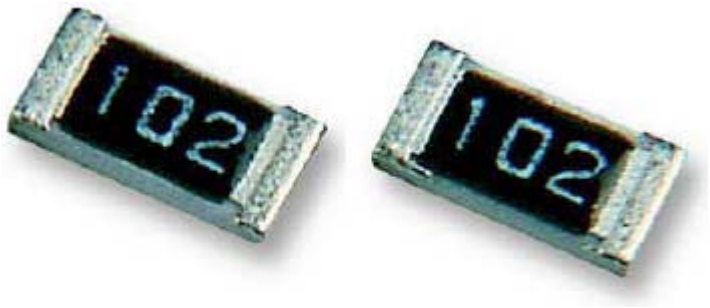
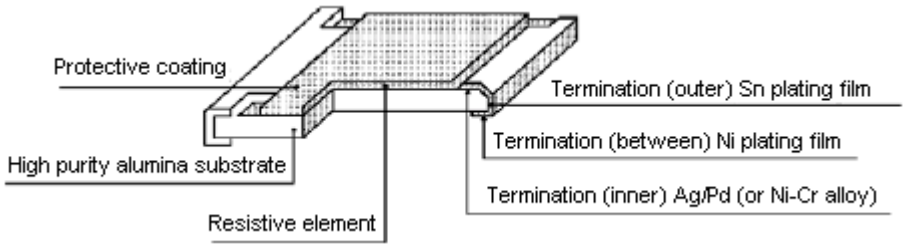
Thick Film Chip Resistors

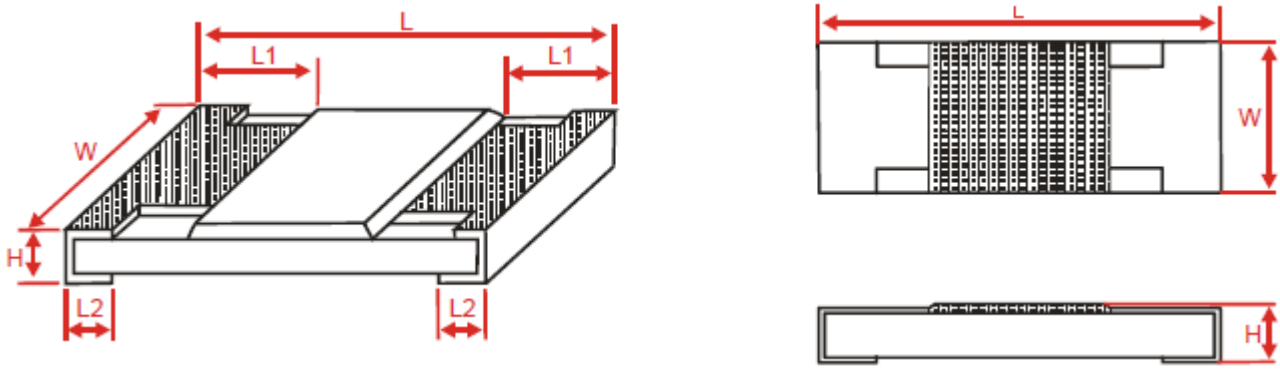
MC 5% Series



Construction



Power Rating and Dimension



Series	Dimension				
	Length (L) ±0.1	Width (W) ±0.15 -0.1	Height (H) ±0.05	Length (L1) ±0.1	Length (L2) ±0.1
MC 0603	1.6 ±0.1	0.8	0.45	0.3	0.3
MC 0805	2 ±0.15	1.25	0.55	0.4	0.4
MC 1206	3.1 ±0.15	1.6		0.45	0.45

Dimensions : Millimetres

Features:

- Small size and light weight
- Suitable for both flow and reflow soldering
- Reduction of assembly costs and matching with placement machines
- Supplied on 8 mm tape individually marked (reel = 5 K pieces)

