

# Thick Film Chip Resistor



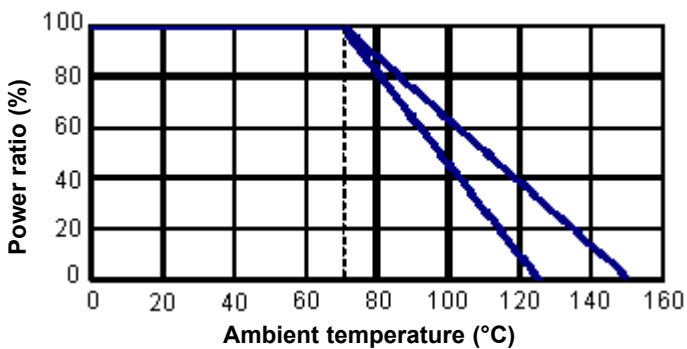
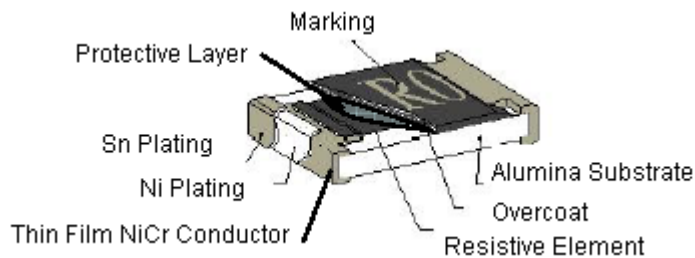
## Features:

- Small size and light weight
- Highly reliable multilayer electrode construction
- Compatible with all soldering process

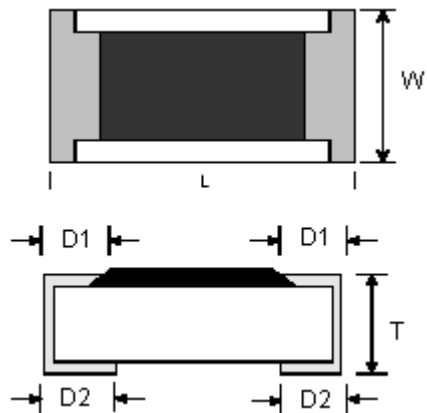
## Applications:

Telecommunication equipments  
Radio and tape recorders, TV tuners  
Video cameras, watches and pocket calculators  
Automotive industry  
Computers, instruments  
Medical and military equipments

## Construction:



## Dimensions:



Dimensions : Millimetres

# Thick Film Chip Resistor



Size	Codes	L	W	T	D1	D2
0201	CR-01	0.6 ±0.03	0.3 ±0.03	0.23 ±0.03	0.1 ±0.05	0.15 ±0.05

Dimensions : Millimetres

## Standard Electrical Specifications

Type-Item	Power Rating at 70°C Jumper Rated Current	Operating Temperature Range	Maximum Operating Voltage	Maximum Overloading Voltage	Resistance Tolerance		Resistance Range	TCR (PPM / °C)
					E96 E24	±1%		
0201	1 / 20 W	-55 to +125°C	25 V	50 V	E96 E24	±1%	1 Ω to 1 MΩ	200
Jumper	1 A				-		0 Ω (<50 MΩ)	-

## Environmental Characteristics

Item	Specification			Test Method
	±1%	±5%	Jumper	
Temperature coefficient of resistance (TCR)	Within the specification			JIS C 5201 4.8 IEC 60115-1 4.8 -55°C to +125 / +155°C, 20°C is the reference temperature
Short time overload	±(1% +0.05 Ω)	±(2% +0.05 Ω)	<50 mΩ	JIS C 5201 4.13 IEC 60115-1 4.13 2.5 times RCWV or maximum. Overload voltage for 5 seconds
Insulation resistance	≥10 G			JIS C 5201 4.6 IEC 60115-1 4.6 Maximum overload voltage for 1 minute
Voltage proof	no breakdown or flashover			JIS C 5201 4.7 IEC 60115-1 4.7 1.42 times RCWV (RMS) for 1 minute
Substrate bending test	±(1% +0.05 Ω)	±(1% +0.05 Ω)	<50 mΩ	JIS C 5201 4.33 IEC 60115-1 4.33 Bending once for 5 seconds 2010, 2512 size: 2 mm Other size: 3 mm
Resistance to soldering heat	±(0.5% +0.05 Ω)	±(1% +0.05 Ω)	<50 mΩ	JIS C 5201 4.18 IEC 60115 4.18 260 ±5°C for 10 seconds
Leaching	Individual leaching area ≤5% Total leaching area ≤10%			JIS C 5201 4.18 IEC 60068-2-58 8.2.1 260 ±5°C for 30 seconds
Solderability	>95% coverage			JIS C 5201 4.17 IEC 60115-1 4.17 245 ±5°C for 3 seconds
Endurance at upper category temperature	±(1% +0.05 Ω)	±(1.5% +0.1 Ω)	<50 mΩ	JIS C 5201 4.23 IEC 60115-1 2.23.2 at +125 / +155°C for 1,000 hours

