

Automotive and Anti-Sulfuration Chip Resistor 0402



RoHS
Compliant

Description



The resistors are constructed in a high grade ceramic body (aluminium oxide). Internal metal electrodes are added at each end and connected by a resistive paste that is applied to the top surface of the substrate. The composition of the paste is adjusted to give the approximate resistance required and the value is trimmed to within tolerance by laser cutting of this resistive layer

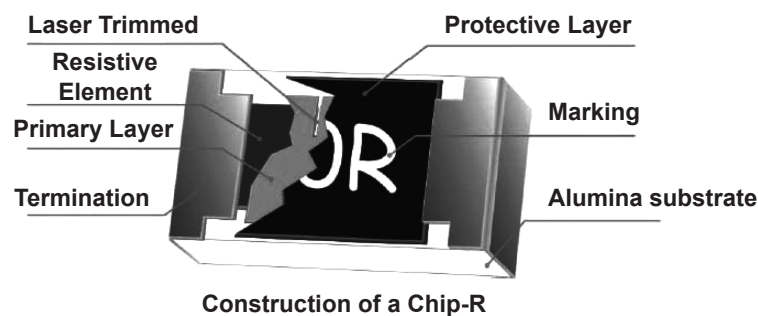
Features:

- High reliability and stability $\pm 1\%$
- Sulfuration resistant
- Automotive grade AEC Q-200 compliant
- 100% CCD inspection
- Lead-free

Applications:

Automotive application
Consumer electrical equipment
EDP, computer application
Telecom application

The resistive layer is covered with a protective coat. Finally, the two external end terminations are added. For ease of soldering the outer layer of these end terminations is a Tin (lead free) alloy



Quick Reference Data

Item	General Specification	
Series no.	MCMR04	
Size code	0402	
Resistance range	1 Ω to 10M Ω ($\pm 5\%$ tolerance), jumper 1 Ω to 10M Ω ($\pm 1\%$ tolerance)	
Resistance tolerance	$\pm 1\%$ E96 / E24	$\pm 5\%$ E24
TCR (ppm/ $^{\circ}$ C) R > 1M Ω 10 Ω < R \leq 1M Ω R \leq 10 Ω	$\leq +200$ $\leq +100$ -200 to +400	
Maximum dissipation at T _{amb} = 70 $^{\circ}$ C	1/16W	
Maximum operation voltage (DC or RMS)	50V	
Maximum overload voltage (DC or RMS)	100V	
Climatic category (IEC 60068)	55/155/56	

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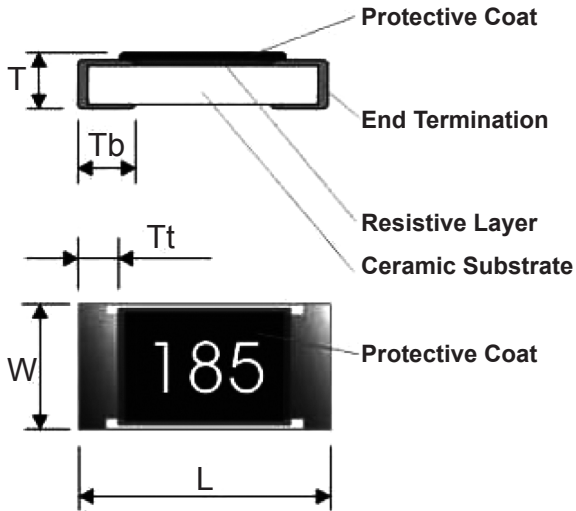
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Note:

1. This is the maximum voltage that may be continuously supplied to the resistor element, see “IEC publication 60115-8”
2. Maximum operation voltage : So called RCWV (rated continuous working voltage) is determined by

$$RCWV = \sqrt{\text{Rated Power} \times \text{Resistance Value}}$$
 or maximum RCWV listed above, whichever is lower
3. The resistance of jumper is defined $< 0.05\Omega$

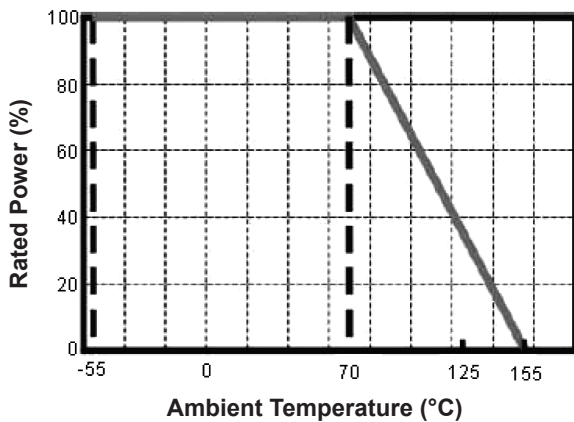


Dimensions (mm)

