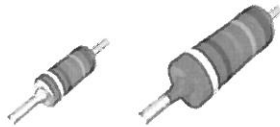


## Lead (Pb)-Free Professional Leaded Resistors



### 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**.

### 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.

The resistors are completely lead (Pb)-free, the pure tin plating provides compatibility with lead (Pb)-free and lead-containing soldering processes.

Suitable replacements for MRS16 and MRS25 are the MBA 0204 and MBB 0207 professional.

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, load:		
$R \leq 100\text{ k}\Omega$	$\pm (0.5\% + 0.05\ \Omega)$	$\pm (0.5\% + 0.05\ \Omega)$
$R > 100\text{ k}\Omega$	$\pm (1\% + 0.05\ \Omega)$	$\pm (0.5\% + 0.05\ \Omega)$
climatic tests:		
$R \leq 100\text{ k}\Omega$	$\pm (0.5\% + 0.05\ \Omega)$	$\pm (0.5\% + 0.05\ \Omega)$
$R > 100\text{ k}\Omega$	$\pm (1\% + 0.05\ \Omega)$	$\pm (0.5\% + 0.05\ \Omega)$
soldering:		
$R \leq 100\text{ k}\Omega$	$\pm (0.1\% + 0.05\ \Omega)$	$\pm (0.1\% + 0.05\ \Omega)$
$R > 100\text{ k}\Omega$	$\pm (0.25\% + 0.05\ \Omega)$	$\pm (0.1\% + 0.05\ \Omega)$
short time overload	$\pm (0.25\% + 0.05\ \Omega)$	$\pm (0.25\% + 0.05\ \Omega)$

PACKING				
MODEL	REEL		BOX	
	PIECES/REEL	CODE	PIECES/BOX	CODE
MRS16	5 000	RP	1 000	C1
			5 000	CT
MRS25	5 000	RP	1 000	C1
			5 000	CT

## DIMENSIONS



DIMENSIONS - 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	6.5	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 packing

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

PART NUMBER: MRS16000C5009FCT

M	R	S	1	6	0	0	0	C	5	0	0	9	F	C	T			
MODEL/SIZE	SPECIAL CHARACTER	TC	VALUE				TOLERANCE	PACKING	SPECIAL									
MRS1600 MRS2500	0 = neutral	C = ± 50 ppm/K	3 digit value 1 digit multiplier MULTIPLIER				F = ± 1 %	RP CT C1	up to 2 digits 00 = standard									
			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>														

**NOTE:** Products can be ordered using either the 12NC or the PART NUMBER. The PART NUMBER is shown to facilitate the introduction of a unified part numbering system. Currently, this PART NUMBER is applicable in the Americas only.