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## Environmental Characteristics

Item	Specification			Test Method
	±1%	±5%	Jumper	
Rapid change of temperature	±(0.5% +0.05 Ω)	±(1% +0.05 Ω)	<50 mΩ	JIS C 5201 4.19 IEC 60115-1 4.19 -55°C to +125 / +155°C, 5 cycles
Damp heat with load	±(2% +0.1 Ω)	±(3% +0.1 Ω)	<100 mΩ	JIS 5201 4.24 40 ±2°C, 90 to 95% R.H. or maximum working voltage for 1,000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Endurance	±(2 +0.1 Ω)	±(3 +0.1 Ω)		JIS C 5201 4.25 IEC 60115-1 4.25.1 70 ±2°C, or maximum working voltage for 1,000 hours with 1.5 hours "ON" and 0.5 hour "OFF"

Storage temperature : 25 ±3°C; Humidity <80%RH

## 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	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	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

# Thick Film Chip Resistor



## Part Number Table

Description	Part Number
Resistor, 0201, 1%, 0 R	MCRE000086
Resistor, 0201, 1%, 1 R5	MCRE000087
Resistor, 0201, 1%, 2 R2	MCRE000088
Resistor, 0201, 1%, 3 R3	MCRE000089
Resistor, 0201, 1%, 4 R7	MCRE000090
Resistor, 0201, 1%, 6 R8	MCRE000091
Resistor, 0201, 1%, 10 R	MCRE000092
Resistor, 0201, 1%, 11 R	MCRE000093
Resistor, 0201, 1%, 12 R	MCRE000094
Resistor, 0201, 1%, 13 R	MCRE000095
Resistor, 0201, 1%, 15 R	MCRE000096
Resistor, 0201, 1%, 16 R	MCRE000097
Resistor, 0201, 1%, 18 R	MCRE000098
Resistor, 0201, 1%, 20 R	MCRE000099
Resistor, 0201, 1%, 22 R	MCRE000100
Resistor, 0201, 1%, 24 R	MCRE000101
Resistor, 0201, 1%, 27 R	MCRE000102
Resistor, 0201, 1%, 30 R	MCRE000103
Resistor, 0201, 1%, 33 R	MCRE000104
Resistor, 0201, 1%, 36 R	MCRE000105
Resistor, 0201, 1%, 39 R	MCRE000106
Resistor, 0201, 1%, 43 R	MCRE000107
Resistor, 0201, 1%, 47 R	MCRE000108
Resistor, 0201, 1%, 51 R	MCRE000109
Resistor, 0201, 1%, 56 R	MCRE000110
Resistor, 0201, 1%, 62 R	MCRE000111
Resistor, 0201, 1%, 68 R	MCRE000112
Resistor, 0201, 1%, 75 R	MCRE000113
Resistor, 0201, 1%, 82 R	MCRE000114
Resistor, 0201, 1%, 91 R	MCRE000115
Resistor, 0201, 1%, 100 R	MCRE000116
Resistor, 0201, 1%, 110 R	MCRE000117
Resistor, 0201, 1%, 120 R	MCRE000118
Resistor, 0201, 1%, 130 R	MCRE000119

Description	Part Number
Resistor, 0201, 1%, 150 R	MCRE000120
Resistor, 0201, 1%, 160 R	MCRE000121
Resistor, 0201, 1%, 180 R	MCRE000122
Resistor, 0201, 1%, 200 R	MCRE000123
Resistor, 0201, 1%, 220 R	MCRE000124
Resistor, 0201, 1%, 240 R	MCRE000125
Resistor, 0201, 1%, 270 R	MCRE000126
Resistor, 0201, 1%, 300 R	MCRE000127
Resistor, 0201, 1%, 330 R	MCRE000128
Resistor, 0201, 1%, 360 R	MCRE000129
Resistor, 0201, 1%, 390 R	MCRE000130
Resistor, 0201, 1%, 430 R	MCRE000131
Resistor, 0201, 1%, 470 R	MCRE000132
Resistor, 0201, 1%, 510 R	MCRE000133
Resistor, 0201, 1%, 560 R	MCRE000134
Resistor, 0201, 1%, 620 R	MCRE000135
Resistor, 0201, 1%, 680 R	MCRE000136
Resistor, 0201, 1%, 750 R	MCRE000137
Resistor, 0201, 1%, 820 R	MCRE000138
Resistor, 0201, 1%, 910 R	MCRE000139
Resistor, 0201, 1%, 1K	MCRE000140
Resistor, 0201, 1%, 1.1K	MCRE000141
Resistor, 0201, 1%, 1.2K	MCRE000142
Resistor, 0201, 1%, 1.3K	MCRE000143
Resistor, 0201, 1%, 1.5K	MCRE000144
Resistor, 0201, 1%, 1.6K	MCRE000145
Resistor, 0201, 1%, 1.8K	MCRE000146
Resistor, 0201, 1%, 2K	MCRE000147
Resistor, 0201, 1%, 2.2K	MCRE000148
Resistor, 0201, 1%, 2.4K	MCRE000149
Resistor, 0201, 1%, 2.7K	MCRE000150
Resistor, 0201, 1%, 3K	MCRE000151
Resistor, 0201, 1%, 3.3K	MCRE000152
Resistor, 0201, 1%, 3.6K	MCRE000153