MCMR04 (0402)	L	W	T	Tb	Tt
	1 ±0.05	0.5 ±0.05	0.35 ±0.05	0.25 ±0.1	0.2 ±0.1

Derating

The power that the resistor can dissipate depends on the operating temperature



Max. dissipation in percentage of rated power as a function of the ambient temperature



Mounting:

Due to their rectangular shapes and small tolerances, surface mountable resistors are suitable for handling by automatic placement systems

Chip placement can be on ceramic substrates and printed-circuit boards (PCBs)

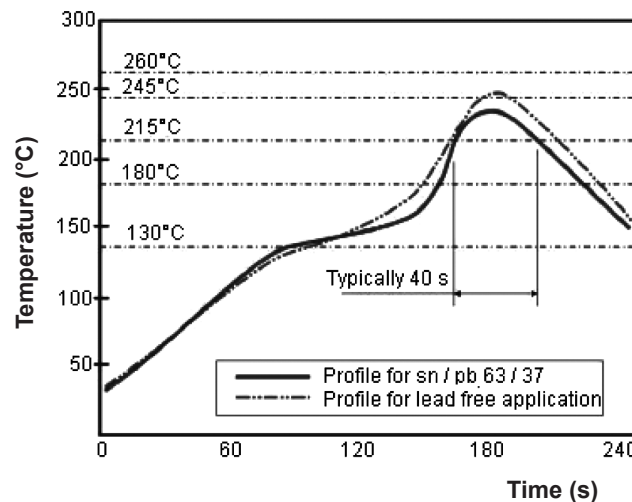
Electrical connection to the circuit is by individual soldering condition

The end terminations guarantee a reliable contact

Soldering Condition

The robust construction of chip resistors allows them to be completely immersed in a solder bath of 260°C for 10 seconds. Therefore, it is possible to mount surface mount resistors on one side of a PCB and other discrete components on the reverse (mixed PCBs)

Surface mount resistors are tested for solderability at 235°C during 2 seconds. The test condition for no leaching is 260°C for 30 seconds. Typical examples of soldering processes that provide reliable joints without any damage are given in below.



Infrared soldering profile for Chip Resistors

Test and Requirements

Essentially all tests are carried out according to the schedule of IEC publication 115-8, category LCT/UCT/56 (rated temperature range : Lower Category Temperature, Upper Category Temperature; damp heat, long term, 56 days). The testing also meets the requirements specified by EIA, EIAJ and JIS

The tests are carried out in accordance with IEC publication 68, "Recommended basic climatic and mechanical robustness testing procedure for electronic components" and under standard atmospheric conditions according to IEC 60068-1, sub-clause 5.3. Unless otherwise specified, the following value supplied :

Temperature : 15°C to 35°C

Relative humidity : 45% to 75%

Air pressure : 86kPa to 106kPa (860 mbar to 1,060 mbar)

