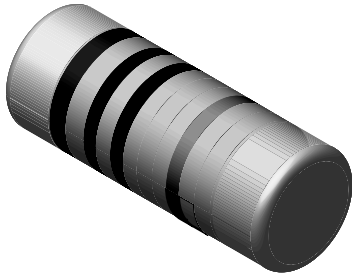


Metal Film, Cylindrical Resistors



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

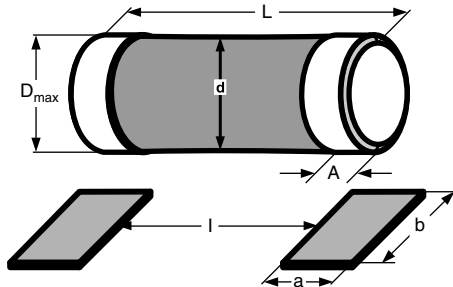
TECHNICAL SPECIFICATIONS

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

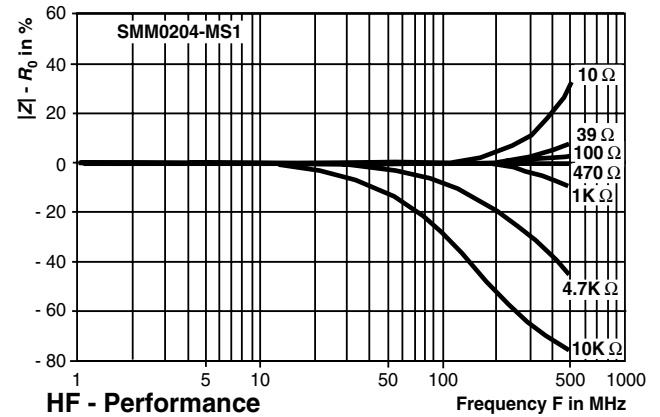
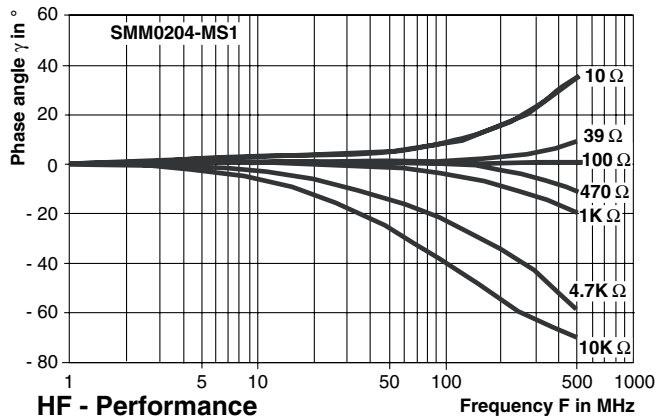
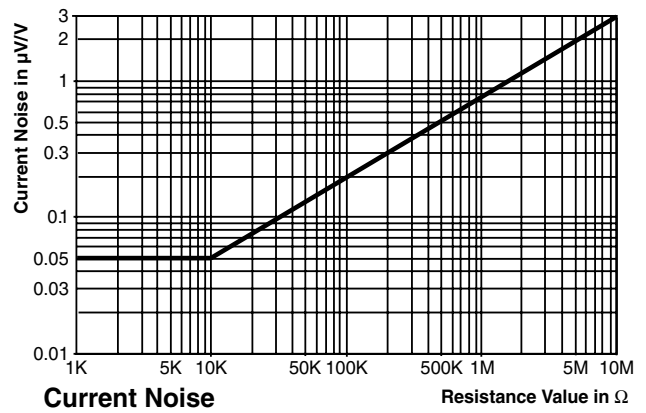
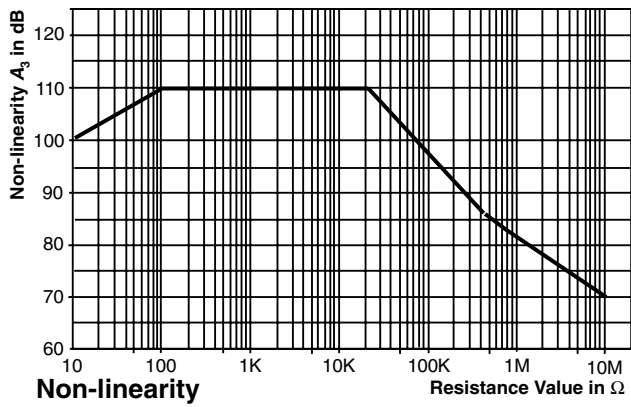
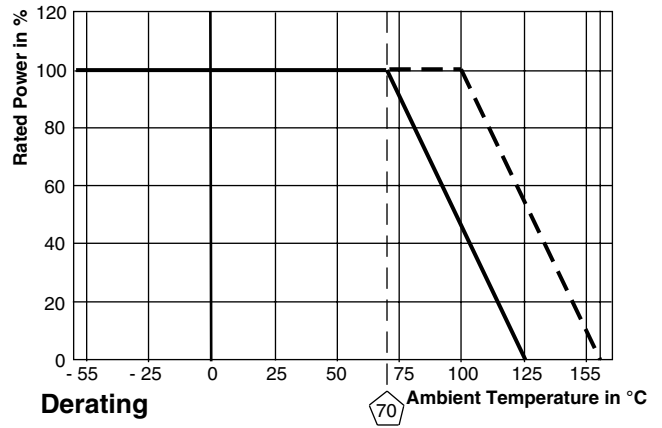
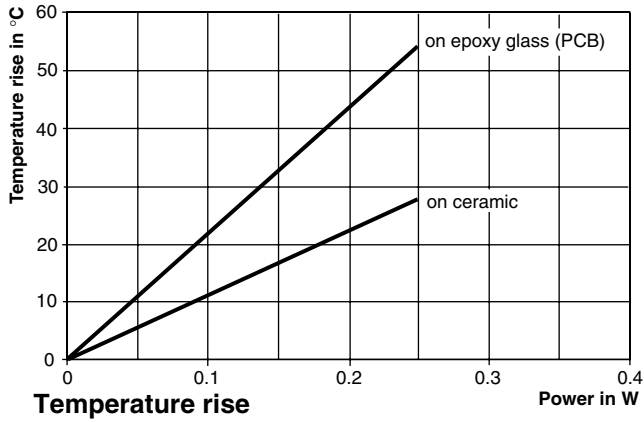
* d measured in the middle of the resistor

