## **ERC Industrial**



Vishay Dale

# Metal Film Resistors, Axial, Industrial / High Reliability, Precision



## FEATURES

- Same materials and construction as the non-hermetic MIL-PRF-55182 resistors
- 100 % stabilization and screening tests. Undergoes group A testing to MIL-PRF-55182 (thermal shock, 1 h overload, short time overload, DC resistance) prior to shipping.



RoHS

- Very low noise (-40 dB)
- Controlled temperature coefficient
- Epoxy coating provides superior moisture protection
- Standard lead is solderable and weldable
- Traceability of materials and processing
- Vishay Dale has complete capability to develop specific reliability programs designed to customer requirements
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

STANDARD ELECTRICAL SPECIFICATIONS						
GLOBAL MODEL	POWER RATING P <sub>70 °C</sub> W	POWER RATING P <sub>125 °C</sub> W	MAXIMUM WORKING VOLTAGE <sup>(1)</sup> V	RESISTANCE RANGE Ω	TOLERANCE <sup>(2)</sup> ± %	TEMPERATURE COEFFICIENT ± ppm/°C
ERC50500	0.10	0.05	200	10 to 796K	0.1, 0.5, 1	25, 50, 100
ERC55500	0.125	0.10	200	10 to 2M	0.1, 0.5, 1	25, 50, 100
ERC55600	0.25	0.125	250	10 to 3.01M	0.1, 0.5, 1	25, 50, 100
ERC65500	0.50	0.25	300	10 to 3.01M	0.1, 0.5, 1	25, 50, 100
ERC70500	0.75	0.50	350	10 to 3.01M	0.1, 0.5, 1	25, 50, 100

#### Notes

<sup>(1)</sup> Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.

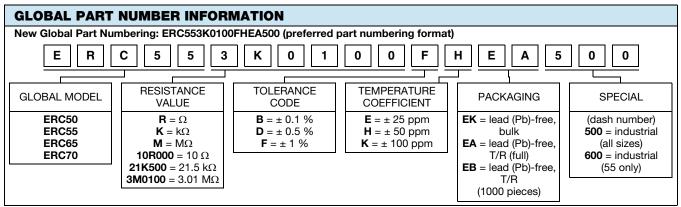
<sup>(2)</sup> Tolerance of  $\pm 0.1$  % is available only in 50 ppm and 25 ppm temperature coefficients.

TECHNICAL SPECIFICATIONS				
PARAMETER	UNIT	CONDITION		
Voltage Coefficient, Max.	ppm/V	5/V when measured between 10 % and full rated voltage		
Dielectric Strength	V <sub>AC</sub>	ERC50-500, ERC55-500 and ERC55-600 = 450; ERC65-500 and ERC70-500 = 900		
Insulations Resistance	Ω	$\geq 10^{11}$ dry; $\geq 10^9$ after moisture test		
Operating Temperature Range	°C	-65 to +175		
Terminal Strength	lb	2 lb pull test on ERC50-500, ERC55-500, ERC55-600 and ERC65-500; 4.5 lb pull test on ERC70-500		
Solderability		Continuous satisfactory coverage when tested in accordance with MIL-STD-202, method 208		
Weight	g	ERC50-500 = 0.11; ERC55-500 = 0.35; ERC55-600 = 0.35; ERC65-500 = 0.84; ERC70-500 = 1.06		

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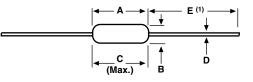
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Note

• For additional information on packaging, refer to the Through Hole Resistor Packaging document (www.vishay.com/doc?31544).

### **DIMENSIONS** in inches (millimeters)



#### Note

<sup>(1)</sup> Lead length for product in bulk pack. For product supplied in Tape and Reel, the actual lead length would be based on the body size, tape spacing and lead trim.

VISHAY DALE MODEL	A	В	С (MAX.)	D	E
ERC50-500	0.150 ± 0.020	0.070 ± 0.010	0.187	0.016 ± 0.002	1.25 ± 0.266
	(3.81 ± 0.51)	(1.78 ± 0.25)	(4.75)	(0.41 ± 0.05)	(31.75 ± 6.76)
ERC55-500	0.250 + 0.031 - 0.046	0.094 ± 0.012	0.300	0.025 ± 0.002	1.50 ± 0.125
	(6.35 + 0.79 - 1.17)	(2.39 ± 0.30)	(7.62)	(0.64 ± 0.05)	(38.1 ± 3.18)
ERC55-600	0.280 ± 0.020	0.097 ± 0.012	0.350	0.025 ± 0.002	1.50 ± 0.125
	(7.11 ± 0.51)	(2.46 ± 0.30)	(8.89)	(0.64 ± 0.05)	(38.1 ± 3.18)
ERC65-500	$\begin{array}{c} 0.562 \pm 0.031 \\ (14.27 \pm 0.79) \end{array}$	0.180 ± 0.015 (4.57 ± 0.38)	0.687 (17.45)	0.025 ± 0.002 (0.64 ± 0.05)	1.50 ± 0.125 (38.1 ± 3.18)
ERC70-500	0.562 ± 0.031	0.180 ± 0.015	0.687	0.032 ± 0.002	1.50 ± 0.125
	(14.27 ± 0.79)	(4.57 ± 0.38)	(17.45)	(0.81 ± 0.05)	(38.1 ± 3.18)

MATERIAL SPECIFICATIONS				
Element	Vacuum-deposited nickel-chrome alloy			
Core	Fire-cleaned high purity ceramic			
Encapsulation	Specially formulated epoxy compound			
Termination	Standard lead material is solder-coated copper. Solderable and weldable per MIL-STD-1276, type C			

### **POWER RATING**

Power ratings are based on the following two conditions: 1.  $\pm$  2.0 % maximum  $\Delta R$  in 10 000 h load life 2.  $\pm 175$  °C maximum operating temperature

2. +175 °C maximum operating temperature

## **APPLICABLE MIL-SPECIFICATIONS**

### MIL-PRF-55182:

With the exception of the MIL spec's 3 % lead (Pb) requirement, the industrial ERC series would meet the electrical, environmental and dimensional requirements of MIL-PRF-55182.

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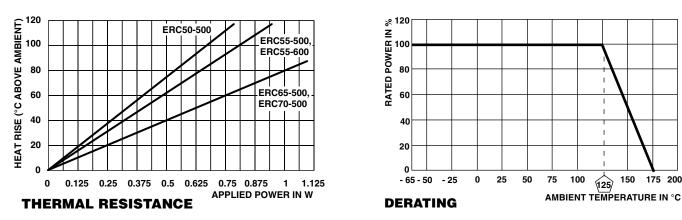
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175 200

150 125

Vishay Dale ERC resistors have an operating temperature range of -65 °C to +175 °C. They must be derated according to the following curve:



MARK	ING					
Partial model (for 50 size): C = ERC Tolerance (for 50 size): B = 0.1 %, D = 0.5 %, F = 1 % Temperature coefficient: T1 = 100 ppm, T2 = 50 ppm, T9 = 25 ppm			5 ppm			
ERC50-500: (4 lines)		ERC55-500, ERC55-600: (4 lines)		ERC65-50	ERC65-500, ERC70-500: (5 lines)	
C500 33K2 FT1 1548	Partial model and dash number Value Tolerance and TC 4-digit date code	55-500 1.21M 0.5 % T9 1532	Size and dash number Value Tolerance and TC 4-digit date code	ERC65 -500 7.68K 1 % T2 1516	Full model and size Dash number Value Tolerance and TC 4-digit date code	



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