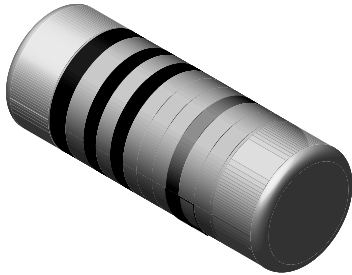


Metal Film, Cylindrical Resistors



FEATURES

- Stable metal film on high quality ceramic
- Low TC and tight tolerances
- Excellent stability in different environmental conditions
- Pure tin termination on nickel barrier, plated on press fit steel caps
- Compatible with lead (Pb)-free and lead containing soldering processes
- Lead (Pb)-free and RoHS compliant



STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING ¹⁾ P_{70} W	LIMITING ELEMENT VOLTAGE ²⁾ DC or AC rms V	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	E-SERIES
SMM0204	0.25	200	± 15	± 0.1 ± 0.25 ± 0.5	43R - 221K 22R - 221K 10R - 221K	24 - 192 24 - 192 24 - 192
SMM0204	0.25	200	± 25	± 0.1 ± 0.25 ± 0.5	43R - 511K 22R - 511K 10R - 1M0	24 - 192 24 - 192 24 - 192
SMM0204	0.25	200	± 50	± 0.5 ± 1	10R - 1M0 R82 - 10M	24 - 192 24 - 96
SMM0204	0.25	200	± 100	± 5	R22 - 10M	24
Zero-Ohm-Resistor: OMM0204 $R_{max} = 10 \text{ m}\Omega$ $I_{max} = 2 \text{ A}$						

Note

1. Permissible dissipation depends on the maximum temperature at the solder point, the component placement density and the substrate material.
 2. Rated voltage: $\sqrt{P \times R}$.
- Further values and tolerances on request
 - Coating:
Light green for TC = 100 ppm/K, 50 ppm/K and zero ohm resistor
Pink TC = 25 ppm/K
Violet TC = 15 ppm/K
 - Marking: According to IEC 60062; see also data sheet "surface mount resistor marking" (document number: 20020)
 - Zero ohm resistor has a black band only

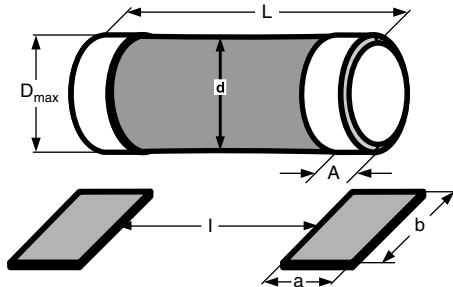
TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	SMM0204
Rated Dissipation at 70 °C	W	0.25
Limiting Element Voltage, DC or AC rms	V	200
Insulation Voltage (1 min), DC or AC peak	V	300
Thermal Resistance ³⁾	K/W	≤ 220
Insulation Resistance	Ω	$\geq 10^{10}$
Category Temperature Range	°C	- 55 to + 125 (+ 155)
Failure Rate	$10^{-9}/\text{h}$	< 1
Weight/1000 pcs	g	18

Note

3. Based on measurements on test board acc. to EN 140400.

DIMENSIONS



MODEL	DIMENSIONS [in millimeters]				
	D _{max}	d*	L	A _{max}	A _{min}
SMM0204	1.4	D-0.15	3.6 - 0.15	0.85	0.5