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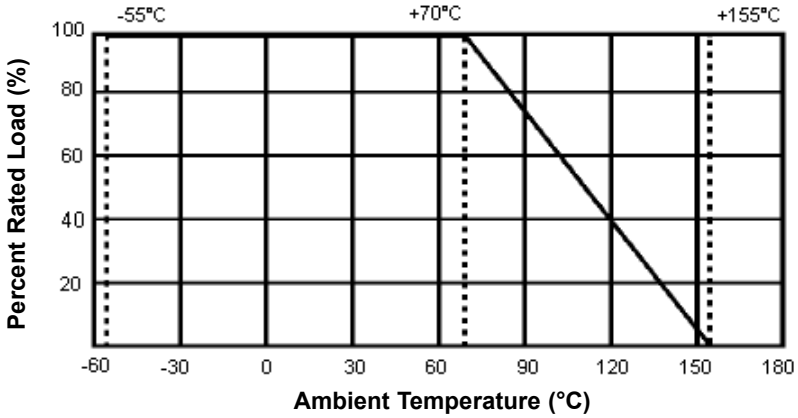
Derating Curve



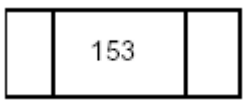
Specification Table

Type	Power Rating at 70°C (W)	Maximum Working Voltage (V)	Maximum Overload Voltage (V)	Operating Temperature (°C)	Tolerance (%)	Resistance Range	Standard Series
MC 0603	1/16	1A	2A	-55 to +155	Jumper	<50 mΩ	E96
		50	100		±1 ±2 ±5	10 Ω - 1 MΩ 1 Ω - 10 MΩ 1 Ω - 10 MΩ	E24 E24
MC 0805	1/10	2A	4A		Jumper	<50 mΩ	E96
		150	300		±1 ±2 ±5	10 Ω - 1 MΩ 1 Ω - 10 MΩ 1 Ω - 10 MΩ	E24 E24
MC 1206	1/8	2A	4A		Jumper	<50 mΩ	E96
		150	300		±1 ±2 ±5	10 Ω - 1 MΩ 1 Ω - 10 MΩ 1 Ω - 10 MΩ	E24 E24

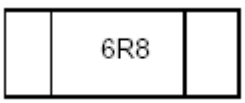
Marking on the Resistors Body

±5% tolerance product. (Including resistance values less than 1 Ω; both 1% an d 5%) the marking is 3 digits, the first 2 digits are the significant figures of the resistance and the 3rd digit denotes number of zeros

153 = 15,000 Ω = 15 KΩ; 120 = 12 Ω



Below 10 Ω shown as this : 6R8 = 6.8 Ω



Performance Specifications:

Temperature Coefficient	: ±5% : 1 Ω to 10 Ω ≤ ±400 PPM / °C; 11Ω to 10 MΩ ≤ ±200 PPM /°C
	: ±1% : 10 Ω to 100 Ω = ±200 PPM / °C; 101 Ω to 1 MΩ ≤ ±100 PPM / °C
Short-time Overload	: ±5% : ±(2% + 0.1 Ω) Maximum
	: ±1% : ±(1% + 0.1 Ω) Maximum
Minimum Insulation Resistance	: ≥1,000 MΩ
Dielectric Withstanding Voltage	: No evidence of flashover, mechanical damage, arcing or insulation breakdown
Terminal Bending	: ±(1% + 0.05 Ω) Maximum
Soldering Heat	: Resistance change rate is ±(1% + 0.05 Ω) Maximum

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Performance Specifications:

Minimum Solderability	: 95% coverage
Temperature Cycling	: ±5% : ±(1% + 0.05 Ω) Maximum
	: ±1% : ±(0.5% + 0.05 Ω) Maximum
Humidity (Steady State)	: ±5% : ±(3% + 0.1 Ω) Maximum
	: ±1% : ±(0.5% + 0.1 Ω) Maximum
Load Life in Humidity	: ±5% : ±(3% + 0.1 Ω) Maximum
	: ±1% : ±(1% + 0.1 Ω) Maximum
Load Life	: ±5% : ±(3% + 0.1 Ω) Maximum
	: ±1% : ±(1% + 0.1 Ω) Maximum

* The values which are not of standard E-24 series (2% and 5%) and not of E-96 series (1%) could be offered on a case to case basis