# Thick Film Chip Resistor



## Part Number Table

Description	Part Number
Resistor, 0201, 1%, 3.9K	MCRE000154
Resistor, 0201, 1%, 4.3K	MCRE000155
Resistor, 0201, 1%, 4.7K	MCRE000156
Resistor, 0201, 1%, 5.1K	MCRE000157
Resistor, 0201, 1%, 5.6K	MCRE000158
Resistor, 0201, 1%, 6.2K	MCRE000159
Resistor, 0201, 1%, 6.8K	MCRE000160
Resistor, 0201, 1%, 7.5K	MCRE000161
Resistor, 0201, 1%, 8.2K	MCRE000162
Resistor, 0201, 1%, 9.1K	MCRE000163
Resistor, 0201, 1%, 10K	MCRE000164
Resistor, 0201, 1%, 11K	MCRE000165
Resistor, 0201, 1%, 12K	MCRE000166
Resistor, 0201, 1%, 13K	MCRE000167
Resistor, 0201, 1%, 15K	MCRE000168
Resistor, 0201, 1%, 16K	MCRE000169
Resistor, 0201, 1%, 18K	MCRE000170
Resistor, 0201, 1%, 20K	MCRE000171
Resistor, 0201, 1%, 22K	MCRE000172
Resistor, 0201, 1%, 24K	MCRE000173
Resistor, 0201, 1%, 27K	MCRE000174
Resistor, 0201, 1%, 30K	MCRE000175
Resistor, 0201, 1%, 33K	MCRE000176
Resistor, 0201, 1%, 36K	MCRE000177
Resistor, 0201, 1%, 39K	MCRE000178
Resistor, 0201, 1%, 43K	MCRE000179
Resistor, 0201, 1%, 47K	MCRE000180
Resistor, 0201, 1%, 51K	MCRE000181
Resistor, 0201, 1%, 56K	MCRE000182

Description	Part Number
Resistor, 0201, 1%, 62K	MCRE000183
Resistor, 0201, 1%, 68K	MCRE000184
Resistor, 0201, 1%, 75K	MCRE000185
Resistor, 0201, 1%, 82K	MCRE000186
Resistor, 0201, 1%, 91K	MCRE000187
Resistor, 0201, 1%, 100K	MCRE000188
Resistor, 0201, 1%, 110K	MCRE000189
Resistor, 0201, 1%, 120K	MCRE000190
Resistor, 0201, 1%, 130K	MCRE000191
Resistor, 0201, 1%, 150K	MCRE000192
Resistor, 0201, 1%, 160K	MCRE000193
Resistor, 0201, 1%, 180K	MCRE000194
Resistor, 0201, 1%, 200K	MCRE000195
Resistor, 0201, 1%, 220K	MCRE000196
Resistor, 0201, 1%, 240K	MCRE000197
Resistor, 0201, 1%, 270K	MCRE000198
Resistor, 0201, 1%, 300K	MCRE000199
Resistor, 0201, 1%, 330K	MCRE000200
Resistor, 0201, 1%, 360K	MCRE000201
Resistor, 0201, 1%, 390K	MCRE000202
Resistor, 0201, 1%, 430K	MCRE000203
Resistor, 0201, 1%, 470K	MCRE000204
Resistor, 0201, 1%, 510K	MCRE000205
Resistor, 0201, 1%, 560K	MCRE000206
Resistor, 0201, 1%, 620K	MCRE000207
Resistor, 0201, 1%, 680K	MCRE000208
Resistor, 0201, 1%, 750K	MCRE000209
Resistor, 0201, 1%, 820K	MCRE000210
Resistor, 0201, 1%, 910K	MCRE000211
Resistor, 0201, 1%, 1M	MCRE000212

## Stocked Values

Tolerance	Wattage (W)	Preferred Value Range	Range Value
1%	0.063	E96	1 R5 - 1 M
	0.1	E24	
	0.125	E24	10 R - 1 M

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