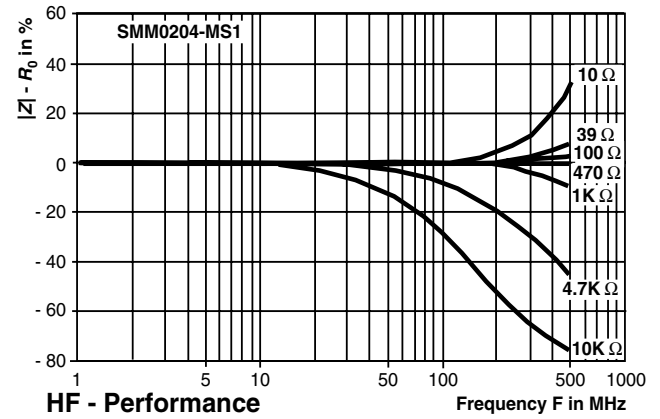
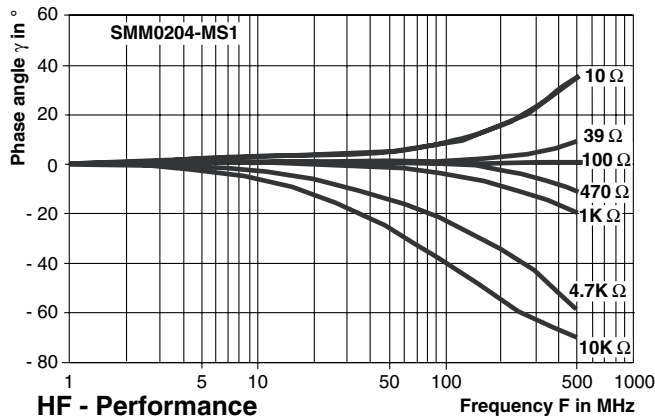
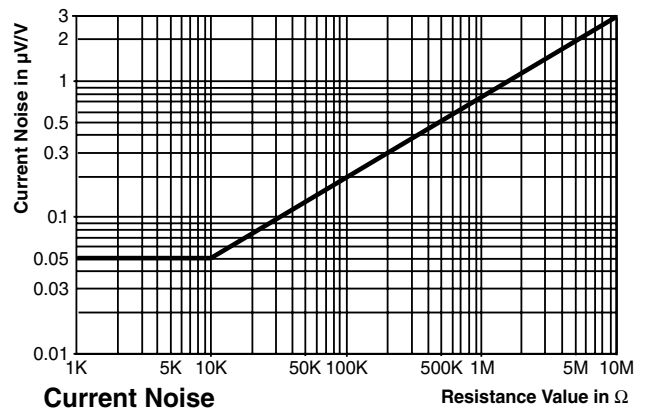
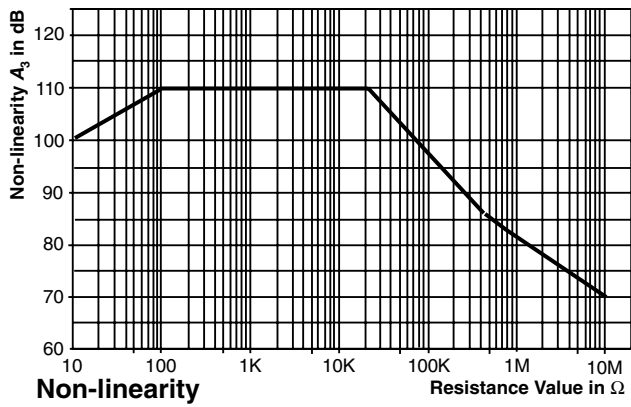
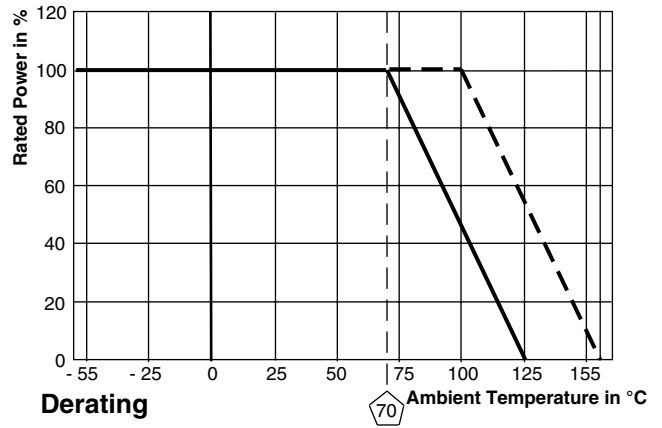
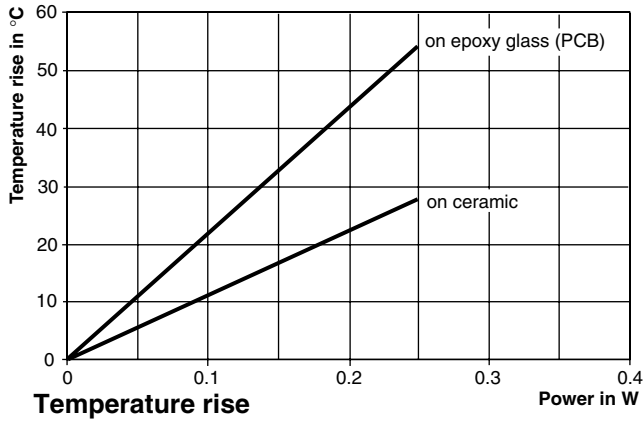
* d measured in the middle of the resistor