All soldering tests are performed with mildly activated flux

Test and Requirements

Test	Procedure / Test Method	Requirement	
		Resistance $\pm 5\%$, $\pm 1\%$	0 Ω
Electrical Characteristics JISC5201-1: 1998 Clause 4.8	- DC resistance values measurement - Temperature Coefficient of Resistance (T.C.R) Natural resistance change per change in degree centigrade $\frac{R2 - R1}{R1 (t2 - t1)} \times 10^6 \text{ (ppm/}^\circ\text{C)}$ t1 : 20°C +5°C -1°C R1 : Resistance at reference temperature R2 : Resistance at test temperature	Within the specified tolerance Refer to "Quick Reference Data"	
Resistance to soldering heat (R.S.H) MIL-STD-202 method 210	Un-mounted chips completely immersed for 10 \pm 1 second in a SAC solder bath at 270°C \pm 5°C	$\Delta R/R$ Max. \pm (0.5%+0.05 Ω) No visible damage	< 50m Ω
Solderability J-STD-002	a) Bake the sample for 155°C dwell time 4 hours / solder dipping 235°C / 5 s b) Steam the sample dwell time 1 hour/ solder dipping 215°C/ 5 s c) Steam the sample dwell time 1 hour/ solder dipping 260°C / 7 s	95% coverage minimum, good tinning No visible damage	
Temperature cycling JESD22 method JA-104	1,000 cycles, -55°C to +155°C, dwell time 5 to 10mins	$\Delta R/R$ Max. \pm (0.5%+0.05 Ω) No visible damage	< 50m Ω
Moisture Resistance MIL-STD-202 method 106	65 \pm 2°C, 80 to 100% RH, 10 cycles, 24 hours / cycle	$\Delta R/R$ Max. \pm (0.5%+0.05 Ω) No visible damage	< 50m Ω
Bias Humidity MIL-STD-202 method 103	1,000 +48/-0 hours; 85°C, 85% RH, 10% of operation Power	$\Delta R/R$ Max. \pm (1%+0.05 Ω) No visible damage	< 50m Ω
Operational Life MIL-STD-202 method 108	1,000 +48/-0 hours; 35% of operation power, 125 \pm 2°C	$\Delta R/R$ Max. \pm (1%+0.05 Ω) No visible damage	< 50m Ω
High Temperature Exposure MIL-STD-202 method 108	1,000+48/-0 hours; without load in a temperature chamber controlled 155 \pm 3°C	$\Delta R/R$ Max. \pm (1%+0.05 Ω) No visible damage	< 50m Ω
Mechanical Shock MIL-STD-202 method 213	1/2 sine pulse / 1,500 g peak / Velocity 15.4 ft/s	Within the specified tolerance No visible damage	< 50m Ω
Board Flex AEC-Q200-005	Resistors mounted on a 90 mm glass epoxy resin PCB(FR4), bending once 2 mm for 10 s	$\Delta R/R$ Max. \pm (1%+0.05 Ω) No visible damage	< 50m Ω
Terminal strength AEC-Q200-006	Pressurizing force: 1 Kg, Test time: 60 \pm 1 s	No remarkable damage or removal of the terminations	
Vibration MIL-STD-202 method 204	Test 5 g's for 20 minimum, 12 cycles each of 3 orientations	$\Delta R/R$ Max. \pm (1%+0.05 Ω) No visible damage	< 50m Ω
Thermal shock MIL-STD-202 method 107	Test -55 to 155 / dwell time 15 minimum / maximum transfer time 20 seconds 300 cycles	$\Delta R/R$ Max. \pm (0.5%+0.05 Ω) No visible damage	< 50m Ω
ESD AEC-Q200-002	Test contact 1 KV (0.5 KV for 0402 only)	$\Delta R/R$ Max. \pm (1%+0.05 Ω) No visible damage	< 50m Ω

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Test Condition for Jumper (0 Ω)

Item	MCMR04 (0402)
Power rating at +70°C	1/16 W
Resistance	Max. 50m Ω
Rated current	1 A
Peak current	2 A
Operating temperature	-55°C to +155°C

MCMR04 (0402):

1. Reeled tape packaging : 8mm width paper taping 10,000 pieces per reel
2. Bulk packaging : 10,000 pieces per poly-bag

Part Number Table

Description	Part Number
Resistor, 0402, 10M, 1%, Anti Sulfur	MCMR04W1005FTL
Resistor, 0402, 1R, 1%, Anti Sulfur	MCMR04W1R00FTL
Resistor, 0402, 3R3, 1%, Anti Sulfur	MCMR04W3R30FTL
Resistor, 0402, 3R9, 1%, Anti Sulfur	MCMR04W3R90FTL
Resistor, 0402, 4R3, 1%, Anti Sulfur	MCMR04W4R30FTL
Resistor, 0402, 4R7, 1%, Anti Sulfur	MCMR04W4R70FTL
Resistor, 0402, 4R99, 1%, Anti Sulfur	MCMR04W4R99FTL
Resistor, 0402, 5R1, 1%, Anti Sulfur	MCMR04W5R10FTL
Resistor, 0402, 5R6, 1%, Anti Sulfur	MCMR04W5R60FTL
Resistor, 0402, 6R8, 1%, Anti Sulfur	MCMR04W6R80FTL
Resistor, 0402, 7R5, 1%, Anti Sulfur	MCMR04W7R50FTL
Resistor, 0402, 8R2, 1%, Anti Sulfur	MCMR04W8R20FTL
Resistor, 0402, 9R1, 1%, Anti Sulfur	MCMR04W9R10FTL
Resistor, 0402, 0R, Anti Sulfuration	MCMR04X000 PTL
Resistor, 0402, 10R, Anti Sulfur, 5%	MCMR04X100 JTL
Resistor, 0402, 100R, 1%, Anti Sulfur	MCMR04X1000FTL
Resistor, 1K, 62.5mW, 1% Anti Sulphur	MCMR04X1001FTL
Resistor, 10K, 62.5mW, 1% Anti Sulphur	MCMR04X1002FTL
Resistor, 100K, 62.5mW, 1% Anti Sulphur	MCMR04X1003FTL
Resistor, 0402, 1m, 1%, Anti Sulfur	MCMR04X1004FTL
Resistor, 0402, 100R, 5% Anti Sulfur	MCMR04X101 JTL
Resistor, 1K, 0402, 5% Anti Sulphur	MCMR04X102 JTL
Resistor, 0402, 102R, 1%, Anti Sulfur	MCMR04X1020FTL
Resistor, 0402, 1K02, 1%, Anti Sulfur	MCMR04X1021FTL

