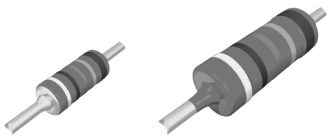
MRS16, MRS25

Vishay BCcomponents

Professional Thin Film Leaded Resistors



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

Pb-free RoHS COMPLIANT

APPLICATIONS

- All general purpose applications

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.

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})		± (0.5 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)
Long Term Damp Heat Test (56 Days):			
MRS16: 4.99 Ω ≤ R ≤ 332 kΩ; MRS25: 1 Ω ≤ R ≤ 1 MΩ		± (0.5 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)
MRS16: R > 332 kΩ; MRS25: R > 1 MΩ		± (2 % R + 0.05 Ω)	± (2 % R + 0.05 Ω)
Soldering (260 °C, 10 s):			
MRS16: 4.99 Ω ≤ R ≤ 332 kΩ; MRS25: 1 Ω ≤ R ≤ 1 MΩ		± (0.1 % R + 0.05 Ω)	± (0.1 % R + 0.05 Ω)
MRS16: R > 332 kΩ; MRS25: R > 1 MΩ		± (0.5 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)
Short Time Overload:			
MRS16: 4.99 Ω ≤ R ≤ 332 kΩ; MRS25: 1 Ω ≤ R ≤ 1 MΩ		± (0.1 % R + 0.01 Ω)	± (0.1 % R + 0.01 Ω)
MRS16: R > 332 kΩ; MRS25; R > 1 MΩ		± (0.5 % R + 0.05 Ω)	± (0.5 % R + 0.05 Ω)

PACKAGING

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

For technical questions, contact: filmresistorsleaded@vishay.com

Document Number: 28724
Revision: 30-Mar-10

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: MRS16000C5119FCT

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 **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** = $*10^{6}$	**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 (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....

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.