



# Fixed Resistors Selection Guide

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Components



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# FIXED RESISTORS - QUICK SELECTION

Commodity / Professional Resistors							
Size (SMD: inch leaded: mm) Tolerance	SMD					Leaded	
	Thick film					Metal film	
	1206	0805	0603	0402	Array 0603 x 4	2.5x6.5	1.7x3.2
5%, 2% standard	RC01	RC11	RC21	RC31	ARC241	SFR25	SFR16
1% precision	-	RC02H	RC12H	RC22H	RC32H	ARC242	
	TC50	RC02G	RC12G			MRS25	MRS16S

Power Resistors								
P <sub>nom</sub> at 70 °C	SMD		Leaded					
	Thick film	Thin film	Wirewound			Stand up	Radial mount	Metal film
	5, 1%	5, 1%	5%	1%	5%		5%	
	PRC	PRC	AC (40 °C)	WR	PAC (25 °C)	SMW SMF	RMW RMF	PR
1 Watt	201	202	01		01		01	
2 Watt					02	02	02	
3 Watt			03		03	03	03	
4 Watt			04	0617	04			
5 Watt			05		05	05		
6 Watt					06			
7 Watt			07	0825			07	
10 Watt			10				10	
11 Watt				0842				
15 Watt			15					
17 Watt				0865				
20 Watt			20					

High / Ultra High-Precision Resistors						
Size SMD: inch, TC Size leaded: mm, TC			High precision		Ultra-high precision	
			0.5%	0.25%	0.1%	0.05%
SMD	1206	TC50	RC03G			
		TC25			MPC01	
	0805	TC50	RC13G			
		TC25			MPC11	
leaded	2.4 x 6.5	TC25	MPR24 (0.25 W)		MPR24 (0.125 W)	
		TC15				
		TC10				
		TC5				
	3.1 x 10.5	TC25	MPR34 (0.4 W)		MPR34 (0.25 W)	
		TC15				
		TC10				
		TC5				

Application Specific Resistors		
	SMD	Leaded
High ohmic/ High voltage		VR25 VR37 VR68
Low ohmic	LRC01	
Fusible (non flammable)	FRC01	NFR25 NFR25H
Military		MR24 C/D/E MR25 MR34 C/D/E MR30 MR54 C/D/E MR52
Trimable	RC02TR	

## FIXED RESISTORS - RANGE OVERVIEW

Technology	Application	Type	Tol. (%)	Resistance range ( $\Omega$ )	Temperature coefficient ( $\times 10^{-6}/K$ )	Maximum voltage or power (V)/(W)	Dimensions L $\times$ W $\times$ H D $\times$ L (mm)	R <sub>th</sub> (K/W)	Max. body temp. ( $^{\circ}C$ )	E series	Basic specifications
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### Surface Mount Chip Resistors

Thick Film	Standard	RC01	5; 2	1 - 4.7 5.1 - 10 M	$\leq \pm 250$ $\leq \pm 200$	200/0.25	3.2 $\times$ 1.6 $\times$ 0.6	200	24	IEC 115-8 55/155/56
		RC11				150/0.125	2.0 $\times$ 1.25 $\times$ 0.6	250		
		RC21				50/0.063	1.6 $\times$ 0.8 $\times$ 0.45	400		
		RC31				50/0.063	1.0 $\times$ 0.5 $\times$ 0.35	-		
	Precision	RC02H	1	1 - 4.99 5.1 - 9.76 10 - 1 M 1.02 M - 10 M	$\leq \pm 250$ $\leq \pm 200$ $\leq \pm 100$ $\leq \pm 200$	200/0.25	3.2 $\times$ 1.6 $\times$ 0.6	200	24/96	IEC 115-8 55/155/56
		RC12H				150/0.125	2.0 $\times$ 1.25 $\times$ 0.6	250		
		RC22H				50/0.063	1.6 $\times$ 0.8 $\times$ 0.45	400		
		RC32H				50/0.063	1.0 $\times$ 0.5 $\times$ 0.35	-		
	Precision TC50	RC02G	1	100 - 1 M	$\leq \pm 50$	200/0.25	3.2 $\times$ 1.6 $\times$ 0.6	200	24/96	IEC 115-8 55/125/56
		RC12G				150/0.125	2.0 $\times$ 1.25 $\times$ 0.6	250		
	High precision	RC03G	0.5	100 - 1 M	$\leq \pm 50$	200/0.125	3.2 $\times$ 1.6 $\times$ 0.6	200	24/96	IEC 115-8 55/125/56
		RC13G				150/0.1	2.0 $\times$ 1.25 $\times$ 0.6	250		
	Application specific	RC02TR trimmable	+0/-20 or +0/-30	1 - 4.99 5.1 - 97.6 100 - 1 M	$\leq \pm 250$ $\leq \pm 200$ $\leq \pm 100$	200/0.25	3.2 $\times$ 1.6 $\times$ 0.6	200	24	IEC 115-8 55/155/56
		LRC01 low ohmic	5	0.051 - 0.075 0.082 - 0.091 0.1 - 0.147 0.15 - 0.392 0.40 - 0.91	$\leq \pm 2000$ $\leq \pm 1500$ $\leq \pm 1000$ $\leq \pm 700$ $\leq \pm 250$	0.25	3.2 $\times$ 1.6 $\times$ 0.6	200	24	IEC 115-8 55/125/56
FRC01 fusible		1 - 250		$\leq \pm 200$	200/0.125					
PRC201 power		5; 1	0.020 - 0.033 0.033 - 0.056 0.062 - 0.18 0.20 - 0.91 1.0 - 9.1 10 - 1 M	$\leq \pm 2000$ $\leq \pm 1000$ $\leq \pm 700$ $\leq \pm 250$ $\leq \pm 200$ $\leq \pm 100$	200/1	3.2 $\times$ 4.6 $\times$ 0.6	80	24	IEC 115-8 55/155/56	
Thin Film	PRC202 power, pulse resistant		0.47 - 0.91 1 - 100	$\leq \pm 200$ $\leq \pm 50$						
High precision	MPC01	0.1	10 - 100 k	$\leq \pm 25$	100/0.125	3.2 $\times$ 1.6 $\times$ 0.6	170	all	IEC 115-8 55/125/56	
	MPC11		14 - 30 k		100/0.1	2.0 $\times$ 1.25 $\times$ 0.6	250			

