

## Wirewound Resistors, Industrial Power, Silicone Coated, Printed Circuit Board Mount


**FEATURES**

- High temperature silicone coating
- Eliminates lead forming to keep parts off of PC board
- Built in standoffs provide PC board heat protection and opposing feet to avoid rocking
- Available in non-inductive style (special "NI") with Ayrton-Perry winding
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

**STANDARD ELECTRICAL SPECIFICATIONS**

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{25^\circ\text{C}}$ W	RESISTANCE RANGE $\Omega$ $\pm 5\%$	RESISTANCE RANGE $\Omega$ $\pm 10\%$	WEIGHT (typical) g
FS-003	FS-3	3	1.0 to 6K	0.1 to 6K	1.16
FS-05A	FS-5A	5	1.0 to 15K	0.1 to 15K	2.12
FS-005	FS-5	7	1.0 to 17.5K	0.1 to 17.5K	3.36
FS-05S	FS-5S	8	1.0 to 20.5K	0.1 to 20.5K	4.60
FS-010	FS-10	10	1.0 to 29K	0.1 to 29K	6.24
FS-10S	FS-10S	12	1.0 to 58K	0.1 to 58K	6.60
FS-020	FS-20	20	1.0 to 60K	0.1 to 60K	8.82
FS-20S	FS-20S	20	1.0 to 95K	0.1 to 95K	11.36

**TECHNICAL SPECIFICATIONS**

PARAMETER	UNIT	FS RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	$\pm 260$ for 20 $\Omega$ and above, $\pm 400$ for 1 $\Omega$ to 19.99 $\Omega$ , special TC's available please contact factory
Short Time Overload	-	10 x rated power for 5 s
Dielectric Withstanding Voltage	V <sub>AC</sub>	1000, from terminal to mounting hardware
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Operating Temperature Range	°C	- 55 to + 350

**GLOBAL PART NUMBER INFORMATION**

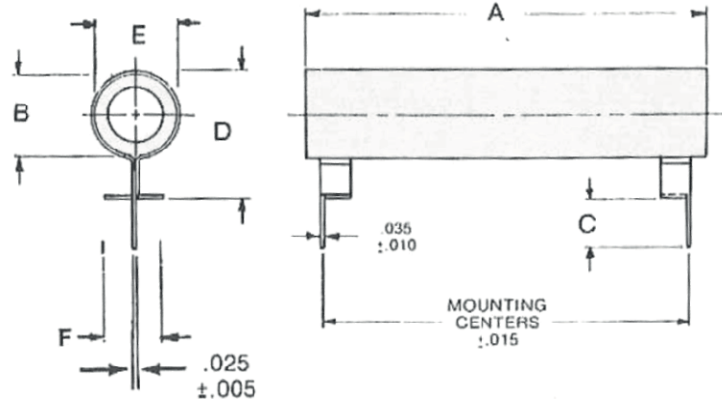
 Global Part Numbering example: **FS-010CBE1K000JE** (visit [www.vishay.net](http://www.vishay.net) SAP parts manual for all options)

F	S	-	0	1	0	C	B	E	1	K	0	0	0	J	E		
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GLOBAL MODEL (6 digits)	TERMINAL DESIGNATION (2 digits)	TERMINAL FINISH (1 digit)	VALUE (5 digits)	TOLERANCE (1 digit)	PACKAGING CODE (1 digit)	SPECIAL (up to 2 digits)
(See Standard Electrical Specifications Global Model column for options)	<b>CB</b>	<b>E</b> = Lead (Pb)-free	<b>R</b> = Decimal <b>K</b> = Thousand <b>1R500</b> = 1.5 $\Omega$ <b>1K500</b> = 1.5 k $\Omega$	<b>J</b> = $\pm 5\%$ <b>K</b> = $\pm 10\%$	<b>E</b> = Lead (Pb)-free cell and bulk pack	(Dash number) From 1 to 99 as applicable <b>NI</b> = Non-inductive

 Historical Part Number example: **FS-10-1K-5 %**

FS-10	1K $\Omega$	5 %	
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE	SPECIAL

**DIMENSIONS** in inches [millimeters]

**Note**

- Recommended mounting hole is 0.078 diameter.

MODEL	DIMENSIONS in inches [millimeters]						
	CORE		C ± 0.062 [± 1.57]	D MAX.	E MAX.	F MAX.	STANDARD MOUNTING CENTERS ± 0.015 [± 0.381]
	A ± 0.062 [± 1.57]	B ± 0.031 [± 0.78]					
FS-003	1.000	0.200	0.360	0.450	0.281	0.400	0.600
FS-002	[25.4]	[5.08]	[9.14]	[11.43]	[7.14]	[10.16]	[15.24]
FS-05A	1.125	0.200	0.360	0.450	0.281	0.400	0.900
	[28.58]	[5.08]	[9.14]	[11.43]	[7.14]	[10.16]	[22.86]
FS-005	1.000	0.312	0.360	0.600	0.410	0.500	0.600
FS-006	[25.4]	[7.94]	[9.14]	[15.24]	[10.41]	[12.7]	[15.24]
FS-05S	1.125	0.312	0.360	0.600	0.410	0.500	0.900
	[28.58]	[7.94]	[9.14]	[15.24]	[10.41]	[12.7]	[22.86]
FS-010	1.750	0.312	0.360	0.600	0.410	0.500	1.300
	[44.45]	[7.94]	[9.14]	[15.24]	[10.41]	[12.7]	[33.02]
FS-10S	2.125	0.312	0.360	0.600	0.410	0.500	1.700
	[53.98]	[7.94]	[9.14]	[15.24]	[10.41]	[12.7]	[43.18]
FS-015	2.000	0.437	0.19	0.725	0.531	0.531	1.700
FS-020	[50.8]	[11.11]	[4.82]	[18.41]	[13.49]	[13.49]	[43.18]
FS-20S	2.375	0.437	0.19	0.725	0.531	0.531	2.200
	[9.53]	[11.11]	[4.82]	[18.41]	[13.49]	[13.49]	[55.88]

**Notes**

- The pin configuration on the terminals for the FS-10S and smaller products is on the center of the terminal.
- The pin configuration on the terminals for the FS-015 and larger products is on the edge of the terminal

**MATERIAL SPECIFICATIONS**

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Ceramic, steatite

**Coating:** Special high temperature silicone

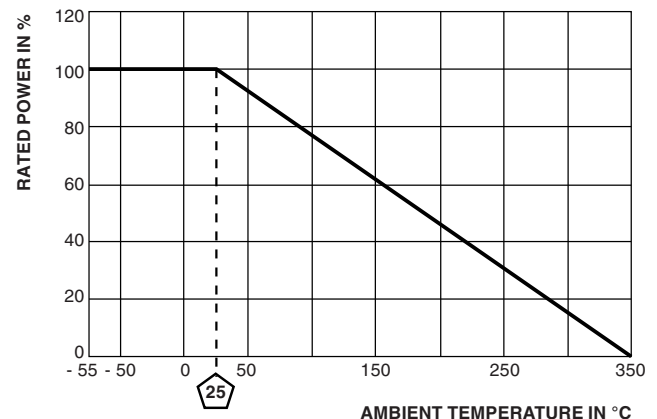
**Standard Terminals:** Tinned alloy 42

**Terminal Bands:** Alloy 42

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

**NON-INDUCTIVE**

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by adding the letters "NI" to the end of the part number in the special section. For non-inductive models the maximum resistance values are one-half the standard part.

**DERATING**




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