Wirewound Resistors, Industrial Power, Silicone Coated, Fixed Edgewound Tubular



FEATURES

- High temperature silicone coating
- Complete welded construction
- Excellent stability in operation (< 3 % change in resistance)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{25\,°C}$ W	RESISTANCE RANGE Ω ± 5 %	RESISTANCE RANGE Ω ± 10 %	WEIGHT (typical) g
FSE0050	FSE-50	50	1.0 to 3.8	1.0 to 3.8	18
FSE0090	FSE-90	90	0.10 to 5.7	0.10 to 5.7	36
FSE0100	FSE-100	100	1.0 to 6.1	0.15 to 6.1	41
FSE0110	FSE-110	110	1.0 to 7.4	0.20 to 7.4	49
FSE0120	FSE-120	120	1.0 to 8.6	0.1 to 8.6	54
FSE0140	HLZ-140	140	0.08 to 9.0	0.08 to 9.0	109
FSE0155	FSE-155	155	1.0 to 12.5	0.1 to 12.5	129
FSE0165	HLZ-165	165	0.35 to 13.0	0.35 to 13.0	91
FSE0180	HLZ-165	165	0.35 to 13.0	0.35 to 13.0	91
FSE0240	FSE-240	240	1.0 to 18	0.1 to 18	186
FSE0300	FSE-300	300	1.0 to 25	0.15 to 25	236
FSE0375	FSE-375	375	1.0 to 32	0.20 to 32	286
FSE0420	FSE-420	420	1.0 to 35.8	0.25 to 35.8	320
FSE0500	FSE-500	500	1.0 to 46.2	0.30 to 46.2	381
FSE0750	FSE-750	750	1.0 to 81.3	0.35 to 81.3	654
FSE1000	FSE-1000	1000	1.0 to 101.6	0.40 to 101.6	817
FSE1500	FSE-1500	1500	1.0 to 135.5	0.15 to 135.5	1090

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: FSE050021E15R0JE (visit www.vishay.net Vishay Dale parts numbering manual for all options)

F	S	E	0	5	0	0	2	1	E	1	5	R	0	J	E		

GLOBAL MODEL (7 digits)	TERMINAL DESIGNATION (2 digits)	TERMINAL FINISH (1 digit)	VALUE (4 digits)	TOLERANCE (1 digit)	PACKAGING CODE (1 digit)	SPECIAL (up to 2 digits)
(see Standard Electrical Specifications Global Model column for options)	**06** **15** **20** **21** **22**	**E** = lead (Pb)-free	**R** = decimal **1R50** = 1.5 Ω	**J** = ± 5 % **K** = ± 10 %	**E** = lead (Pb)-free bulk pack	(dash number) from **1** to **99** as applicable **91** = 100 style BKT **92** = 200 style BKT **93** = 300 style BKT **CT** = center tap

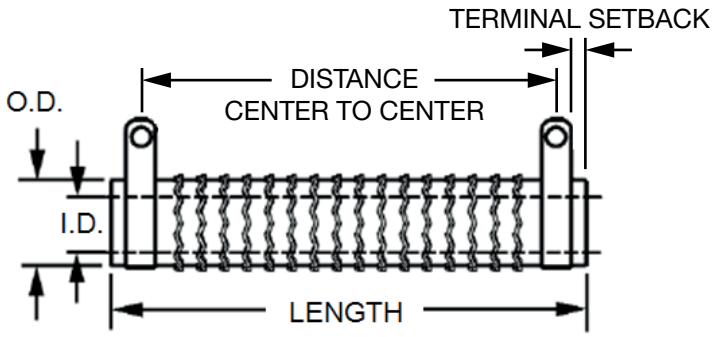
Historical Part Number example: FSE-500-15-5 %

FSE-500	15 Ω	5 %	
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE	SPECIAL

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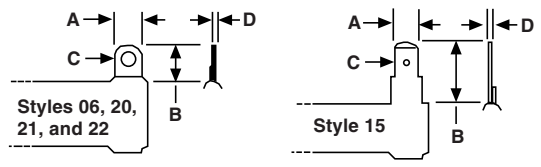
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DIMENSIONS in inches (millimeters)