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Description	Part Number
Resistor, 0402, 10K2, 1%, Anti Sulfur	MCMR04X1022FTL
Resistor, 0402, 102K, 1%, Anti Sulfur	MCMR04X1023FTL
Resistor, 10K, 0402, 5%, Anti Sulfur	MCMR04X103 JTL
Resistor, 100K, 0402, 5%, Anti Sulfur	MCMR04X104 JTL
Resistor, 1M, 0402, 5%, Anti Sulfur	MCMR04X105 JTL
Resistor, 0402, 105R, 1%, Anti Sulfur	MCMR04X1050FTL
Resistor, 0402, 1K05, 1%, Anti Sulfur	MCMR04X1051FTL
Resistor, 0402, 10K5, 1%, Anti Sulfur	MCMR04X1052FTL
Resistor, 0402, 105K, 1%, Anti Sulfur	MCMR04X1053FTL
Resistor, 10M, 0402, 5%, Anti Sulfur	MCMR04X106 JTL
Resistor, 0402, 107R, 1%, Anti Sulfur	MCMR04X1070FTL
Resistor, 0402, 1K07, 1%, Anti Sulfur	MCMR04X1071FTL
Resistor, 0402, 10K7, 1%, Anti Sulfur	MCMR04X1072FTL
Resistor, 0402, 107K, 1%, Anti Sulfur	MCMR04X1073FTL
Resistor, 0402, 10R, 1%, Anti Sulfur	MCMR04X10R0FTL
Resistor, 0402, 10R2, 1%, Anti Sulfur	MCMR04X10R2FTL
Resistor, 0402, 10R5, 1%, Anti Sulfur	MCMR04X10R5FTL
Resistor, 0402, 10R7, 1%, Anti Sulfur	MCMR04X10R7FTL
Resistor, 11R, 0402, 5%, Anti Sulfur	MCMR04X110 JTL
Resistor, 0402, 110R, 1%, Anti Sulfur	MCMR04X1100FTL
Resistor, 0402, 1K1, 1%, Anti Sulfur	MCMR04X1101FTL
Resistor, 0402, 11K, 1%, Anti Sulfur	MCMR04X1102FTL
Resistor, 0402, 110K, 1%, Anti Sulfur	MCMR04X1103FTL
Resistor, 110R, 0402, 5%, Anti Sulfur	MCMR04X111 JTL
Resistor, 1K1, 0402, 5%, Anti Sulfur	MCMR04X112 JTL
Resistor, 11K, 0402, 5%, Anti Sulfur	MCMR04X113 JTL
Resistor, 0402, 113R, 1%, Anti Sulfur	MCMR04X1130FTL
Resistor, 0402, 1K13, 1%, Anti Sulfur	MCMR04X1131FTL
Resistor, 0402, 11K3, 1%, Anti Sulfur	MCMR04X1132FTL
Resistor, 0402, 113K, 1%, Anti Sulfur	MCMR04X1133FTL
Resistor, 110K, 0402, 5%, Anti Sulfur	MCMR04X114 JTL
Resistor, 1M1, 0402, 5%, Anti Sulfur	MCMR04X115 JTL
Resistor, 0402, 115R, 1%, Anti Sulfur	MCMR04X1150FTL
Resistor, 0402, 1K15, 1%, Anti Sulfur	MCMR04X1151FTL
Resistor, 0402, 11K5, 1%, Anti Sulfur	MCMR04X1152FTL
Resistor, 0402, 115K, 1%, Anti Sulfur	MCMR04X1153FTL
Resistor, 0402, 118R, 1%, Anti Sulfur	MCMR04X1180FTL
Resistor, 0402, 1K18, 1%, Anti Sulfur	MCMR04X1181FTL
Resistor, 0402, 11K8, 1%, Anti Sulfur	MCMR04X1182FTL