Resistance Preferred Value Range

E6	E12	E24	E96	E6	E12	E24	E96	E6	E12	E24	E96
10	10	10	10				21.5				46.4
			10.2	22	22	22	22.1	47	47	47	47.5
			10.5				22.6				48.7
			10.7				23.2				49.9
		11	11				23.7			51	51.1
			11.3			24	24.3				52.3
			11.5				24.9				53.6
			11.8				25.5				54.9
	12	12	12.1				26.1		56	56	56.2
			12.4				27.7				57.6
			12.7		27	27	27.4				59
		13	13				28				60.4
			13.3				28.7			62	61.9
			13.7				29.4				63.4
			14			30	30.1				64.9
			14.3				30.9				66.5
			14.7				31.6	68	68	68	68.1
15	15	15	15				32.4				69.8
			15.4	33	33	33	33.2				71.5
			15.8				34				73.2
		16	16.2				34.8			75	75
			16.5				35.7				76.8
			16.9			36	36.5				78.7
			17.4				37.4				80.6
			17.8				38.3		82	82	82.5
	18	18	18.2		39	39	39.2				84.5
			18.7				40.2				86.6
			19.1				41.2				88.7
			19.6				42.2			91	90.9
		20	20			43	43.2				93.1
			20.5				44.2				95.3
			21				45.3				97.6

Above values in accordance with IEC Publication 63 (1963) and BS2488

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Part Number Table

Resistance Value	Part Number
30K	MC 0.1W 0805 5% 30K
10R	MC 0.063W 0603 5% 10R
100R	MC 0.063W 0603 5% 100R
1K	MC 0.063W 0603 5% 1K
10K	MC 0.063W 0603 5% 10K
100K	MC 0.063W 0603 5% 100K
1M	MC 0.063W 0603 5% 1M
12R	MC 0.063W 0603 5% 12R
120R	MC 0.063W 0603 5% 120R
1K2	MC 0.063W 0603 5% 1K2
12K	MC 0.063W 0603 5% 12K
120K	MC 0.063W 0603 5% 120K
15R	MC 0.063W 0603 5% 15R
150R	MC 0.063W 0603 5% 150R
1K5	MC 0.063W 0603 5% 1K5
15K	MC 0.063W 0603 5% 15K
150K	MC 0.063W 0603 5% 150K
1R5	MC 0.063W 0603 5% 1R5
18R	MC 0.063W 0603 5% 18R
180R	MC 0.063W 0603 5% 180R
1K8	MC 0.063W 0603 5% 1K8
18K	MC 0.063W 0603 5% 18K
180K	MC 0.063W 0603 5% 180K
22R	MC 0.063W 0603 5% 22R
220R	MC 0.063W 0603 5% 220R
2K2	MC 0.063W 0603 5% 2K2
22K	MC 0.063W 0603 5% 22K
220K	MC 0.063W 0603 5% 220K
2R2	MC 0.063W 0603 5% 2R2
27R	MC 0.063W 0603 5% 27R
270R	MC 0.063W 0603 5% 270R
2K7	MC 0.063W 0603 5% 2K7
27K	MC 0.063W 0603 5% 27K
270K	MC 0.063W 0603 5% 270K