MODEL	CORE DIMENSIONS			TERMINAL SETBACK	DISTANCE CENTER TO CENTER (REF.)	TERMINAL DESIGNATION	
	LENGTH	O.D. ± 0.031 (± 0.79)	I.D. ± 0.031 (± 0.79)			STANDARD	OPTIONAL (QUICK CONNECT)
FSE0050	2.000 (50.8)	0.750 (19.05)	0.500 (12.70)	0.094 (2.39	1.562 (39.67)	06	15
FSE0090	4.000 (101.6)	0.563 (14.30)	0.313 (7.95)	0.094 (2.39)	3.562 (90.47)	06	15
FSE0100	3.500 (88.90)	0.750 (19.05)	0.500 (12.70)	0.079 (2.01)	3.092 (78.54)	06	15
FSE0110	4.000 (101.6)	0.750 (19.05)	0.500 (12.70)	0.125 (3.18)	3.500 (88.90)	06	15
FSE0120	4.500 (114.3)	0.750 (19.05)	0.547 (13.89)	0.125 (3.18)	4.000 (101.60)	06	15
FSE0140	4.000 (101.6)	1.125 (28.58)	0.750 (19.05)	0.219 (5.56)	2.812 (71.42)	20	15
FSE0155	4.250 (114.3)	1.125 (28.58)	0.750 (19.05)	0.282 (7.16)	3.311 (84.10)	20	15
FSE0165	6.500 (165.1)	0.750 (19.05)	0.750 (19.05)	0.125 (3.18)	5.75 (146.05)	20	15
FSE0180	6.500 (165.1)	0.750 (19.05)	0.750 (19.05)	0.125 (3.18)	5.75 (146.05)	20	15
FSE0240	6.500 (165.1)	1.125 (28.58)	0.750 (19.05)	0.250 (6.35)	5.561 (141.25)	20	15
FSE0300	8.500 (215.9)	1.125 (28.58)	0.750 (19.05)	0.267 (6.78)	7.591 (192.81)	20	15
FSE0375	10.500 (266.7)	1.125 (28.58)	0.750 (19.05)	0.266 (6.76)	9.591 (243.61)	20	15
FSE0420	11.750 (288.9)	1.125 (28.58)	0.750 (19.05)	0.266 (6.76)	10.843 (275.41)	20	15
FSE0500	10.500 (266.7)	1.625 (41.275)	1.125 (28.58)	0.266 (6.76)	9.468 (240.49)	21	-
FSE0750	12.000 (304.8)	2.500 (63.50)	1.750 (44.45)	0.508 (12.90)	10.484 (266.29)	22	-
FSE1000	15.000 (381.0)	2.500 (63.50)	1.750 (44.45)	0.508 (12.90)	13.484 (342.49)	22	-
FSE1500	20.000 (508.0)	2.500 (63.50)	1.750 (44.45)	0.508 (12.90)	18.484 (469.49)	22	-

TERMINAL DIMENSIONS in inches (millimeters)

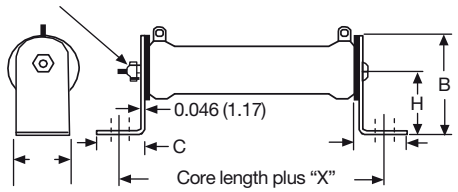


DIMENSIONS	TERMINAL STYLE				
	06	15	20	21	22
A	0.250 (6.35)	0.250 (6.35)	0.375 (9.53)	0.500 (12.70)	0.500 (12.70)
B	0.500 (12.70)	0.594 (15.08)	0.5625 (14.28)	0.625 (15.87)	0.925 (23.49)
C (HOLE DIAMETER)	0.173 (4.39)	0.065 (1.65)	0.204 (5.18)	0.264 (6.70)	0.264 (6.70)
D	0.020 (0.51)	0.031 (0.79)	0.032 (0.812)	0.025 (0.64)	0.025 (0.64)

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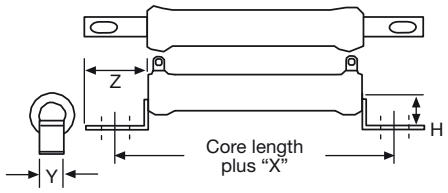
MOUNTING HARDWARE FOR FSE PRODUCTS - Dimensions in inches (millimeters)

91 = 100 Style Horizontal 1 High Bracket



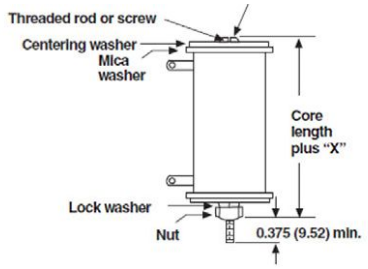
BRACKET TYPE	X	Y	Z	H	MOUNTING SLOT	C	B
102	1.063 (26.99)	0.750 (19.05)	0.859 (21.83)	1.250 (31.75)	0.219 x 0.438 (5.56 x 11.11)	0.750 (19.05)	1.750 (44.75)
103	1.063 (26.99)	1.250 (31.75)	1.000 (25.40)	1.500 (38.10)	0.281 x 0.563 (7.14 x 14.29)	0.927 (23.55)	2.125 (53.98)
104	1.952 (49.58)	2.500 (63.50)	1.478 (37.54)	3.000 (76.20)	open slot x 0.406 (10.31)	1.375 (34.93)	4.25 (107.25)