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Description	Part Number
Resistor, 0402, 118K, 1%, Anti Sulfur	MCMR04X1183FTL
Resistor, 0402, 11R, 1%, Anti Sulfur	MCMR04X11R0FTL
Resistor, 0402, 11R3, 1%, Anti Sulfur	MCMR04X11R3FTL
Resistor, 0402, 11R5, 1%, Anti Sulfur	MCMR04X11R5FTL
Resistor, 0402, 11R8, 1%, Anti Sulfur	MCMR04X11R8FTL
Resistor, 12R, 0402, 5%, Anti Sulfur	MCMR04X120 JTL
Resistor, 0402, 120R, 1%, Anti Sulfur	MCMR04X1200FTL
Resistor, 0402, 1K2, 1%, Anti Sulfur	MCMR04X1201FTL
Resistor, 0402, 12K, 1%, Anti Sulfur	MCMR04X1202FTL
Resistor, 0402, 120K, 1%, Anti Sulfur	MCMR04X1203FTL
Resistor, 120R, 0402, 5%, Anti Sulfur	MCMR04X121 JTL
Resistor, 0402, 121R, 1%, Anti Sulfur	MCMR04X1210FTL
Resistor, 0402, 1K21, 1%, Anti Sulfur	MCMR04X1211FTL
Resistor, 0402, 12K1, 1%, Anti Sulfur	MCMR04X1212FTL
Resistor, 0402, 121K, 1%, Anti Sulfur	MCMR04X1213FTL
Resistor, 1K2, 0402, 5%, Anti Sulfur	MCMR04X122 JTL
Resistor, 12K, 0402, 5%, Anti Sulfur	MCMR04X123 JTL
Resistor, 120K, 0402, 5%, Anti Sulfur	MCMR04X124 JTL
Resistor, 0402, 124R, 1%, Anti Sulfur	MCMR04X1240FTL
Resistor, 0402, 1K24, 1%, Anti Sulfur	MCMR04X1241FTL
Resistor, 0402, 12K4, 1%, Anti Sulfur	MCMR04X1242FTL
Resistor, 0402, 124K, 1%, Anti Sulfur	MCMR04X1243FTL
Resistor, 1M2, 0402, 5%, Anti Sulfur	MCMR04X125 JTL
Resistor, 0402, 127R, 1%, Anti Sulfur	MCMR04X1270FTL
Resistor, 0402, 1K27, 1%, Anti Sulfur	MCMR04X1271FTL
Resistor, 0402, 12K7, 1%, Anti Sulfur	MCMR04X1272FTL
Resistor, 0402, 127K, 1%, Anti Sulfur	MCMR04X1273FTL
Resistor, 0402, 12R, 1%, Anti Sulfur	MCMR04X12R0FTL
Resistor, 0402, 12R1, 1%, Anti Sulfur	MCMR04X12R1FTL
Resistor, 0402, 12R4, 1%, Anti Sulfur	MCMR04X12R4FTL
Resistor, 0402, 12R7, 1%, Anti Sulfur	MCMR04X12R7FTL
Resistor, 13R, 0402, 5%, Anti Sulfur	MCMR04X130 JTL
Resistor, 0402, 130R, 1%, Anti Sulfur	MCMR04X1300FTL
Resistor, 0402, 1K3, 1%, Anti Sulfur	MCMR04X1301FTL
Resistor, 0402, 13K, 1%, Anti Sulfur	MCMR04X1302FTL
Resistor, 0402, 130K, 1%, Anti Sulfur	MCMR04X1303FTL
Resistor, 130R, 0402, 5%, Anti Sulfur	MCMR04X131 JTL
Resistor, 1K3, 0402, 5%, Anti Sulfur	MCMR04X132 JTL
Resistor, 13K, 0402, 5%, Anti Sulfur	MCMR04X133 JTL

