

# Wirewound 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
- Compliant to RoHS Directive 2002/95/EC



## Notes

\* Pb containing terminations are not RoHS compliant, exemptions may apply

\*\* Please see document "Vishay Material Category Policy": [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{40^\circ\text{C}}$ W	RESISTANCE RANGE $\Omega$	TOLERANCE $\pm \%$	WEIGHT (typical) g
CPSM03	CPSM-3	3	0.1 to 1K	5, 10	5.5
CPSM05	CPSM-5	5	0.1 to 1K	5, 10	6.5

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	CPSM RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/ $^\circ\text{C}$	$\pm 300$ for 1.0 $\Omega$ and above; $\pm 600$ below 1.0 $\Omega$
Short Time Overload	-	5 x rated power for 5 s
Operating Temperature	$^\circ\text{C}$	- 65 to + 275
Dielectric Withstanding Voltage	$V_{AC}$	1000
Maximum Working Voltage	V	$(P \times R)^{1/2}$

GLOBAL PART NUMBER INFORMATION					
Global Part Numbering example: CPSM0315R00JB31					
C	P	S	M	0	3
1	5	R	0	0	J
B	3	1			
GLOBAL MODEL CPSM03 CPSM05		VALUE R = Decimal K = Thousand R1500 = 0.15 $\Omega$ 100R0 = 100 $\Omega$ 1K000 = 1 k $\Omega$		TOLERANCE H = $\pm 3.0 \%$ J = $\pm 5.0 \%$ K = $\pm 10 \%$	
				PACKAGING E31 = Lead(Pb)-free, 4 layer bulk B31 = Tin/lead, 4 layer bulk	
				SPECIAL (Dash number) (Up to 3 digits) From 1 to 999 as applicable	
Historical Part Numbering example: CPSM-3 15 $\Omega$ 5 % B31					
CPSM-3		15 $\Omega$		5 %	
HISTORICAL MODEL		RESISTANCE VALUE		TOLERANCE CODE	
				B31	
				PACKAGING	

**DIMENSIONS**


MODEL	DIMENSIONS in inches [millimeters]				
	L $\pm 0.032$ [0.813]	W $\pm 0.031$ [0.787]	L <sub>1</sub> $\pm 0.062$ [1.57]	W <sub>1</sub> + 0.032 [0.813] - 0.012 [0.305]	H $\pm 0.031$ [0.787]
CPSM03	0.906 [23.01]	0.374 [9.50]	0.480 [12.19]	0.287 [7.29]	0.374 [9.50]
CPSM05	1.060 [26.92]	0.374 [9.50]	0.590 [14.99]	0.287 [7.29]	0.374 [9.50]

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	Copper-nickel alloy or nickel-chrome alloy, depending on resistance value
Core	Woven fiberglass
Body	Steatite ceramic case with inorganic potting compound
Terminals	Tin/lead plated steel (lead (Pb)-free version will be 100 % tin)
Part Marking	DALE, model, wattage, value, tolerance, date code

**PERFORMANCE**

TEST	CONDITIONS OF TEST	TEST LIMITS (EIA RS-344)
Thermal shock	- 55 °C to + 165 °C, 5 cycles, 30 min dwell time	$\pm (5.0 \% + 0.05 \Omega) \Delta R$
Short time overload	5 x rated power for 5 s	$\pm (4.0 \% + 0.05 \Omega) \Delta R$
Dielectric withstanding voltage	1000 V <sub>RMS</sub> for one min	$\pm (2.0 \% + 0.05 \Omega) \Delta R$
Low temperature operation	- 65 °C, full rated working voltage for 45 min	$\pm (3.0 \% + 0.05 \Omega) \Delta R$
Humidity	75 °C, 90 % to 100 % RH, 240 h	$\pm (5.0 \% + 0.05 \Omega) \Delta R$
Load life	1000 h at rated power, + 40 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm (10.0 \% + 0.05 \Omega) \Delta R$
Resistance to solder heat	+ 260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	$\pm (4.0 \% + 0.05 \Omega) \Delta R$



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