### Surface Mount Chip Resistor Array

Thick Film	0603 x 4	ARC241	5	10 - 1 M	$\leq \pm 200$	50/0.063	3.2 $\times$ 1.6 $\times$ 0.6			24	IEC 115-8 55/125/56
		ARC242	1	10 - 1 M	$\leq \pm 100$						

Metal Film Resistors													
Metal Film	Standard	SFR16	5	1 - 4.7 4.75 - 100 k 102 k - 3 M	≤±250 ≤±100 ≤±250	200/0.5	1.7 × 3.2	170	155	24	IEC 115-1 55/155/56		
		SFR25 SFR25H	5	1 - 1 M 1.02 M - 10 M	≤±100 ≤±250	250/0.4 350/0.5	2.5 × 6.5	200 150	155	24			
	Precision	MRS16S	1	4.99 - 1 M	≤±50	200/0.4	1.7 × 3.2	170	155	24/96		IEC 115-1 CECC 40101	
		MRS25		1 - 10 M		350/0.6	2.5 × 6.5	150	155				
		MR52		4.99 - 1 M		500/1	5.2 × 16.5	110	155				192
	High precision	MR25 MR30	0.5	1 - 1 M	≤±50	250/0.4 350/0.5	2.5 × 6.5 3.0 × 10	240 200	155 155	192		IEC 115-1 CECC 40101	
		Ultra-high precision	MPR24	0.5; 0.25; 0.1 0.05; 0.02; 0.01	4.99 - 1 M 24 - 100 k	5 - 25	250/0.25 250/0.125	2.5 × 6.5	240	all		CECC 40300 MIL-R-10509 MIL-R-55182 DIN 44061 IEC 115-5	
	MPR34		0.5; 0.25; 0.1 0.05; 0.02; 0.01	4.99 - 1 M 24 - 100 k	5 - 25	350/0.4 350/0.25	3.0 × 10	200					
	Metal Film Application Specific Types	Power	PR01	5, 2, 1	0.22 - 0.976 1 - 1 M	≤±250	350/0.6 350/1	2.5 × 6.5	135	205		24	MIL-R-11804 IEC 115-4 CECC 40202
			PR02		0.33 - 0.976 1 - 1 M		500/1.2 500/2	3.9 × 10	75	215			
PR03			0.68 - 0.976 1 - 1 M		750/1.6 750/3		5.2 × 16.7	60	250				
Military		MR24D	1	10 - 1 M	≤±100	200/0.125	2.4 × 6.5	240	96	MIL-R-10509-F			
		MR34D				300/0.25	3.1 × 10.5	200					
		MR54D				350/0.5	5.2 × 16.5	110					
		MR24C	1; 0.5; 0.25; 0.1	49.9 - 1 M	≤±50	200/0.1	2.4 × 6.5	240	192				
		MR34C				250/0.125	3.1 × 10.5	200					
		MR54C				300/0.25	5.2 × 16.5	110					
		MR24E				200/0.1	2.4 × 6.5	240					
		MR34E				250/0.125	3.1 × 10.5	200					
MR54E		300/0.25	5.2 × 16.5	110									
Fusible (non flammable)		NFR25	5	1 - 15 16 - 15 k	≤±200 ≤±100	250/0.33	2.5 × 6.5	240	155	24	IEC 115-1		
	NFR25H	1 - 4.7 5.1 - 15 k		≤±200 ≤±100	350/0.5	150		155					