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Description	Part Number
Resistor, 0402, 133R, 1%, Anti Sulfur	MCMR04X1330FTL
Resistor, 0402, 1K33, 1%, Anti Sulfur	MCMR04X1331FTL
Resistor, 0402, 13K3, 1%, Anti Sulfur	MCMR04X1332FTL
Resistor, 0402, 133K, 1%, Anti Sulfur	MCMR04X1333FTL
Resistor, 130K, 0402, 5%, Anti Sulfur	MCMR04X134 JTL
Resistor, 1M3, 0402, 5%, Anti Sulfur	MCMR04X135 JTL
Resistor, 0402, 137R, 1%, Anti Sulfur	MCMR04X1370FTL
Resistor, 0402, 1K37, 1%, Anti Sulfur	MCMR04X1371FTL
Resistor, 0402, 13K7, 1%, Anti Sulfur	MCMR04X1372FTL
Resistor, 0402, 137K, 1%, Anti Sulfur	MCMR04X1373FTL
Resistor, 0402, 13R, 1%, Anti Sulfur	MCMR04X13R0FTL
Resistor, 0402, 13R3, 1%, Anti Sulfur	MCMR04X13R3FTL
Resistor, 0402, 13R7, 1%, Anti Sulfur	MCMR04X13R7FTL
Resistor, 0402, 140R, 1%, Anti Sulfur	MCMR04X1400FTL
Resistor, 0402, 1K4, 1%, Anti Sulfur	MCMR04X1401FTL
Resistor, 0402, 14K, 1%, Anti Sulfur	MCMR04X1402FTL
Resistor, 0402, 140K, 1%, Anti Sulfur	MCMR04X1403FTL
Resistor, 0402, 143R, 1%, Anti Sulfur	MCMR04X1430FTL
Resistor, 0402, 1K43, 1%, Anti Sulfur	MCMR04X1431FTL
Resistor, 0402, 14K3, 1%, Anti Sulfur	MCMR04X1432FTL
Resistor, 0402, 143K, 1%, Anti Sulfur	MCMR04X1433FTL
Resistor, 0402, 147R, 1%, Anti Sulfur	MCMR04X1470FTL
Resistor, 0402, 1K47, 1%, Anti Sulfur	MCMR04X1471FTL
Resistor, 0402, 14K7, 1%, Anti Sulfur	MCMR04X1472FTL
Resistor, 0402, 147K, 1%, Anti Sulfur	MCMR04X1473FTL
Resistor, 0402, 14R, 1%, Anti Sulfur	MCMR04X14R0FTL
Resistor, 0402, 14R3, 1%, Anti Sulfur	MCMR04X14R3FTL
Resistor, 0402, 14R7, 1%, Anti Sulfur	MCMR04X14R7FTL
Resistor, 15R, 0402, 5%, Anti Sulfur	MCMR04X150 JTL
Resistor, 0402, 150R, 1%, Anti Sulfur	MCMR04X1500FTL
Resistor, 0402, 1K5, 1%, Anti Sulfur	MCMR04X1501FTL
Resistor, 0402, 15K, 1%, Anti Sulfur	MCMR04X1502FTL
Resistor, 0402, 150K, 1%, Anti Sulfur	MCMR04X1503FTL
Resistor, 150R, 0402, 5%, Anti Sulfur	MCMR04X151 JTL
Resistor, 1K5, 0402, 5%, Anti Sulfur	MCMR04X152 JTL
Resistor, 15K, 0402, 5%, Anti Sulfur	MCMR04X153 JTL
Resistor, 150K, 0402, 5%, Anti Sulfur	MCMR04X154 JTL
Resistor, 0402, 154R, 1%, Anti Sulfur	MCMR04X1540FTL
Resistor, 0402, 1K54, 1%, Anti Sulfur	MCMR04X1541FTL

