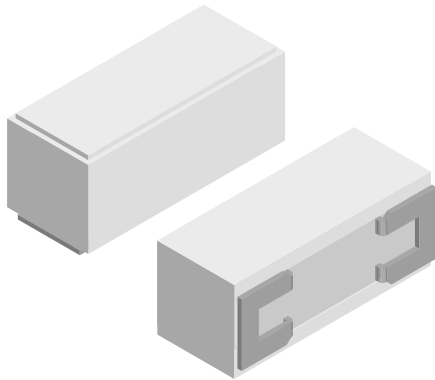




## Wirewound/Metal Oxide Resistors, Commercial Power, Surface Mount



### FEATURES

- Direct mounting on printed circuit board
- High wattage capabilities, low board temperatures
- Meets or exceeds EIA-RS-344 requirements
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- Superior surge capability
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{40^\circ\text{C}}$ W	RESISTANCE RANGE $\Omega$ WIREWOUND	RESISTANCE RANGE $\Omega$ METAL OXIDE	TOLERANCE $\pm \%$	WEIGHT (typical) g
CPSM03	CPSM-3	3	0.1 to 100	-	5, 10	5.5
CPSM05	CPSM-5	5	0.1 to 100	110 to 33K	5, 10	6.5

#### Note

- E24 decade values are available, although others may be available upon request

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CPSM RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	$\pm 400$
Short Time Overload	-	5 x rated power for 5 s
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Terminal Strength	lb	10 minimum
Operating Temperature Range	°C	-65 to +275 for wirewound, -65 to +225 for metal oxide

### GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: CPSM0315R00JE31

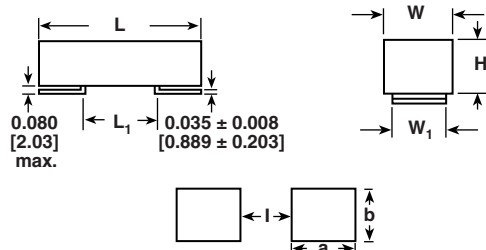
C	P	S	M	0	3	1	5	R	0	0	J	E	3	1			
GLOBAL MODEL				VALUE				TOLERANCE		PACKAGING		SPECIAL					
CPSM03 CPSM05				R = decimal K = thousand R1500 = 0.15 $\Omega$ 100R0 = 100 $\Omega$ 1K000 = 1 k $\Omega$				J = $\pm 5.0 \%$ K = $\pm 10 \%$		E31 = lead (Pb)-free, 4 layer bulk		(dash number) (up to 3 digits) from 1 to 999 as applicable					

Historical Part Numbering Example: CPSM-3 15  $\Omega$  5 % E31

CPSM-3	15 $\Omega$	5 %	E31
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING



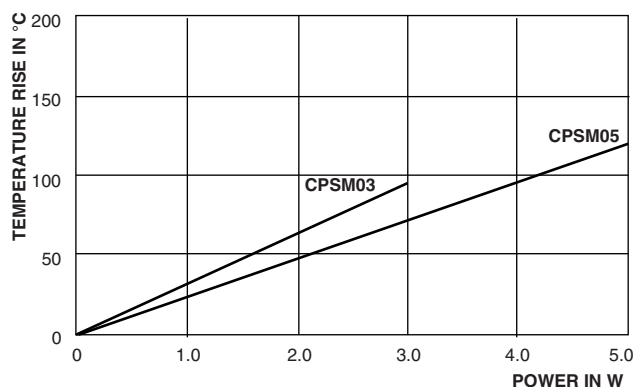
## DIMENSIONS



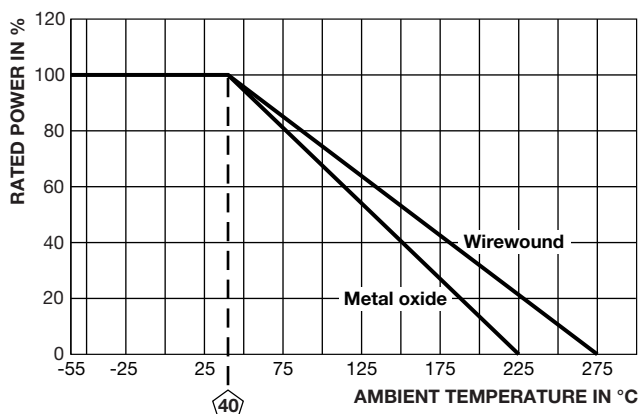
MODEL	DIMENSIONS in inches [millimeters]				
	L ± 0.059 [1.50]	W ± 0.039 [0.99]	L <sub>1</sub> ± 0.059 [1.50]	W <sub>1</sub> ± 0.016 [0.406]	H ± 0.039 [0.99]
CPSM03	0.944 [23.98]	0.354 [8.99]	0.492 [12.50]	0.287 [7.29]	0.354 [8.99]
CPSM05	1.10 [27.94]	0.394 [10.01]	0.590 [14.99]	0.287 [7.29]	0.394 [10.01]

MODEL	SOLDER PAD DIMENSIONS in inches [millimeters]		
	a	b	l
CPSM03	0.420 [10.67]	0.340 [8.64]	0.380 [9.65]
CPSM05	0.440 [11.18]	0.340 [8.64]	0.490 [12.45]

## TEMPERATURE RISE



## DERATING



## MATERIAL SPECIFICATIONS

Element	Wirewound = copper-nickel alloy or nickel-chrome alloy, depending on resistance value; metal oxide = high temperature fired metal oxide film
Core	Ceramic
Body	Steatite ceramic case with cement potting compound
Terminals	Tin plated steel
Part Marking	Dale, model, wattage, value, tolerance, date code

## PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	-55 °C to +275 °C (+225 °C for metal oxide), 5 cycles, 30 min dwell time	± (5.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (4.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V <sub>RMS</sub> for 1 min	± (2.0 % + 0.05 Ω) ΔR
Low Temperature Operation	-65 °C, full rated working voltage for 45 min	± (3.0 % + 0.05 Ω) ΔR
Humidity	75 °C, 90 % to 100 % RH, 240 h	± (5.0 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, +40 °C, 1.5 h "ON", 0.5 h "OFF"	± (10.0 % + 0.05 Ω) ΔR
Terminal Strength	5 pounds for 30 s; body twisted about axis, 3 x 360° rotations	± (2.0 % + 0.05 Ω) ΔR
Resistance to Solder Heat	Terminal immersed 3.5 s in molten solder at 1/8" to 3/16" from body	± (4.0 % + 0.05 Ω) ΔR



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