			127	127				348	348	365								365		75			750	750				787	787	825	825										
				130					357									768						806																	
	13		133	133			365	365	36	36				36				383					383	82				82	82	845	845										
				137				374															866								887										
		140	140	383			383	402										402	82				866				866			909	909	953	953								
			143				412											887									931				953		976								
		15	147	147			422	422										43		43			43				442			442	91	91	91	931	931						
				150				453																						976											
	154		154	442			442	453						453													91		953	953				976	976						
			158				464							976																											
	16		162	162			464	464						47					47										47	487				487	56	56	56	590	590		
				165				499																										604							
		169	169	511			511	536															536							62			619	619				649	649	681	681
			174				562																634											665					681		698
18		178	178	562	562	56	56	56			590	590											68				68						68	715				715			
			182		604							732																													
	187	187	619	619	649						649	75																	750					750			787	787	825	825	
		191		665							768																							806							
	196	196	649	649	665						665				82		825				825	866							866	909				909							
		200		681							698										715								732					750			768	787	806		
20	205	205	681	681	68			68			68						715				715	82							82	82			845	845							
		210		732																	768													787			806				
	215	215	750	750								768	768			82	866				866				909	909							953	953							
		221		806									825								845					866								887							
	226	226	825	825								845	845		91		931				931				976	976															
		232		866									887																												
237	237	887	887	909					909	91	931	931	976				976																								
	243		909						931																																
249	249	931	931	976					976																																
	255		976																																						
261	261	976	976																																						
	267		976																																						
274	274	976	976																																						
	280		976																																						
287	287	976	976																																						
	294		976																																						
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442	442	976	976																																						
	453		976																																						