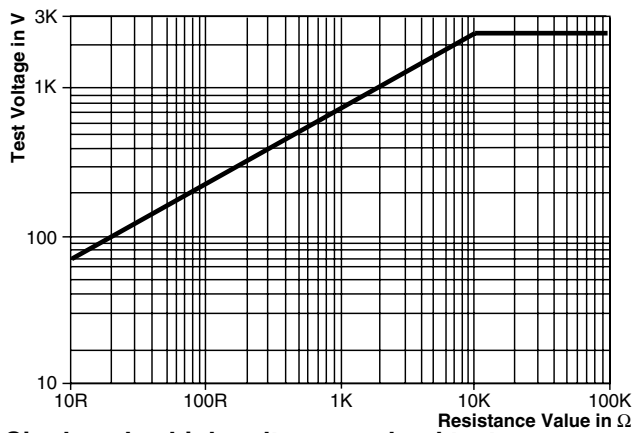
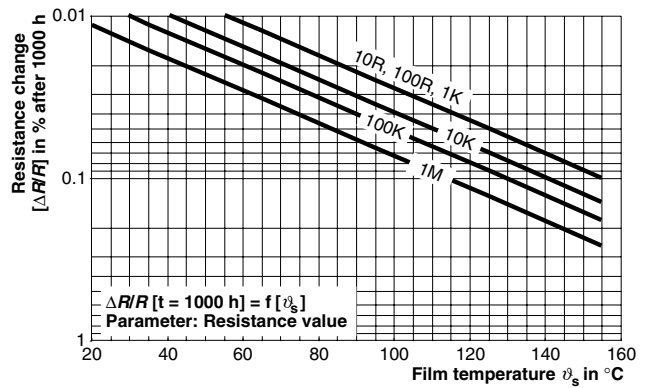
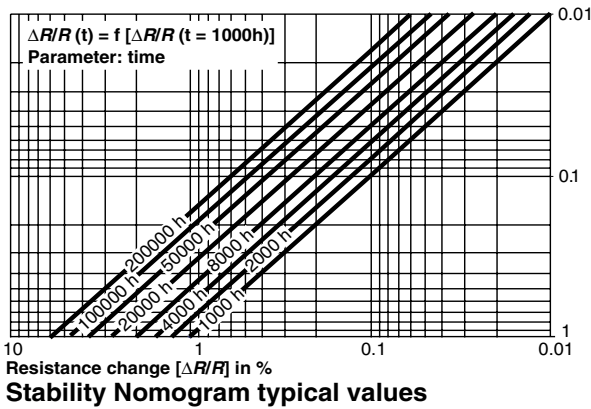
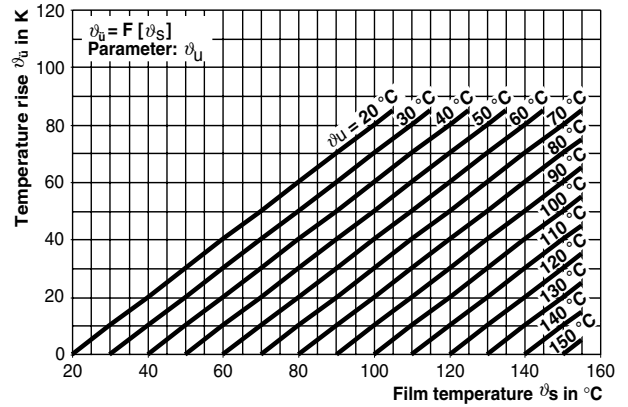
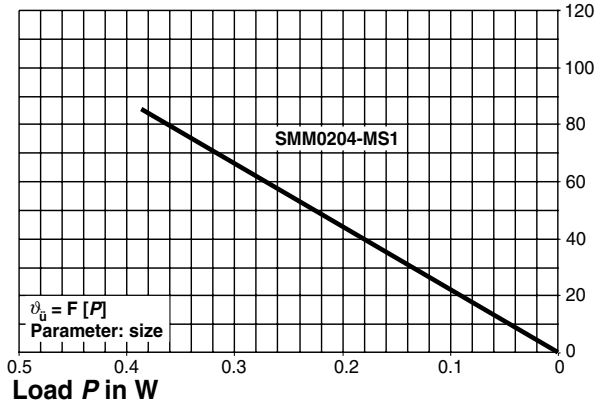
MODEL	SOLDER PAD DIMENSIONS [in millimeters]					
	REFLOW SOLDERING			WAVE SOLDERING		
	a	b	l	a	b	l
SMM0204	1.0	1.6	2.2	1.2	1.6	2.2