Resistance Value	Part Number
33R	MC 0.063W 0603 5% 33R
330R	MC 0.063W 0603 5% 330R
3K3	MC 0.063W 0603 5% 3K3
33K	MC 0.063W 0603 5% 33K
330K	MC 0.063W 0603 5% 330K
3R3	MC 0.063W 0603 5% 3R3
39R	MC 0.063W 0603 5% 39R
390R	MC 0.063W 0603 5% 390R
3K9	MC 0.063W 0603 5% 3K9
39K	MC 0.063W 0603 5% 39K
390K	MC 0.063W 0603 5% 390K
47R	MC 0.063W 0603 5% 47R
470R	MC 0.063W 0603 5% 470R
4K7	MC 0.063W 0603 5% 4K7
47K	MC 0.063W 0603 5% 47K
470K	MC 0.063W 0603 5% 470K
4R7	MC 0.063W 0603 5% 4R7
56R	MC 0.063W 0603 5% 56R
560R	MC 0.063W 0603 5% 560R
5K6	MC 0.063W 0603 5% 5K6
56K	MC 0.063W 0603 5% 56K
560K	MC 0.063W 0603 5% 560K
68R	MC 0.063W 0603 5% 68R
680R	MC 0.063W 0603 5% 680R
6K8	MC 0.063W 0603 5% 6K8
68K	MC 0.063W 0603 5% 68K
680K	MC 0.063W 0603 5% 680K
6R8	MC 0.063W 0603 5% 6R8
82R	MC 0.063W 0603 5% 82R
820R	MC 0.063W 0603 5% 820R
8K2	MC 0.063W 0603 5% 8K2
82K	MC 0.063W 0603 5% 82K
820K	MC 0.063W 0603 5% 820K
0R	MC 0.1W 0805 0R

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Part Number Table

Resistance Value	Part Number
10R	MC 0.1W 0805 5% 10R
100R	MC 0.1W 0805 5% 100R
1K	MC 0.1W 0805 5% 1K
10K	MC 0.1W 0805 5% 10K
100K	MC 0.1W 0805 5% 100K
1M	MC 0.1W 0805 5% 1M
11R	MC 0.1W 0805 5% 11R
110R	MC 0.1W 0805 5% 110R
1K1	MC 0.1W 0805 5% 1K1
11K	MC 0.1W 0805 5% 11K
110K	MC 0.1W 0805 5% 110K
12R	MC 0.1W 0805 5% 12R
120R	MC 0.1W 0805 5% 120R
1K2	MC 0.1W 0805 5% 1K2
12K	MC 0.1W 0805 5% 12K
120K	MC 0.1W 0805 5% 120K
13R	MC 0.1W 0805 5% 13R
130R	MC 0.1W 0805 5% 130R
1K3	MC 0.1W 0805 5% 1K3
13K	MC 0.1W 0805 5% 13K
130K	MC 0.1W 0805 5% 130K
15R	MC 0.1W 0805 5% 15R
150R	MC 0.1W 0805 5% 150R
1K5	MC 0.1W 0805 5% 1K5
15K	MC 0.1W 0805 5% 15K
150K	MC 0.1W 0805 5% 150K
1RS	MC 0.1W 0805 5% 1RS
16R	MC 0.1W 0805 5% 16R
160R	MC 0.1W 0805 5% 160R
1K6	MC 0.1W 0805 5% 1K6
16K	MC 0.1W 0805 5% 16K
160K	MC 0.1W 0805 5% 160K
18R	MC 0.1W 0805 5% 18R
180R	MC 0.1W 0805 5% 180R

Resistance Value	Part Number
1K8	MC 0.1W 0805 5% 1K8
18K	MC 0.1W 0805 5% 18K
180K	MC 0.1W 0805 5% 180K
20R	MC 0.1W 0805 5% 20R
200R	MC 0.1W 0805 5% 200R
2K	MC 0.1W 0805 5% 2K
20K	MC 0.1W 0805 5% 20K
200K	MC 0.1W 0805 5% 200K
22R	MC 0.1W 0805 5% 22R
220R	MC 0.1W 0805 5% 220R
2K2	MC 0.1W 0805 5% 2K2
22K	MC 0.1W 0805 5% 22K
220K	MC 0.1W 0805 5% 220K
2R2	MC 0.1W 0805 5% 2R2
24R	MC 0.1W 0805 5% 24R
240R	MC 0.1W 0805 5% 240R
2K4	MC 0.1W 0805 5% 2K4
24K	MC 0.1W 0805 5% 24K
240K	MC 0.1W 0805 5% 240K
27R	MC 0.1W 0805 5% 27R
270R	MC 0.1W 0805 5% 270R
2K7	MC 0.1W 0805 5% 2K7
27K	MC 0.1W 0805 5% 27K
270K	MC 0.1W 0805 5% 270K
30R	MC 0.1W 0805 5% 30R
300R	MC 0.1W 0805 5% 300R
3K	MC 0.1W 0805 5% 3K
300K	MC 0.1W 0805 5% 300K
33R	MC 0.1W 0805 5% 33R
330R	MC 0.1W 0805 5% 330R
3K3	MC 0.1W 0805 5% 3K3
33K	MC 0.1W 0805 5% 33K
330K	MC 0.1W 0805 5% 330K
3R3	MC 0.1W 0805 5% 3R3