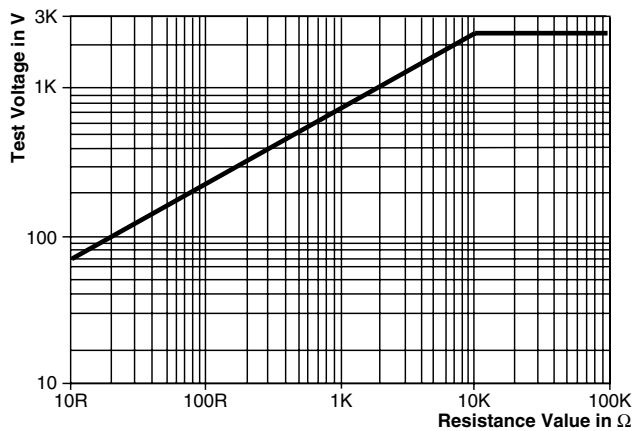
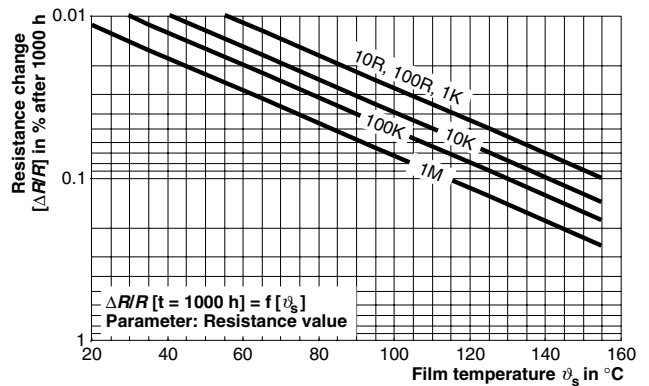
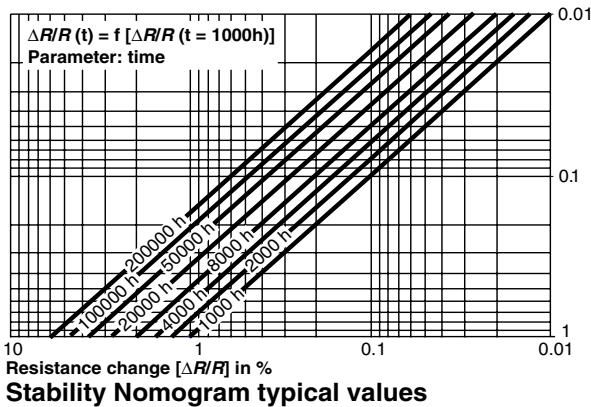
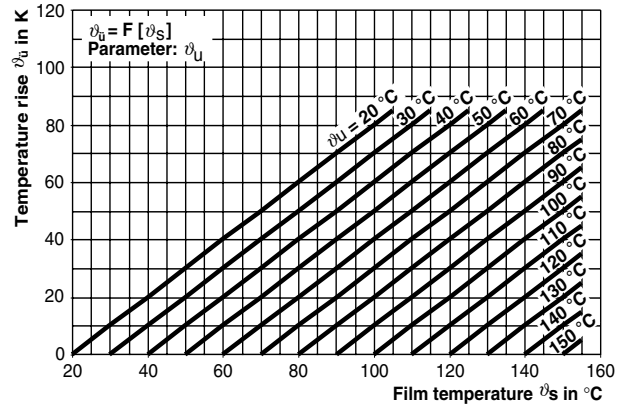
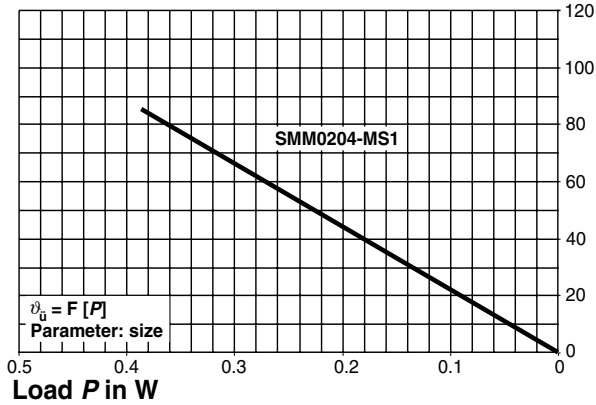
MODEL	SOLDER PAD DIMENSIONS [in millimeters]					
	REFLOW SOLDERING			WAVE SOLDERING		
	a	b	l	a	b	l
SMM0204	1.0	1.6	2.2	1.2	1.6	2.2