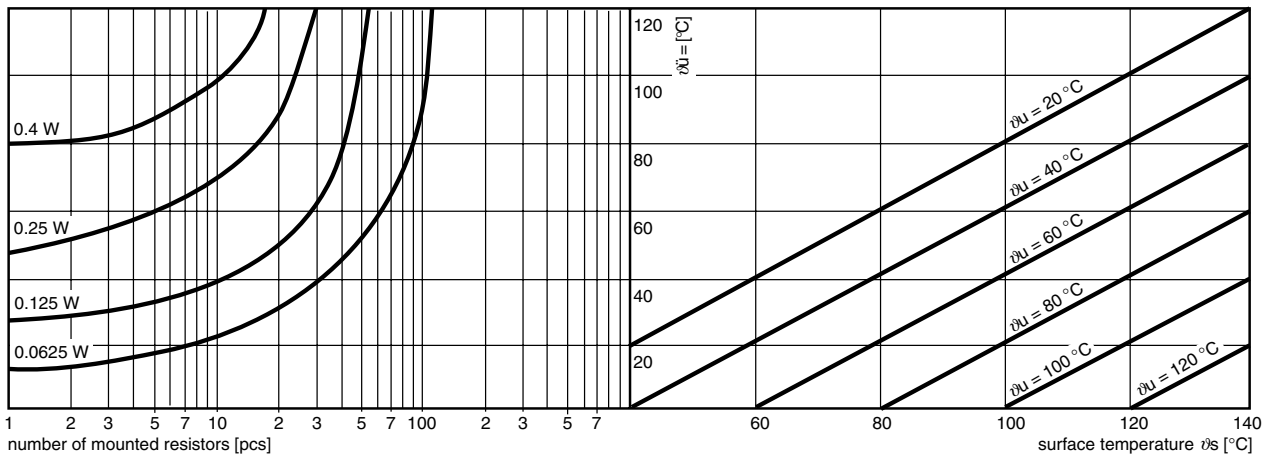
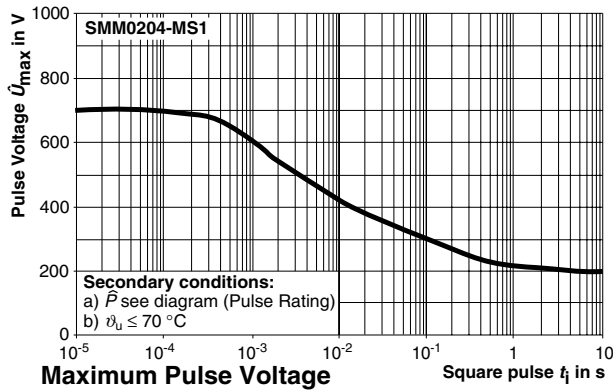
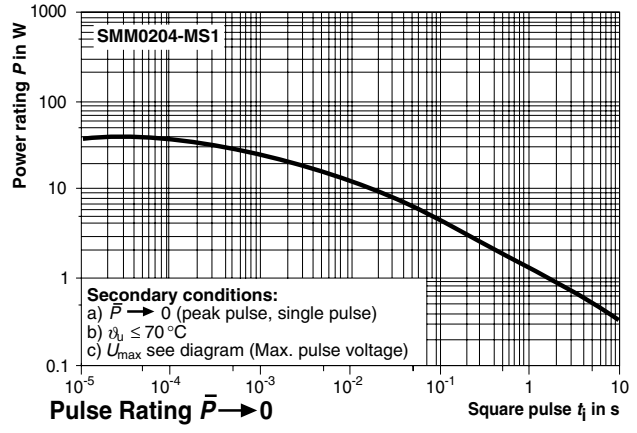
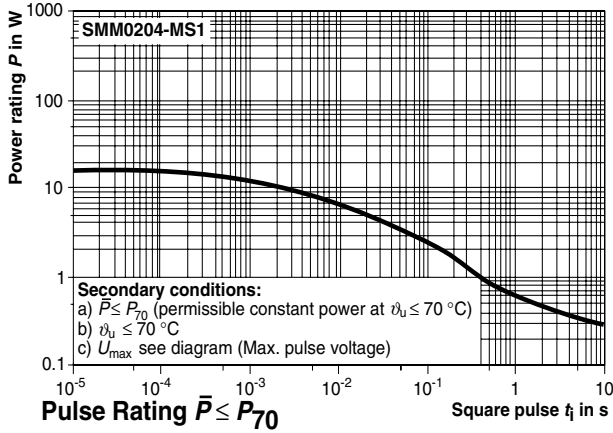
PART NUMBER AND PRODUCT DESCRIPTION¹⁾																		
PART NUMBER ²⁾ : SMM0204VC5620FB0																		
PART NUMBER ²⁾ : OMM0204000000B0																		
S	M	M	0	2	0	4	V	C	5	6	2	0	F	B	0	0	0	
O	M	M	0	2	0	4	0	0	0	0	0	0	0	0	B	0	0	0
MODEL/SIZE	SPECIAL CHARACTER	TC		VALUE				TOLERANCE	PACKING³⁾		SPECIAL							
SMM0204 OMM0204	0 = neutral V = CECC E0	E = ± 15 ppm/K D = ± 25 ppm/K C = ± 50 ppm/K B = ± 100 ppm/K 0 = Jumper		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				B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1 % J = ± 5 % 0 = Jumper	B1 B3 B0 M3		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.









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	REQUIREMENTS¹⁾
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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