92 = 200 Style Push-In Bracket



BRACKET TYPE	X	H	Y	Z	HOLE (DIA.)
204	0.700 (17.78)	0.578 (14.68)	0.250 (6.35)	0.500 (12.70)	0.156 (3.96)
206	0.846 (21.49)	0.800 (20.62)	0.375 (9.53)	0.600 (15.24)	0.343 x 0.213 (8.71 x 5.46)
207	0.700 (17.78)	1.125 (28.58)	0.500 (12.70)	0.687 (17.45)	0.250 x 0.188 (6.35 x 4.78)

93 = 300 Style Thru-Bolt Bracket



BRACKET TYPE	X (APPROXIMATE)	THREAD
302	0.271 (6.88)	10-32
303	0.463 (11.76)	1/4-20

MOUNTING HARDWARE			
GLOBAL MODEL	AVAILABLE BRACKET TYPES BY MODEL		
	91 = 100 STYLE HORIZONTAL 1 HIGH BRACKET	92 = 200 STYLE PUSH-IN BRACKET	93 = 300 STYLE THRU-BOLT BRACKET
FSE0050	102	206	302
FSE0090	102	204	302
FSE0100	102	206	302
FSE0110	102	206	302
FSE0120	102	206	302
FSE0140	103	205	303
FSE0155	103	207	302
FSE0165	102	206	303
FSE0180	102	206	303
FSE0240	103	207	302
FSE0300	103	207	303
FSE0375	103	207	303
FSE0420	103	207	303
FSE0500	103	-	302
FSE0750	104	-	302
FSE1000	104	-	302
FSE1500	104	-	303

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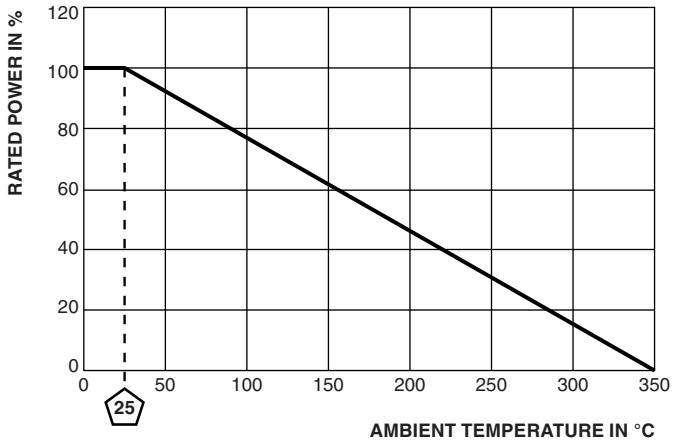
TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Power Rating	W	50 to 1500
Resistance Range	Ω	0.10 to 135.5
Resistance Tolerance	%	10
Temperature Coefficient	ppm/°C	± 260 for 20 Ω and above, ± 400 for 1 Ω to 19.99 Ω
Operating Temperature	°C	-55 °C to 350 °C
Temperature Rise	°C	325 °C above an ambient of 25 °C
Maximum Altitude	f.a.s.l.	10 000
Short-Term Overload	-	10x rated power for 5 s
Surge Windings	-	Available
Maximum Working Voltage	-	$(P \times R)^{0.5}$
Insultation Resistance	Ω	1M
Dielectric Voltage	V_{RMS}	1000 V_{AC}
Creepage	-	Varies by wattage, see “Terminal Setback” in Dimensions table
Terminal Sleeves	-	n/a
Inductance	µH	Varies by wattage and resistance
Non-Inductive Winding	-	n/a
Terminal Strength	lb	10 lbs
Electrical or Mechanical Customization	-	Contact factory: ww2dresistors@vishay.com

MATERIAL SPECIFICATIONS

Element	Copper-nickel alloy or nickel-chrome alloy, depending on resistance value
Core	Cordierite, steatite
Coating	Special high temperature silicone
Standard Terminals	Tinned alloy 42
Optional Terminals	Alloy 42
Terminal Bands	Alloy 42
Part Marking	HEI, model, wattage, value, tolerance, date code

DERATING



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