

Thin Film MELF Resistors



FEATURES

- MELF resistor with high power rating
- AEC-Q200 qualified
- Advanced thin film technology
- Pure tin termination on nickel barrier, plated on press fit steel caps
- Compliant to RoHS Directive 2002/95/EC

AUTOMOTIVE
GRADERoHS
COMPLIANTGREEN
(5-2008)**

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING ⁽¹⁾ P_{70} W	LIMITING ELEMENT VOLTAGE DC or AC_{RMS} V	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	E-SERIES
SMM0207	1.0	350	± 50	± 0.5	1R0 to 2M21	24; 96
SMM0207	1.0	350	± 50	± 1	1R0 to 10M	24; 96
SMM0207	1.0	350	± 100	± 5	R16 to R91	24
Zero-Ohm-Resistor: OMM0207 $R_{max.} = 10 \text{ m}\Omega$ $I_{max.} = 5 \text{ A}$						

Note

⁽¹⁾ Permissible dissipation depends on the maximum temperature at the solder joint, the component placement density and the substrate material.

TECHNICAL SPECIFICATIONS

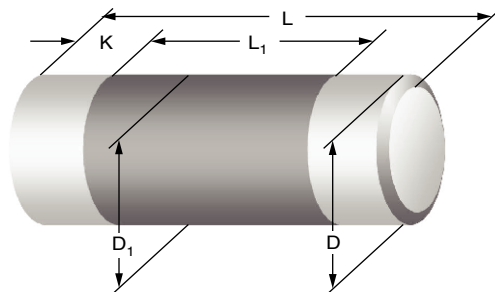
PARAMETER	UNIT	SMM0207
Power rating P_{70}	W	1
Limiting element voltage, DC or AC_{RMS}	V	350
Insulation voltage (1 min), DC or AC_{PEAK}	V	500
Insulation resistance	Ω	$\geq 10^{10}$
Category temperature range	$^{\circ}\text{C}$	- 55 to + 155
Failure rate: FIT _{observed}		$\leq 0.1 \times 10^{-9}/\text{h}$

Notes

- The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature of 155 $^{\circ}\text{C}$ is not exceeded.
- The specification of this product is based on a test board, providing a thermal resistance of approximately 85 K/W.
- These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

DIMENSIONS



DIMENSIONS AND MASS						
TYPE	L (mm)	D _{max.} (mm)	L ₁ min. (mm)	D ₁ (mm)	K (mm)	MASS (mg)
SMM0207 OMM0207	5.8 + 0/- 0.3	2.2	2.6	D + 0/- 0.2	1.25 ± 0.2	77

Notes

- Color code marking is applied according to IEC 60062 ⁽¹⁾ in five bands. Each color band appears as a single solid line, voids are permissible if at least $\frac{2}{3}$ of the band is visible from each radial angle of view. The last color band for tolerance is approximately 50 % wider than the other bands.
- Zero ohm jumper are marked with one centered black band.

PATTERN STYLES FOR MELF RESISTORS



RECOMMENDED SOLDER PAD DIMENSIONS								
TYPE	WAVE SOLDERING				REFLOW SOLDERING			
	G (mm)	Y (mm)	X (mm)	Z (mm)	G (mm)	Y (mm)	X (mm)	Z (mm)
SMM0207 OMM0207	2.4	2.3	2.6	7.0	2.6	2.0	2.4	6.6

Notes

- The given solder pad dimensions reflect the considerations for board design and assembly as outlined e.g. in standards IEC 61188-5-x, or in publication IPC-7351.
- The specified dissipation of 1 W relies on special support from the printed-circuit board in order to achieve the required heat flow. Specification of a particular conductor size is not feasible since its thermal performance depends on a variety of influences from the actual PCB design and from the application environment.

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: SMM02070C5620FBS00

Part Number: OMM0207000000BS00

S	M	M	0	2	0	7	0	C	5	6	2	0	F	B	S	0	0
O	M	M	0	2	0	7	0	0	0	0	0	0	0	B	S	0	0

MODEL	VERSION	TCR	RESISTANCE	TOLERANCE	PACKAGING
SMM0207 OMM0207	0 = Neutral	C = ± 50 ppm/K B = ± 100 ppm/K 0 = Jumper	3 digit value 1 digit multiplier 0000 = Jumper MULTIPLIER 7 = $\times 10^{-3}$ 2 = $\times 10^2$ 8 = $\times 10^{-2}$ 3 = $\times 10^3$ 9 = $\times 10^{-1}$ 4 = $\times 10^4$ 0 = $\times 10^0$ 5 = $\times 10^5$ 1 = $\times 10^1$	D = ± 0.5 % F = ± 1 % J = ± 5 % 0 = Jumper	BP BS