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Description	Part Number
Resistor, 0402, 15K4, 1%, Anti Sulfur	MCMR04X1542FTL
Resistor, 0402, 154K, 1%, Anti Sulfur	MCMR04X1543FTL
Resistor, 1M5, 0402, 5%, Anti Sulfur	MCMR04X155 JTL
Resistor, 0402, 158R, 1%, Anti Sulfur	MCMR04X1580FTL
Resistor, 0402, 1K58, 1%, Anti Sulfur	MCMR04X1581FTL
Resistor, 0402, 15K8, 1%, Anti Sulfur	MCMR04X1582FTL
Resistor, 0402, 158K, 1%, Anti Sulfur	MCMR04X1583FTL
Resistor, 0402, 15R, 1%, Anti Sulfur	MCMR04X15R0FTL
Resistor, 0402, 15R4, 1%, Anti Sulfur	MCMR04X15R4FTL
Resistor, 0402, 15R8, 1%, Anti Sulfur	MCMR04X15R8FTL
Resistor, 16R, 0402, 5%, Anti Sulfur	MCMR04X160 JTL
Resistor, 0402, 160R, 1%, Anti Sulfur	MCMR04X1600FTL
Resistor, 0402, 1K6, 1%, Anti Sulfur	MCMR04X1601FTL
Resistor, 0402, 16K, 1%, Anti Sulfur	MCMR04X1602FTL
Resistor, 0402, 160K, 1%, Anti Sulfur	MCMR04X1603FTL
Resistor, 160R, 0402, 5%, Anti Sulfur	MCMR04X161 JTL
Resistor, 1K6, 0402, 5%, Anti Sulfur	MCMR04X162 JTL
Resistor, 0402, 162R, 1%, Anti Sulfur	MCMR04X1620FTL
Resistor, 0402, 1K62, 1%, Anti Sulfur	MCMR04X1621FTL
Resistor, 0402, 16K2, 1%, Anti Sulfur	MCMR04X1622FTL
Resistor, 0402, 162K, 1%, Anti Sulfur	MCMR04X1623FTL
Resistor, 16K, 0402, 5%, Anti Sulfur	MCMR04X163 JTL
Resistor, 160K, 0402, 5%, Anti Sulfur	MCMR04X164 JTL
Resistor, 1M6, 0402, 5%, Anti Sulfur	MCMR04X165 JTL
Resistor, 0402, 165R, 1%, Anti Sulfur	MCMR04X1650FTL
Resistor, 0402, 1K65, 1%, Anti Sulfur	MCMR04X1651FTL
Resistor, 0402, 16K5, 1%, Anti Sulfur	MCMR04X1652FTL
Resistor, 0402, 165K, 1%, Anti Sulfur	MCMR04X1653FTL
Resistor, 0402, 169R, 1%, Anti Sulfur	MCMR04X1690FTL
Resistor, 0402, 1K69, 1%, Anti Sulfur	MCMR04X1691FTL
Resistor, 0402, 16K9, 1%, Anti Sulfur	MCMR04X1692FTL
Resistor, 0402, 169K, 1%, Anti Sulfur	MCMR04X1693FTL
Resistor, 0402, 16R, 1%, Anti Sulfur	MCMR04X16R0FTL
Resistor, 0402, 16R2, 1%, Anti Sulfur	MCMR04X16R2FTL
Resistor, 0402, 16R5, 1%, Anti Sulfur	MCMR04X16R5FTL
Resistor, 0402, 16R9, 1%, Anti Sulfur	MCMR04X16R9FTL
Resistor, 0402, 174R, 1%, Anti Sulfur	MCMR04X1740FTL
Resistor, 0402, 1K74, 1%, Anti Sulfur	MCMR04X1741FTL
Resistor, 0402, 14K7, 1%, Anti Sulfur	MCMR04X1742FTL

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Resistor, 0402, 147K, 1%, Anti Sulfur	MCMR04X1743FTL
Resistor, 0402, 178R, 1%, Anti Sulfur	MCMR04X1780FTL
Resistor, 0402, 1K78, 1%, Anti Sulfur	MCMR04X1781FTL
Resistor, 0402, 17K8, 1%, Anti Sulfur	MCMR04X1782FTL
Resistor, 0402, 178K, 1%, Anti Sulfur	MCMR04X1783FTL
Resistor, 0402, 17R4, 1%, Anti Sulfur	MCMR04X17R4FTL
Resistor, 0402, 17R8, 1%, Anti Sulfur	MCMR04X17R8FTL
Resistor, 18R, 0402, 5%, Anti Sulfur	MCMR04X180 JTL
Resistor, 0402, 180R, 1%, Anti Sulfur	MCMR04X1800FTL
Resistor, 0402, 1K8, 1%, Anti Sulfur	MCMR04X1801FTL
Resistor, 0402, 18K, 1%, Anti Sulfur	MCMR04X1802FTL
Resistor, 0402, 180K, 1%, Anti Sulfur	MCMR04X1803FTL
Resistor, 180R, 0402, 5%, Anti Sulfur	MCMR04X181 JTL
Resistor, 1K8, 0402, 5%, Anti Sulfur	MCMR04X182 JTL
Resistor, 0402, 182R, 1%, Anti Sulfur	MCMR04X1820FTL
Resistor, 0402, 1K82, 1%, Anti Sulfur	MCMR04X1821FTL
Resistor, 0402, 18K2, 1%, Anti Sulfur	MCMR04X1822FTL
Resistor, 0402, 182K, 1%, Anti Sulfur	MCMR04X1823FTL
Resistor, 18K, 0402, 5%, Anti Sulfur	MCMR04X183 JTL
Resistor, 180K, 0402, 5%, Anti Sulfur	MCMR04X184 JTL
Resistor, 1M8, 0402, 5%, Anti Sulfur	MCMR04X185 JTL
Resistor, 0402, 187R, 1%, Anti Sulfur	MCMR04X1870FTL
Resistor, 0402, 1K87, 1%, Anti Sulfur	MCMR04X1871FTL
Resistor, 0402, 18K7, 1%, Anti Sulfur	MCMR04X1872FTL
Resistor, 0402, 187K, 1%, Anti Sulfur	MCMR04X1873FTL
Resistor, 0402, 18R, 1%, Anti Sulfur	MCMR04X18R0FTL
Resistor, 0402, 18R2, 1%, Anti Sulfur	MCMR04X18R2FTL
Resistor, 0402, 18R7, 1%, Anti Sulfur	MCMR04X18R7FTL
Resistor, 0402, 191R, 1%, Anti Sulfur	MCMR04X1910FTL
Resistor, 0402, 1K91, 1%, Anti Sulfur	MCMR04X1911FTL
Resistor, 0402, 19K1, 1%, Anti Sulfur	MCMR04X1912FTL
Resistor, 0402, 191K, 1%, Anti Sulfur	MCMR04X1913FTL
Resistor, 0402, 196R, 1%, Anti Sulfur	MCMR04X1960FTL
Resistor, 0402, 1K96, 1%, Anti Sulfur	MCMR04X1961FTL
Resistor, 0402, 19K6, 1%, Anti Sulfur	MCMR04X1962FTL
Resistor, 0402, 196K, 1%, Anti Sulfur	MCMR04X1963FTL
Resistor, 0402, 19R1, 1%, Anti Sulfur	MCMR04X19R1FTL
Resistor, 0402, 19R6, 1%, Anti Sulfur	MCMR04X19R6FTL
Resistor, 1R0, 0402, 5%, Anti Sulfur	MCMR04X1R0 JTL

