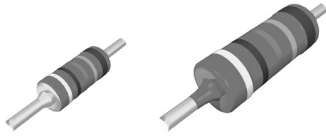


## Professional Leaded Resistors



### DESCRIPTION

A homogeneous film of metal alloy is deposited on a high grade ceramic body. After a helical groove has been cut in the resistive layer, tinned connecting wires of electrolytic copper are welded to the end-caps. The resistors are coated with lacquer which provides electrical, mechanical, and climatic protection. Four or five colour code rings designate the resistance value and tolerance according to **IEC 60 062**. Suitable replacements for MRS16 and MRS25 are MBA/SMA 0204 and MBB/SMA 0207 professional.

### FEATURES

- Professional resistors in small outlines
- Low noise
- Lead (Pb)-free solder contacts
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Compatible with "Restriction of the use of Hazardous Substances" (RoHS) directive 2002/95/EC (issue 2004)

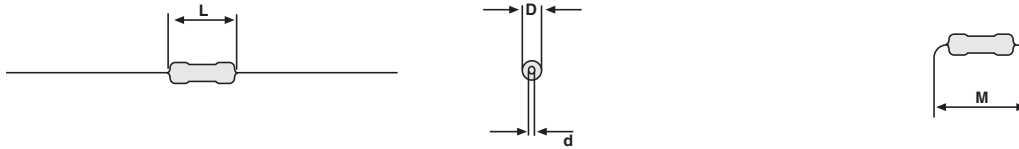


### APPLICATIONS

- All general purpose applications

TECHNICAL SPECIFICATIONS		
DESCRIPTION	VALUE	
	MRS16	MRS25
Resistance Range	4.99 $\Omega$ to 1 M $\Omega$	1 $\Omega$ to 10 M $\Omega$
Resistance Tolerance and Series	$\pm 1\%$ ; E24/E96 series	
Maximum Dissipation at $T_{amb} = 70\text{ }^{\circ}\text{C}$	0.4 W	0.6 W
Thermal Resistance ( $R_{th}$ )	170 K/W	150 K/W
Temperature Coefficient	$\pm 50$ ppm/K	
Maximum Permissible Voltage (DC or RMS)	200 V	350 V
Basic Specifications	IEC 60115-1 and 60115-2	
Climatic Category (IEC 60068)	55/155/56	
Max. Resistance Change for Resistance Range, $\Delta R$ max., After:		
Load:		
$R \leq 100\text{ k}\Omega$	$\pm (0.5\% R + 0.05\ \Omega)$	$\pm (0.5\% R + 0.05\ \Omega)$
$R > 100\text{ k}\Omega$	$\pm (1\% R + 0.05\ \Omega)$	$\pm (0.5\% R + 0.05\ \Omega)$
Climatic Tests:		
$R \leq 100\text{ k}\Omega$	$\pm (0.5\% R + 0.05\ \Omega)$	$\pm (0.5\% R + 0.05\ \Omega)$
$R > 100\text{ k}\Omega$	$\pm (1\% R + 0.05\ \Omega)$	$\pm (0.5\% R + 0.05\ \Omega)$
Soldering:		
$R \leq 100\text{ k}\Omega$	$\pm (0.1\% R + 0.05\ \Omega)$	$\pm (0.1\% R + 0.05\ \Omega)$
$R > 100\text{ k}\Omega$	$\pm (0.25\% R + 0.05\ \Omega)$	$\pm (0.1\% R + 0.05\ \Omega)$
Short Time Overload	$\pm (0.25\% R + 0.05\ \Omega)$	$\pm (0.25\% R + 0.05\ \Omega)$

PACKAGING				
MODEL	REEL		BOX	
	PIECES/REEL	CODE	PIECES/BOX	CODE
MRS16	5000	RP	1000 5000	C1 CT
MRS25	5000	RP	1000 5000	C1 CT

**DIMENSIONS**


<b>DIMENSIONS</b> - leaded resistor types, mass and relevant physical dimensions					
TYPE	D <sub>max.</sub> (mm)	L <sub>max.</sub> (mm)	d <sub>nom.</sub> (mm)	M <sub>min.</sub> (mm)	MASS (mg)
MRS16	1.6	3.6	0.5	5.0	125
MRS25	2.5	6.3	0.6	10.0	220

**12NC INFORMATION**

- The resistors have a 12-digit numeric code starting with 2322 15.
- The subsequent 2 digits indicate the resistor type and packaging; see the 12NC Ordering Code table.
- The remaining 4 digits indicate the resistance value:
  - The first 3 digits indicate the resistance value.
  - The last digit indicates the resistance decade in accordance with the 12NC Indicating Resistance Decade table.

**Last Digit of 12NC Indicating Resistance Decade**

RESISTANCE DECADE	LAST DIGIT
1 Ω to 9.76 Ω	8
10 Ω to 97.6 Ω	9
100 Ω to 976 Ω	1
1 kΩ to 9.76 kΩ	2
10 kΩ to 97.6 kΩ	3
100 kΩ to 976 kΩ	4
1 MΩ to 9.76 MΩ	5
10 MΩ	6

**12NC Example**

The 12NC of a MRS16 resistor, value 750 Ω, on a bandolier of 1000 units in ammpack is: 2322 157 17501.

**12NC** - resistors type and packaging

TYPE	ORDERING CODE 2322 15. ....		
	BANDOLIER IN AMMPACK		BANDOLIER ON REEL
	1000 UNITS	5000 UNITS	5000 UNITS
MRS16	7 1....	7 2....	7 3....
MRS25	6 1....	6 2....	6 3....

**PART NUMBER AND PRODUCT DESCRIPTION**
**PART NUMBER: MRS1600C5119FCT00**

M	R	S	1	6	0	0	0	C	5	1	1	9	F	C	T	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

MODEL/SIZE	SPECIAL CHARACTER	TCR	VALUE	TOLERANCE	PACKAGING <sup>(1)</sup>	SPECIAL
MRS1600 MRS2500	0 = Neutral	C = ± 50 ppm/K	<b>3 digit value</b> <b>1 digit multiplier</b> <b>MULTIPLIER</b> 7 = *10 <sup>-3</sup> 2 = *10 <sup>2</sup> 8 = *10 <sup>-2</sup> 3 = *10 <sup>3</sup> 9 = *10 <sup>-1</sup> 4 = *10 <sup>4</sup> 0 = *10 <sup>0</sup> 5 = *10 <sup>5</sup> 1 = *10 <sup>1</sup> 6 = *10 <sup>6</sup>	F = ± 1 %	RP CT C1	Up to 2 digits 00 = Standard

**PRODUCT DESCRIPTION: MRS 16-50 1 % CT 51R1**

MRS16	50	1 %	CT	51R1
MODEL/SIZE	TCR	TOLERANCE	PACKAGING <sup>(1)</sup>	RESISTANCE VALUE
MRS16 MRS25	± 50 ppm/K	± 1 %	RP CT C1	51R1 = 51.1 Ω 1K = 1 kΩ

**Notes:**

- <sup>(1)</sup> Please refer packaging table
- The PART NUMBER is shown to facilitate the introduction of a unified part numbering system for ordering products



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