Part Number Table

Resistance Value	Part Number
36R	MC 0.1W 0805 5% 36R
360R	MC 0.1W 0805 5% 360R
3K6	MC 0.1W 0805 5% 3K6
36K	MC 0.1W 0805 5% 36K
360K	MC 0.1W 0805 5% 360K
39R	MC 0.1W 0805 5% 39R
390R	MC 0.1W 0805 5% 390R
3K9	MC 0.1W 0805 5% 3K9
39K	MC 0.1W 0805 5% 39K
390K	MC 0.1W 0805 5% 390K
43R	MC 0.1W 0805 5% 43R
430R	MC 0.1W 0805 5% 430R
4K3	MC 0.1W 0805 5% 4K3
43K	MC 0.1W 0805 5% 43K
430K	MC 0.1W 0805 5% 430K
47R	MC 0.1W 0805 5% 47R
470R	MC 0.1W 0805 5% 470R
4K7	MC 0.1W 0805 5% 4K7
47K	MC 0.1W 0805 5% 47K
470K	MC 0.1W 0805 5% 470K
4R7	MC 0.1W 0805 5% 4R7
51R	MC 0.1W 0805 5% 51R
510R	MC 0.1W 0805 5% 510R
5K1	MC 0.1W 0805 5% 5K1
51K	MC 0.1W 0805 5% 51K
510K	MC 0.1W 0805 5% 510K
56R	MC 0.1W 0805 5% 56R
560R	MC 0.1W 0805 5% 560R
5K6	MC 0.1W 0805 5% 5K6
56K	MC 0.1W 0805 5% 56K
560K	MC 0.1W 0805 5% 560K
62R	MC 0.1W 0805 5% 62R
620R	MC 0.1W 0805 5% 620R
6K2	MC 0.1W 0805 5% 6K2

Resistance Value	Part Number
62K	MC 0.1W 0805 5% 62K
620K	MC 0.1W 0805 5% 620K
68R	MC 0.1W 0805 5% 68R
680R	MC 0.1W 0805 5% 680R
6K8	MC 0.1W 0805 5% 6K8
68K	MC 0.1W 0805 5% 68K
680K	MC 0.1W 0805 5% 680K
6R8	MC 0.1W 0805 5% 6R8
75R	MC 0.1W 0805 5% 75R
750R	MC 0.1W 0805 5% 750R
7K5	MC 0.1W 0805 5% 7K5
75K	MC 0.1W 0805 5% 75K
750K	MC 0.1W 0805 5% 750K
82R	MC 0.1W 0805 5% 82R
820R	MC 0.1W 0805 5% 820R
8K2	MC 0.1W 0805 5% 8K2
82K	MC 0.1W 0805 5% 82K
820K	MC 0.1W 0805 5% 820K
91R	MC 0.1W 0805 5% 91R
910R	MC 0.1W 0805 5% 910R
9K1	MC 0.1W 0805 5% 9K1
91K	MC 0.1W 0805 5% 91K
910K	MC 0.1W 0805 5% 910K
10R	MC 0.125W 1206 5% 10R
100R	MC 0.125W 1206 5% 100R
1K	MC 0.125W 1206 5% 1K
10K	MC 0.125W 1206 5% 10K
100K	MC 0.125W 1206 5% 100K
1M	MC 0.125W 1206 5% 1M
12R	MC 0.125W 1206 5% 12R
120R	MC 0.125W 1206 5% 120R
1K2	MC 0.125W 1206 5% 1K2
12K	MC 0.125W 1206 5% 12K
120K	MC 0.125W 1206 5% 120K

