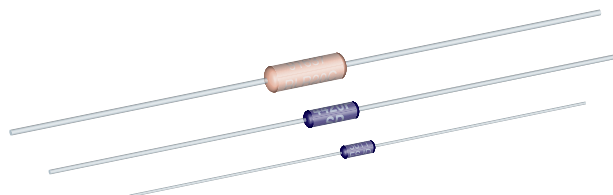


# Metal Film Resistors, Industrial, Precision



## FEATURES

- Same materials and construction as the non-hermetic MIL-PRF-55182 resistors
- Very low noise (-40 dB)
- 100 % stabilization and screening tests. Group A testing, if desired, to customer requirements
- 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 [www.vishay.com/doc299912](http://www.vishay.com/doc299912)


**RoHS**  
COMPLIANT

## STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING $P_{70^{\circ}\text{C}}$ W	POWER RATING $P_{125^{\circ}\text{C}}$ W	MAXIMUM WORKING VOLTAGE <sup>(1)</sup> V	RESISTANCE RANGE $\Omega$	TOLERANCE <sup>(2)</sup> $\pm \%$	TEMPERATURE COEFFICIENT $\pm \text{ppm}/^{\circ}\text{C}$
ERC50..500	0.10	0.05	200	10 to 796K	0.1, 0.5, 1	25, 50, 100
ERC55..500	0.125	0.10	200	10 to 2M	0.1, 0.5, 1	25, 50, 100
ERC55..600	0.25	0.125	250	10 to 3.01M	0.1, 0.5, 1	25, 50, 100
ERC65..500	0.50	0.25	300	10 to 3.01M	0.1, 0.5, 1	25, 50, 100
ERC70..500	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	$V_{AC}$	ERC50-500, ERC55-500 and ERC55-600 = 450; ERC65-500 and ERC70-500 = 900
Insulations Resistance	$\Omega$	$\geq 10^{11}$ dry; $\geq 10^9$ after moisture test
Operating Temperature Range	$^{\circ}\text{C}$	-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

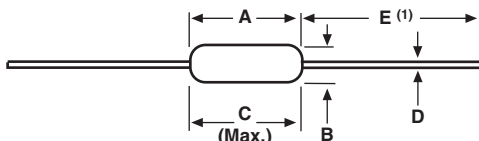
**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: ERC553K0100FHEA500 (preferred part numbering format)

<b>E</b>	<b>R</b>	<b>C</b>	<b>5</b>	<b>5</b>	<b>3</b>	<b>K</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>F</b>	<b>H</b>	<b>E</b>	<b>A</b>	<b>5</b>	<b>0</b>	<b>0</b>
GLOBAL MODEL			RESISTANCE VALUE			TOLERANCE CODE			TEMPERATURE COEFFICIENT			PACKAGING			SPECIAL		
ERC50 ERC55 ERC65 ERC70			R = $\Omega$ K = $k\Omega$ M = $M\Omega$ 10R000 = 10 $\Omega$ 21K500 = 21.5 $k\Omega$ 3M0100 = 3.01 $M\Omega$			B = $\pm 0.1\%$ D = $\pm 0.5\%$ F = $\pm 1\%$			E = $\pm 25$ ppm H = $\pm 50$ ppm K = $\pm 100$ ppm			EK = lead (Pb)-free, bulk EA = lead (Pb)-free, T/R (full) EB = lead (Pb)-free, T/R (1000 pieces)			(Dash number) 500 = industrial (all sizes) 600 = industrial (55 only)		