PART NUMBER AND PRODUCT DESCRIPTION¹⁾																		
PART NUMBER ²⁾ : SMM0204VC5620FB0																		
PART NUMBER ²⁾ : OMM0204000000B0																		
S	M	M	0	2	0	4	V	C	5	6	2	0	F	B	0	0	0	
O	M	M	0	2	0	4	0	0	0	0	0	0	0	0	B	0	0	0
MODEL/SIZE SMM0204 OMM0204	SPECIAL CHARACTER 0 = neutral V = CECC E0	TC E = ± 15 ppm/K D = ± 25 ppm/K C = ± 50 ppm/K B = ± 100 ppm/K 0 = Jumper	VALUE 3 digit value 1 digit multiplier 0000 = jumper MULTIPLIER 7 = *10 ⁻³ 2 = *10 ² 8 = *10 ⁻² 3 = *10 ³ 9 = *10 ⁻¹ 4 = *10 ⁴ 0 = *10 ⁰ 5 = *10 ⁵ 1 = *10 ¹ 6 = *10 ⁶				TOLERANCE B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1 % J = ± 5 % 0 = Jumper	PACKING³⁾ B1 B3 B0 M3	SPECIAL up to 2 digits 00 = standard									
PRODUCT DESCRIPTION: SMM0204 50 562R 1% B0 CECC 40401-803E0																		
PRODUCT DESCRIPTION: OMM0204 0R0 B0																		
SMM0204	50	562R	1 %	B0	CECC 40401-803E0													
OMM0204	-	0R0	-	B0	-													
MODEL	TC	RESISTANCE VALUE	TOLERANCE	PACKING ³⁾	SPECIAL													
SMM0204 OMM0204	± 15 ppm/K ± 25 ppm/K ± 50 ppm/K ± 100 ppm/K	100R = 100 Ω 2M21 = 2.21 MΩ 0R0 = Jumper	± 0.1 % ± 0.25 % ± 0.5 % ± 1 % ± 5 %	B1 B3 B0 M3	CECC 40401-803E0													