Product Description: SMM0207 50 562R 1 % BS

Product Description: OMM0207 0R0 BS

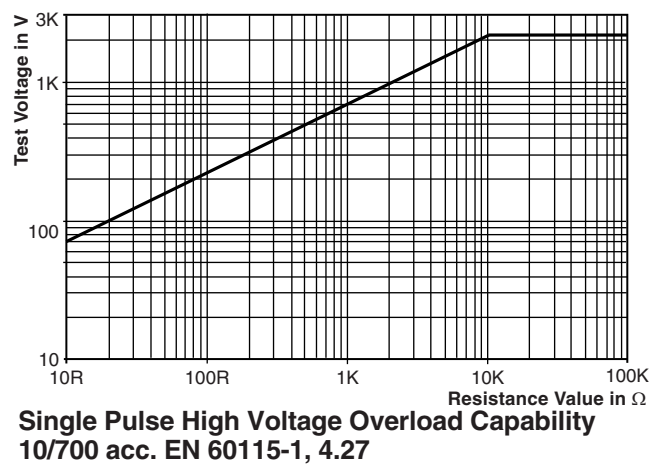
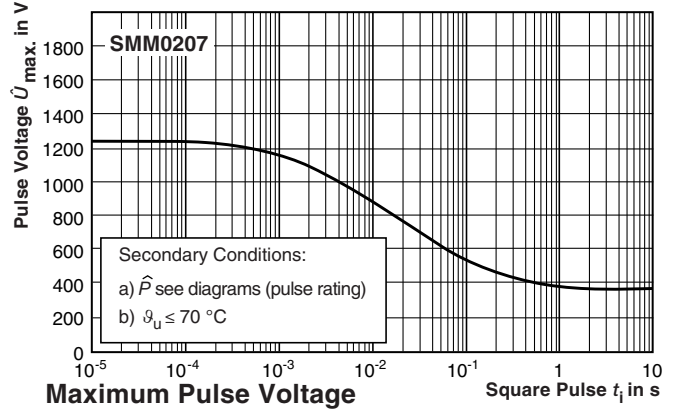
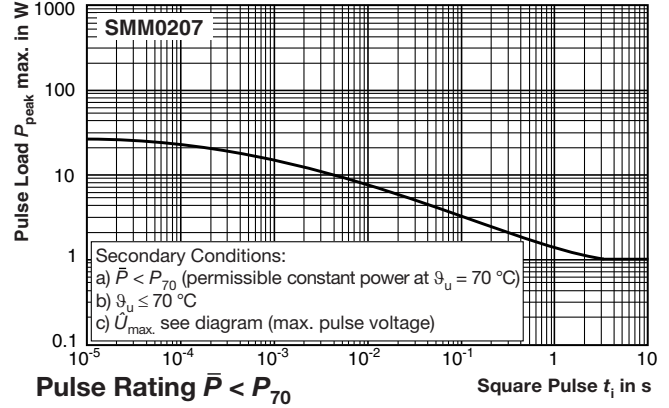
SMM0207	50	562R	1 %	BS
OMM0207	-	0R0	-	BS
MODEL	TCR	RESISTANCE	TOLERANCE	PACKAGING
SMM0207 OMM0207	± 50 ppm/K ± 100 ppm/K	100R = 100 Ω 2M21 = 2.21 M Ω 0R0 = Jumper	± 0.5 % ± 1 % ± 5 %	BP BS

