

Professional Thin Film 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 color code rings designate the resistance value and tolerance according to **IEC 60062**. Suitable replacements for MRS16 and MRS25 are MBA/SMA 0204 and MBB/SMA 0207 professional.

FEATURES

- Technology: Metal film
- 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 to RoHS Directive 2002/95/EC



RoHS
COMPLIANT

APPLICATIONS

- All general purpose applications

TECHNICAL SPECIFICATIONS

DESCRIPTION	UNIT	MRS16	MRS25
Resistance Range	Ω	4.99 to 1M	1 to 10M
Resistance Tolerance	%	± 1	± 1
Resistance Series		E24, E96	E24, E96
Rated Dissipation, P_{70}	W	0.4	0.6
Thermal Resistance (R_{th})	K/W	170	150
Temperature Coefficient	ppm/K	± 50	± 50
Operating Voltage, U_{max} , AC/DC	V	200	350
Basic Specifications		IEC 60 115-1	IEC 60 115-1
Climatic Category (IEC 60068-1)		55/155/56	55/155/56
Max. Resistance Change for Resistance Range, ΔR max., after:			
Load (1000 h, P_{70})		$\pm (0.5 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
Long Term Damp Heat Test (56 Days):			
MRS16: $4.99 \Omega \leq R \leq 332 \text{ k}\Omega$; MRS25: $1 \Omega \leq R \leq 1 \text{ M}\Omega$		$\pm (0.5 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
MRS16: $R > 332 \text{ k}\Omega$; MRS25: $R > 1 \text{ M}\Omega$		$\pm (2 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.05 \Omega)$
Soldering (260 °C, 10 s):			
MRS16: $4.99 \Omega \leq R \leq 332 \text{ k}\Omega$; MRS25: $1 \Omega \leq R \leq 1 \text{ M}\Omega$		$\pm (0.1 \% R + 0.05 \Omega)$	$\pm (0.1 \% R + 0.05 \Omega)$
MRS16: $R > 332 \text{ k}\Omega$; MRS25: $R > 1 \text{ M}\Omega$		$\pm (0.5 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
Short Time Overload:			
MRS16: $4.99 \Omega \leq R \leq 332 \text{ k}\Omega$; MRS25: $1 \Omega \leq R \leq 1 \text{ M}\Omega$		$\pm (0.1 \% R + 0.01 \Omega)$	$\pm (0.1 \% R + 0.01 \Omega)$
MRS16: $R > 332 \text{ k}\Omega$; MRS25: $R > 1 \text{ M}\Omega$		$\pm (0.5 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$

PACKAGING

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

DIMENSIONS

DIMENSIONS (Leaded Resistor Types, Mass and Relevant Physical Dimensions)

TYPE	D _{max.} (mm)	L _{max.} (mm)	d _{nom.} (mm)	M _{min.} (mm)	MASS (mg)
MRS16	1.6	3.6	0.5	5.0	125
MRS25	2.5	6.5	0.6	10.0	220

PART NUMBER AND PRODUCT DESCRIPTION

PART NUMBER: MRS16000C5119FCT00

M	R	S	1	6	0	0	0	C	5	1	1	9	F	C	T	0	0
MODEL/SIZE	VARIANT		TCR		VALUE				TOLERANCE		PACKAGING ⁽¹⁾		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 ⁻³ 8 = *10 ⁻² 9 = *10 ⁻¹ 0 = *10 ⁰ 1 = *10 ¹				2 = *10 ² 3 = *10 ³ 4 = *10 ⁴ 5 = *10 ⁵ 6 = *10 ⁶									

PRODUCT DESCRIPTION: MRS16 50 1 % CT 51R1

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

Notes

- The PART NUMBER is shown to facilitate the introduction of a unified part numbering system for ordering products

⁽¹⁾ Please refer packaging table

12NC INFORMATION FOR HISTORICAL CODING REFERENCE

- 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 with value 750 Ω, supplied on a bandolier of 1000 units in ammopack is: 2322 157 17501.

12NC (Resistors Type and Packaging)

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



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