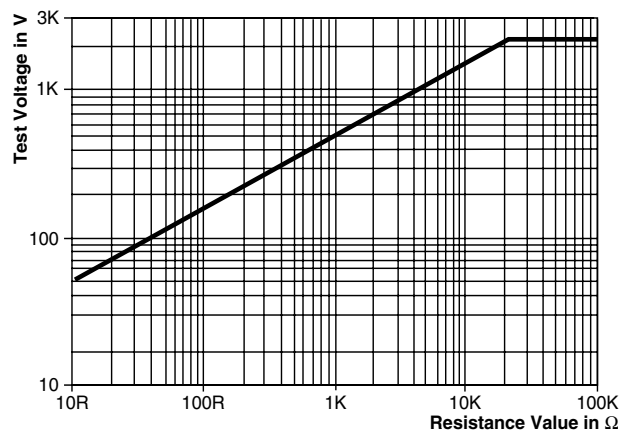
Note

1. Products can be ordered using either the PRODUCT DESCRIPTION or the PART NUMBER.
2. 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.
3. Please refer to table PACKING, see below.

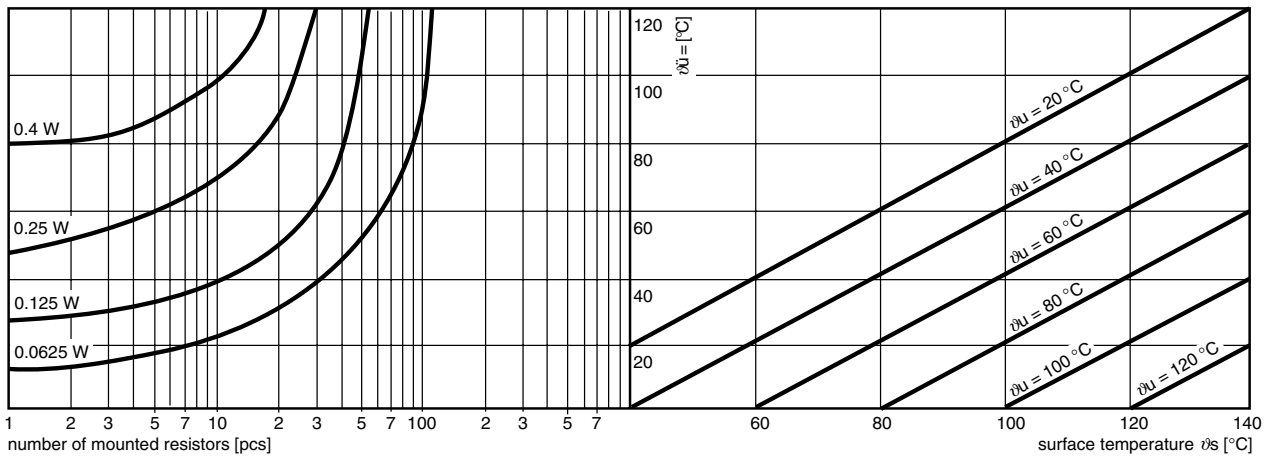
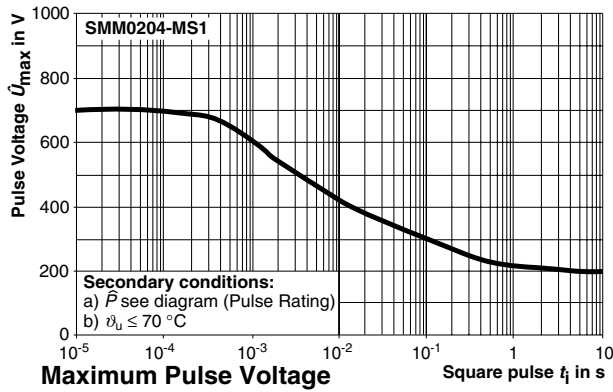
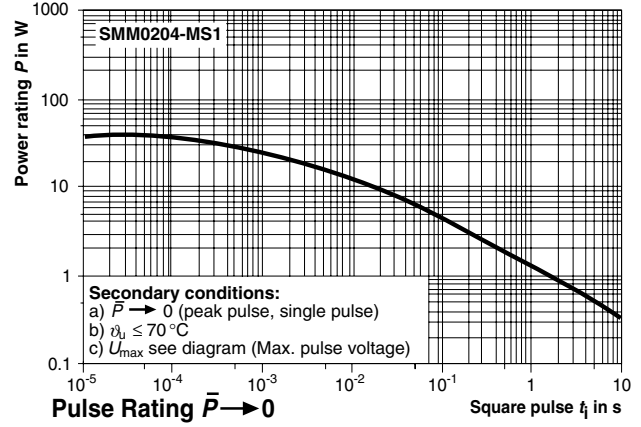
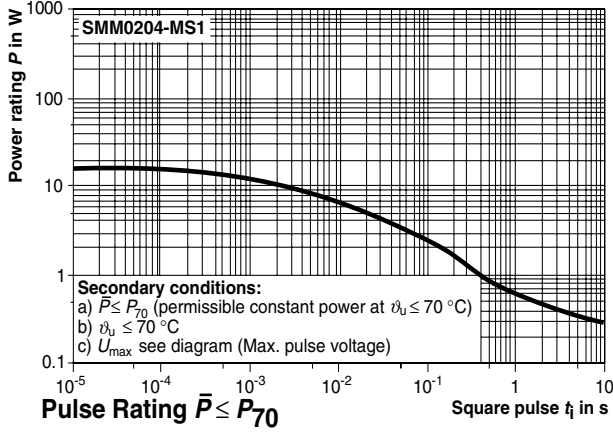