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Automotive and Anti-Sulfuration Chip Resistor 0402



Description	Part Number
Resistor, 1R1, 0402, 5%, Anti Sulfur	MCMR04X1R1 JTL
Resistor, 1R2, 0402, 5%, Anti Sulfur	MCMR04X1R2 JTL
Resistor, 1R3, 0402, 5%, Anti Sulfur	MCMR04X1R3 JTL
Resistor, 1R5, 0402, 5%, Anti Sulfur	MCMR04X1R5 JTL
Resistor, 1R6, 0402, 5%, Anti Sulfur	MCMR04X1R6 JTL
Resistor, 1R8, 0402, 5%, Anti Sulfur	MCMR04X1R8 JTL
Resistor, 20R, 0402, 5%, Anti Sulfur	MCMR04X200 JTL
Resistor, 0402, 200R, 1%, Anti Sulfur	MCMR04X2000FTL
Resistor, 0402, 2K, 1%, Anti Sulfur	MCMR04X2001FTL
Resistor, 0402, 20K, 1%, Anti Sulfur	MCMR04X2002FTL
Resistor, 0402, 200K, 1%, Anti Sulfur	MCMR04X2003FTL
Resistor, 200R, 0402, 5%, Anti Sulfur	MCMR04X201 JTL
Resistor, 2K, 0402, 5%, Anti Sulfur	MCMR04X202 JTL
Resistor, 20K, 0402, 5%, Anti Sulfur	MCMR04X203 JTL
Resistor, 200K, 0402, 5%, Anti Sulfur	MCMR04X204 JTL
Resistor, 2M, 0402, 5%, Anti Sulfur	MCMR04X205 JTL
Resistor, 0402, 205R, 1%, Anti Sulfur	MCMR04X2050FTL
Resistor, 0402, 2K05, 1%, Anti Sulfur	MCMR04X2051FTL
Resistor, 0402, 20K5, 1%, Anti Sulfur	MCMR04X2052FTL
Resistor, 0402, 205K, 1%, Anti Sulfur	MCMR04X2053FTL
Resistor, 0402, 20R, 1%, Anti Sulfur	MCMR04X20R0FTL
Resistor, 0402, 20R5, 1%, Anti Sulfur	MCMR04X20R5FTL
Resistor, 0402, 210R, 1%, Anti Sulfur	MCMR04X2100FTL
Resistor, 0402, 2K1, 1%, Anti Sulfur	MCMR04X2101FTL
Resistor, 0402, 21K, 1%, Anti Sulfur	MCMR04X2102FTL
Resistor, 0402, 210K, 1%, Anti Sulfur	MCMR04X2103FTL
Resistor, 0402, 215R, 1%, Anti Sulfur	MCMR04X2150FTL
Resistor, 0402, 2K15, 1%, Anti Sulfur	MCMR04X2151FTL
Resistor, 0402, 21K5, 1%, Anti Sulfur	MCMR04X2152FTL
Resistor, 0402, 215K, 1%, Anti Sulfur	MCMR04X2153FTL
Resistor, 0402, 21R, 1%, Anti Sulfur	MCMR04X21R0FTL

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