**Note**

- For additional information on packaging, refer to the Through Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://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	B	C (MAX.)	D	E
ERC50-500	0.150 $\pm$ 0.020 (3.81 $\pm$ 0.51)	0.070 $\pm$ 0.010 (1.78 $\pm$ 0.25)	0.187 (4.75)	0.016 $\pm$ 0.002 (0.41 $\pm$ 0.05)	1.25 $\pm$ 0.266 (31.75 $\pm$ 6.76)
ERC55-500	0.250 $\pm$ 0.031 - 0.046 (6.35 $\pm$ 0.79 - 1.17)	0.094 $\pm$ 0.012 (2.39 $\pm$ 0.30)	0.300 (7.62)	0.025 $\pm$ 0.002 (0.64 $\pm$ 0.05)	1.50 $\pm$ 0.125 (38.1 $\pm$ 3.18)
ERC55-600	0.280 $\pm$ 0.020 (7.11 $\pm$ 0.51)	0.097 $\pm$ 0.012 (2.46 $\pm$ 0.30)	0.350 (8.89)	0.025 $\pm$ 0.002 (0.64 $\pm$ 0.05)	1.50 $\pm$ 0.125 (38.1 $\pm$ 3.18)
ERC65-500	0.562 $\pm$ 0.031 (14.27 $\pm$ 0.79)	0.180 $\pm$ 0.015 (4.57 $\pm$ 0.38)	0.687 (17.45)	0.025 $\pm$ 0.002 (0.64 $\pm$ 0.05)	1.50 $\pm$ 0.125 (38.1 $\pm$ 3.18)
ERC70-500	0.562 $\pm$ 0.031 (14.27 $\pm$ 0.79)	0.180 $\pm$ 0.015 (4.57 $\pm$ 0.38)	0.687 (17.45)	0.032 $\pm$ 0.002 (0.81 $\pm$ 0.05)	1.50 $\pm$ 0.125 (38.1 $\pm$ 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**

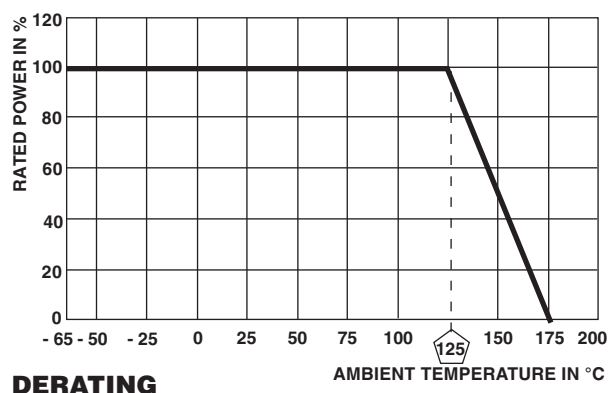
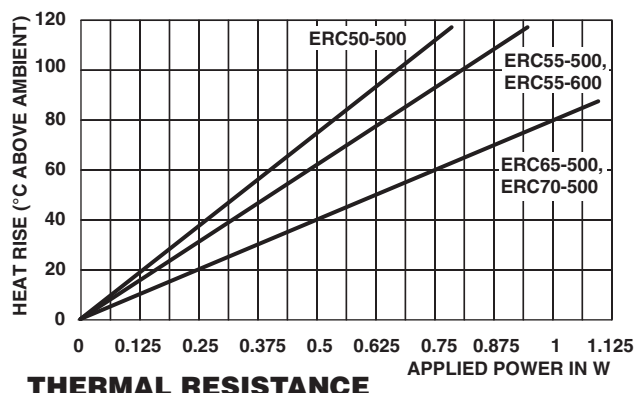
- Power ratings are based on the following two conditions:
- $\pm 2.0\%$  maximum  $\Delta R$  in 10 000 h load life
  - +175  $^{\circ}\text{C}$  maximum operating temperature

**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.



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



## MARKING

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

ERC50-500: (4 lines)

C500	Partial model and dash number
33K2	Value
FT1	Tolerance and TC
1548	4-digit date code

ERC55-500, ERC55-600: (4 lines)

55-500	Size and dash number
1.21M	Value
0.5 % T9	Tolerance and TC
1532	4-digit date code

ERC65-500, ERC70-500: (5 lines)

ERC65	Full model and size
-500	Dash number
7.68K	Value
1 % T2	Tolerance and TC
1516	4-digit date code



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## 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.**