Single pulse high voltage overload test
1.2/50 acc. EN 60115-1, 4.27



Single pulse high voltage overload test
10/700 acc. EN 60115-1, 4.27



Power rating as a function of packaging density (guideline)



PACKING					
MODEL	BLISTER TAPE ON REEL ACC. IEC 60286-6			BULK CASE ACC. IEC 60286-6	
	DIAMETER	PIECES / REEL	CODE	PIECES/BULK CASE	CODE
SMM0204	180 mm/7"	1000	B1*	3000	M3
	180 mm/7"	3000	B3		
OMM0204	330 mm/13"	10000	B0		

* For TC \leq 25 ppm/K and Tolerance \leq 0.25 % only

PERFORMANCE		
TEST	CONDITIONS OF TEST	REQUIREMENTS ¹⁾
Endurance Test at 70 °C IEC 60115-1, 4.25.1	1000 hours at 70 °C 1.5 hours "ON" 0.5 hours "OFF"	\leq 0.25 %
Endurance at UCT IEC 60115-1, 4.25.3	1000 hours at 125 °C without load	\leq 0.25 %
Overload Test IEC 60115-1, 4.13	Short time overload for 2 seconds 2.5 x rated voltage or \leq 2 x limiting element voltage	\leq 0.05 %
Thermal Shock IEC 60115-1, 4.19 and IEC 60068-2-14	Rapid change between upper and lower category temperature, 5 cycles	\leq 0.05 %
Damp Heat Steady State IEC 60115-1, 4.24 and IEC 60068-2-78	56 days at 40 °C and 93 % relative humidity	\leq 0.25 %
Resistance to Soldering Heat IEC 60115-1, 4.18 and IEC 60068-2-58	10 seconds at 260 °C solder bath temperature	\leq 0.05 %

Note

1. For a resistance range from 10 Ω to 332 k Ω , limits for change of resistance at test acc. to EN 140401-803.

APPLICABLE SPECIFICATIONS
<ul style="list-style-type: none">• EN140401-803• EN140400• EN 60115-1



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