Wirewound Resistors, Precision Power, Surface Mount

FEATURES

- All welded construction
- Molded encapsulation
- Wraparound terminations
- Excellent stability at different environmental conditions
- High power ratings (up to 4 W)
- Available in non-inductive styles ("NI" SPECIAL) with Ayrton-Perry winding (Resistance max. value is one half standard value)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{70\,°C}$ W	RESISTANCE RANGE Ω	TOLERANCE ± %
SM-1	SM1	0.5	0.1 to 400	0.1, 0.25, 0.5, 1, 5
SM-2	SM2	1	0.1 to 3K	0.1, 0.25, 0.5, 1, 5
SM-3	SM3	3	0.1 to 25K	0.1, 0.25, 0.5, 1, 5
SM-4	SM4	2	0.1 to 15K	0.1, 0.25, 0.5, 1, 5
SM-5	SM5	4	0.1 to 50K	0.1, 0.25, 0.5, 1, 5

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	SM RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 20 > 10 Ω, ± 50 1 Ω to 10 Ω, contact factory for 0.99 Ω and below
Dielectric Withstanding Voltage	V_{AC}	1000
Operating Temperature Range	°C	-55 to +275
Maximum Working Voltage	V	$(P \times R)^{1/2}$

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: SM-2R4000FE6 (visit www.vishay.net SAP parts manual for all options)

S	M	-	2	R	4	0	0	0	F	E	6			

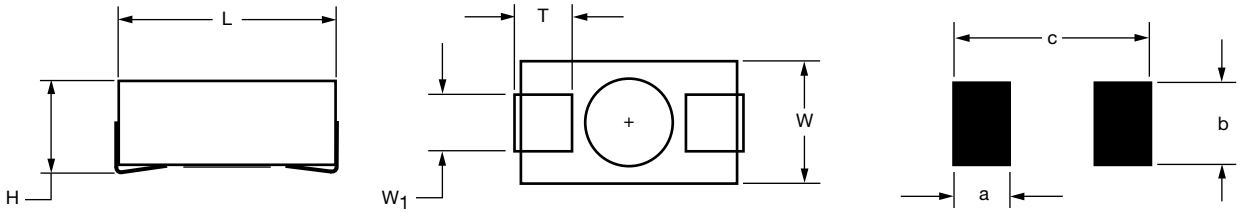
GLOBAL MODEL (4 digits)	VALUE (5 digits)	TOLERANCE (1 digit)	PACKAGING CODE (2 digits)	SPECIAL (up to 3 digits)
SM-1 **SM-2** **SM-3** **SM-4** **SM-5**	**R** = Decimal **K** = Thousand **1R500** = 1.5 Ω **4K000** = 4 kΩ	**B** = ± 0.1 % **C**= ± 0.25 % **D** = ± 0.5 % **F** = ± 1 % **J** = ± 5%	**E6** = Lead (Pb)-free, tape and reel pack	(Dash Number) From **1** to **999** as applicable **NI** = Non-inductive

Historical Part Number example: SM2-0.4-1%

SM2	0.4 Ω	1 %
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE

For technical questions, contact: ww2bresistors@vishay.com

DIMENSIONS in inches [millimeters]



GLOBAL MODEL	DIMENSIONS in inches [millimeters]					SOLDER PAD DIMENSIONS		
	L ± 0.015 [0.381]	W ± 0.015 [0.381]	H ± 0.015 [0.381]	W1 ± 0.015 [0.381]	T ± 0.015 [0.381]	a ± 0.015 [0.381]	b ± 0.015 [0.381]	c ± 0.015 [0.381]
SM-1	0.190 [4.83]	0.130 [3.30]	0.110 [2.79]	0.060 [1.52]	0.040 [1.02]	0.062 [1.57]	0.100 [2.54]	0.250 [6.35]
SM-2	0.260 [6.60]	0.155 [3.94]	0.125 [3.18]	0.070 [1.78]	0.070 [1.78]	0.096 [2.44]	0.112 [2.84]	0.337 [8.56]
SM-3	0.625 [15.88]	0.270 [6.86]	0.250 [6.35]	0.120 [3.05]	0.135 [3.43]	0.200 [5.08]	0.150 [3.81]	0.700 [17.78]
SM-4	0.450 [11.43]	0.250 [6.35]	0.180 [4.57]	0.120 [3.05]	0.100 [2.54]	0.155 [3.94]	0.230 [5.84]	0.540 [13.72]
SM-5	0.820 [20.83]	0.295 [7.49]	0.305 [7.75]	0.150 [3.81]	0.190 [4.83]	0.220 [5.59]	0.250 [6.35]	0.900 [22.86]

MATERIAL SPECIFICATIONS

Element: copper-nickel alloy

Encapsulation: molded epoxy

Core: ceramic

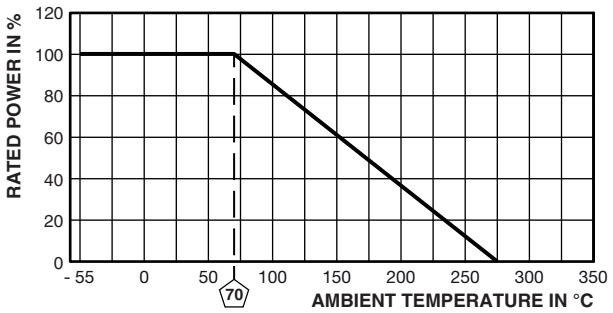
Terminal: matte tin

Part Marking: HEI, model, value, tolerance, date code

Note

- Due to resistor size limitations some resistors will have minimal information marked on parts.

DERATING



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± (0.5 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (0.5 % + 0.05 Ω) ΔR
Low Temperature Storage	-55 °C for 24 h	± (0.5 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, +70 °C, 1.5 h “ON”, 0.5 h “OFF”	± (1.0 % + 0.05 Ω) ΔR

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
SM-1	12 mm/embossed plastic	178 mm/7"	650	E6
		330 mm/13"	3000	
SM-2	16 mm/embossed plastic	178 mm/7"	600	E6
		330 mm/13"	2000	
SM-3	24 mm/embossed plastic	178 mm/7"	125	E6
		330 mm/13"	500	
SM-4	24 mm/embossed plastic	178 mm/7"	250	E6
		330 mm/13"	1000	
SM-5	32 mm/embossed plastic	178 mm/7"	180	E6
		330 mm/13"	500	

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