High Ohmic/High Voltage Resistors											
Metal Glaze Application Specific	High ohmic/ High voltage	VR25	10; 5; 1	100 k - 22 M	≤±200	1600(DC), 1150(RMS)/0.25 W	2.5 × 6.5	200	155	24/96	IEC 115-1B
		VR37	5; 1	100 k - 33 M		3500(DC), 2500(RMS)/0.5 W	4.0 × 9.0	120	155		
		VR68	5; 1	100 k - 68 M		10000(DC), 7000(RMS)/1 W	6.8 × 18	70	155		

### Wirewound Resistors

Cemented Wirewound	Power (standard)	AC01	5	0.1 - 9.1 10 - 1.5 k	+600 -80/+140	1 W	4.3 × 10	140	350	24	IEC115-1 40/200/56
		AC03		0.1 - 9.1 10 - 3 k	+600 -80/+140	3 W	5.5 × 13	90			
		AC04		0.1 - 9.1 10 - 6.8 k	+600 -80/+140	4 W	5.5 × 17	72			
		AC05		0.1 - 9.1 10 - 8.2 k	+600 -80/+140	5 W	7.5 × 17	52			
		AC07		0.1 - 9.1 10 - 15 k	+600 -80/+140	7 W	7.5 × 25	42			
		AC10		0.68 - 9.1 10 - 15 k	+600 -80/+140	10 W	8 × 44	32			
		AC15		0.82 - 9.1 10 - 22 k	+600 -80/+140	15 W	10 × 51	21			
		AC20		1.2 - 9.1 10 - 33 k	+600 -80/+140	20 W	10 × 67	16			
Precision Wirewound	Power (precision)	PAC01	1	0.22 - 2.2 k	±100	1 W	4.3 × 10	140	275	24	IEC115-1 55/200/56
		PAC02		0.10 - 3.6 k		2 W	5.5 × 13	90			
		PAC03		0.10 - 4.7 k		3 W	5.5 × 17	72			
		PAC04		0.10 - 8.2 k		4 W	7.5 × 17	52			
		PAC05		0.68 - 10 k		5 W	7.5 × 23	43			
		PAC06		0.68 - 12 k		6 W	7.5 × 25	42			
		Stand-up Wirewound Metal film		Power (standard)		SMW02	5	0.1 - 9.1 10 - 200			
SMF02	220 - 47 k		≤±250								
SMW03	0.1 - 9.1 10 - 560		+600 -80/+140		350/3	12 × 8 × 25		30			
SMF03	560 - 47 k		≤±250								
SMW05	0.1 - 9.1 10 - 560		+600 -80/+140		600/5	13 × 9 × 25.5		22			
SMF05	560 - 47 k		≤±250								
Radial Mount Wirewound Metal film	Power (standard)	RMW03	10 10; 5	0.22 - 1 1.1 - 3.9 k	≤±600 ≤±200	3 W	24 × 9 × 9	43	275	24	IEC115-1 25/155/56
		RMF03	5	100 - 39 k	≤±200						
		RMW05	10 10; 5	0.47 - 1 1.1 - 4.7 k	≤±600 ≤±200	5 W	27 × 9.5 × 9.5	32			
		RMF05	5	100 - 51 k	≤±200						
		RMW07	10 10; 5	0.68 - 1 1.1 - 7.5 k	≤±600 ≤±200	7 W	35 × 9.5 × 9.5	29			
		RMF07	10	1 - 100 k	≤±200						
		RMW10	10 5	1.0 - 1.5 1.6 - 10 k	≤±200	10 W	48 × 9.5 × 9.5	23			
		RMF10	10	1 - 150 k	≤±200						
Enamelled Wirewound	Power (durable coating)	WR0617E WR0825E WR0842E WR0865E	5	4.7 - 4.7 k 6.8 - 27 k 10 - 56 k 15 - 100 k	-80/+140	4 W 7 W 11 W 17 W	6 × 17 8 × 26 8 × 44 8 × 67	110 100 50 33	400	24	IEC115-1 55/200/56

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