Part Number Table

Resistance Value	Part Number
15R	MC 0.125W 1206 5% 15R
150R	MC 0.125W 1206 5% 150R
1K5	MC 0.125W 1206 5% 1K5
15K	MC 0.125W 1206 5% 15K
150K	MC 0.125W 1206 5% 150K
1R5	MC 0.125W 1206 5% 1R5
18R	MC 0.125W 1206 5% 18R
180R	MC 0.125W 1206 5% 180R
1K8	MC 0.125W 1206 5% 1K8
18K	MC 0.125W 1206 5% 18K
180K	MC 0.125W 1206 5% 180K
22R	MC 0.125W 1206 5% 22R
220R	MC 0.125W 1206 5% 220R
2K2	MC 0.125W 1206 5% 2K2
22K	MC 0.125W 1206 5% 22K
220K	MC 0.125W 1206 5% 220K
2R2	MC 0.125W 1206 5% 2R2
27R	MC 0.125W 1206 5% 27R
270R	MC 0.125W 1206 5% 270R
2K7	MC 0.125W 1206 5% 2K7
27K	MC 0.125W 1206 5% 27K
270K	MC 0.125W 1206 5% 270K
33R	MC 0.125W 1206 5% 33R
330R	MC 0.125W 1206 5% 330R
3K3	MC 0.125W 1206 5% 3K3
33K	MC 0.125W 1206 5% 33K
330K	MC 0.125W 1206 5% 330K
3R3	MC 0.125W 1206 5% 3R3
39R	MC 0.125W 1206 5% 39R
390R	MC 0.125W 1206 5% 390R
3K9	MC 0.125W 1206 5% 3K9
39K	MC 0.125W 1206 5% 39K
390K	MC 0.125W 1206 5% 390K
47R	MC 0.125W 1206 5% 47R

Resistance Value	Part Number
470R	MC 0.125W 1206 5% 470R
4K7	MC 0.125W 1206 5% 4K7
47K	MC 0.125W 1206 5% 47K
470K	MC 0.125W 1206 5% 470K
4R7	MC 0.125W 1206 5% 4R7
56R	MC 0.125W 1206 5% 56R
560R	MC 0.125W 1206 5% 560R
5K6	MC 0.125W 1206 5% 5K6
56K	MC 0.125W 1206 5% 56K
560K	MC 0.125W 1206 5% 560K
68R	MC 0.125W 1206 5% 68R
680R	MC 0.125W 1206 5% 680R
6K8	MC 0.125W 1206 5% 6K8
68K	MC 0.125W 1206 5% 68K
680K	MC 0.125W 1206 5% 680K
6R8	MC 0.125W 1206 5% 6R8
82R	MC 0.125W 1206 5% 82R
820R	MC 0.125W 1206 5% 820R
8K2	MC 0.125W 1206 5% 8K2
82K	MC 0.125W 1206 5% 82K
820K	MC 0.125W 1206 5% 820K

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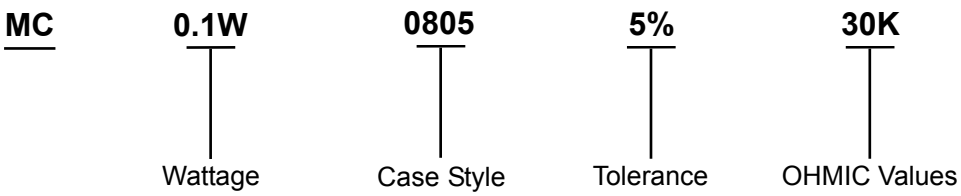
Part Number Explanation:



Wattage : 0.063, 0.1 and 0.125W
Case Style : 0603, 0805 and 1206
Tolerance : ±5%
OHMIC Value : Where R = Ohms = Ω, K = Kilo ohms = KΩ, M = Mega ohms = MΩ, and replaces the decimal point
eg : 1R5 = 1.5 Ω, 4K7 = 4.7 KΩ, 6M8 = 6.8 MΩ

Stocked Values

Tolerance	Wattage	Preferred Value Range	Range Value
5%	0.06W	E96	0R - 1M
5%	0.1W	E24	0R - 1M
5%	0.125W	E24	0R - 1M