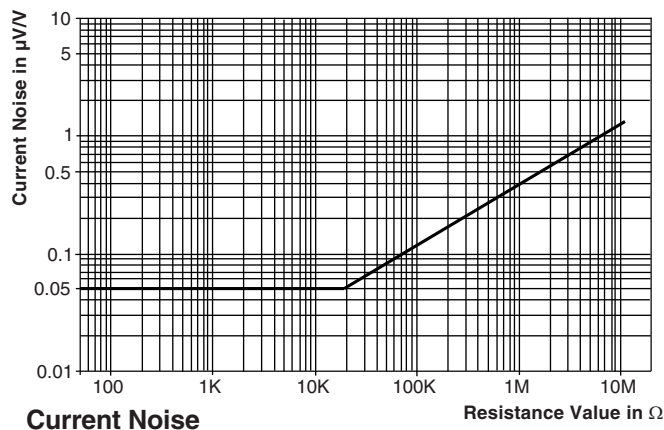
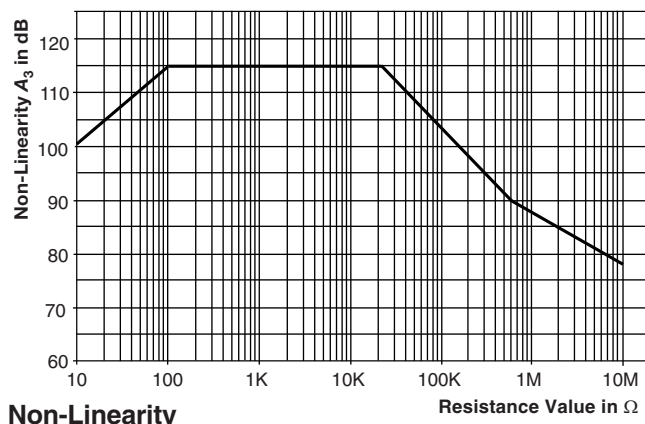
Note

- Products can be ordered using either the PART NUMBER or the PRODUCT DESCRIPTION.

PACKAGING

TYPE	CODE	QUANTITY	CARRIER TAPE	WIDTH	PITCH	REEL DIAMETER
SMM0207 OMM0207	BP	1500	Blister tape acc. IEC 60286-3 Type II	12 mm	4 mm	180 mm/7"
	BS	7500				330 mm/13"

FUNCTIONAL PERFORMANCE




TEST PROCEDURES AND REQUIREMENTS

TEST	CONDITIONS OF TEST	REQUIREMENTS PERMISSIBLE CHANGE (ΔR)			
		STABILITY CLASS 0.25	STABILITY CLASS 0.5	STABILITY CLASS 1	STABILITY CLASS 2
		10 Ω to 1 M Ω	1 Ω to 10 Ω	< 1 Ω	> 1 M Ω
Endurance test at 70 °C IEC 60115-1, 4.25.1	$U = \sqrt{P_{70} \times R} \leq U_{max.}$; 1.5 h "on", 0.5 h "off" at 70 °C, 1000 h at 70 °C, 8000 h	$\pm (0.25 \% R + 0.05 \Omega)$ $\pm (0.5 \% R + 0.05 \Omega)$			$\pm (0.5 \% R + 0.05 \Omega)$ $\pm (1.0 \% R + 0.05 \Omega)$
Endurance at UCT IEC 60115-1, 4.25.3	at 125 °C, 1000 h	$\pm (0.25 \% R + 0.05 \Omega)$			$\pm (0.5 \% R + 0.05 \Omega)$
Damp heat steady state 40 °C/93 % RH IEC 60115-1, 4.24 and IEC 60068-2-78	56 days; $U = 0.1 \times \sqrt{P_{70} \times R}$; $U_{max.} = 20 \text{ V}$	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$		
Damp heat steady state accelerated 85 °C/85 % RH	1000 h; $U = 0.3 \times \sqrt{P_{70} \times R}$; $U_{max.} = 40 \text{ V}$	$\pm (1.0 \% R + 0.05 \Omega)$			$\pm (2.0 \% R + 0.05 \Omega)$
Rapid change of temperature; 1000 cycles IEC 60115-1, 4.19 and IEC 60068-2-14	30 min at LCT; 30 min at UCT; LCT = - 55 °C; UCT = 125 °C	$\pm (0.25 \% R + 0.05 \Omega)$			
Overload test IEC 60115-1, 4.13	$U = 2.5 \times \sqrt{P_{70} \times R} \leq 2 \times U_{max.}$; 5 s	$\pm (0.05 \% + 0.01 \Omega/R)$			$\pm (0.1 \% R + 0.05 \Omega)$
Electrostatic discharge (HBM) IEC 60340-3-1	3 positive + 3 negative discharges 4 kV	$\pm (0.5 \% R + 0.05 \Omega)$			
Resistance to soldering heat IEC 60115-1, 4.18.2 and IEC 60068-2-58	Solder bath method (260 $\pm$ 5) °C; 10 s	$\pm (0.05 \% R + 0.01 \Omega)$	$\pm (0.1 \% R + 0.05 \Omega)$		

APPLICABLE SPECIFICATIONS

• EN 60115-1	Generic specification
• EN 140400	Sectional specification
• EN 140401-803	Detail specification
• IEC 60068-2-x	Variety of environmental test procedures
• IEC 60286-3	Packaging of SMD components



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. 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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru

www.lifeelectronics.ru