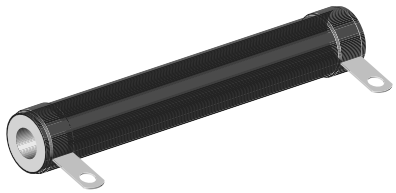
Wirewound Resistor, Industrial Power, Silicone Coated, Fixed Tubular



FEATURES

- High temperature silicone coating
- Complete welded construction
- Available in non-inductive style (special “NI”) with Ayrton-Perry winding
- Tight tolerance of 5 % for values above 1 Ω
- Excellent stability in operation (< 3 % change resistance)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

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
FST005	FST-5	5	1.0 to 20.5K	0.1 to 20.5K	4.60
FST005...NI	FST-5-...-NI	5	1.0 to 750	1.0 to 750	4.60
FST010	FST-10	12	1.0 to 58K	0.1 to 58K	6.7
FST010...NI	FST-10-...-NI	12	1.0 to 3.9K	1.0 to 3.9K	6.7
FST20A	HL-15	15	1.0 to 60K	0.10 to 60K	8.64
FST020	FST-20	20	1.0 to 95K	0.1 to 95K	12.57
FST020...NI	FST-20-...-NI	20	1.0 to 6.8K	1.0 to 6.8K	12.57
FST025	FST-25	25	1.0 to 115K	0.1 to 115K	20.7
FST025...NI	FST-25-...-NI	25	1.0 to 8.8K	1.0 to 8.8K	20.7
FST25A	FST-25A	30	1.0 to 56K	0.1 to 56K	20.7
FST25A...NI	FST-25A-...-NI	30	1.0 to 7.25K	1.0 to 7.25K	20.7
FST25B	FST-25B	30	1.0 to 49K	0.1 to 49K	14.5
FST25B...NI	FST-25B-...-NI	30	1.0 to 6.8K	1.0 to 6.8K	14.5
FST050	FST-50	50	1.0 to 112K	0.1 to 112K	42.1
FST050...NI	FST-50-...-NI	50	1.0 to 21.5K	1.0 to 21.5K	42.1
FST50A	FST-50A	60	1.0 to 145K	0.1 to 145K	65.6
FST50A...NI	FST-50A-...-NI	60	1.0 to 27.2K	1.0 to 27.2K	65.6
FST50B	FST-50B	70	1.0 to 170K	0.1 to 170K	60.0
FST50B...NI	FST-50B-...-NI	70	1.0 to 31.4K	1.0 to 31.4K	60.0
FST075	FST-75	75	1.0 to 276K	0.1 to 276K	98.5
FST075...NI	FST-75-...-NI	75	1.0 to 35K	1.0 to 35K	98.5
FST75A	FST-75A	90	1.0 to 238K	0.1 to 238K	64.8
FST75A...NI	FST-75A-...-NI	90	1.0 to 31K	1.0 to 31K	64.8
FST080	HL-80	80	1.0 to 190K	0.10 to 190K	121.58
FST100	FST-100	100	1.0 to 260K	0.1 to 260K	91.4
FST100...NI	FST-100-...-NI	100	1.0 to 48.5K	1.0 to 48.5K	91.4
FST130	FST-130	130	1.0 to 380K	0.1 to 380K	192.4
FST130...NI	FST-130-...-NI	130	1.0 to 70.2K	1.0 to 70.2K	192.4
FST160	FST-160	175	1.0 to 470K	0.1 to 470K	250.8
FST160...NI	FST-160-...-NI	175	1.0 to 105K	1.0 to 105K	250.8
FST175	HL-175	175	1.0 to 500K	0.10 to 500K	250.8
FST200	FST-200	225	1.0 to 645K	0.1 to 645K	310.0
FST200...NI	FST-200-...-NI	225	1.0 to 121K	1.0 to 121K	310.0
FST225	FST-225	225	1.0 to 645K	0.1 to 645K	310.0
FST225...NI	FST-225-...-NI	225	1.0 to 121K	1.0 to 121K	310.0

For technical questions, contact: ww2dresistors@vishay.com

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GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: FST02506E25R00JE (visit www.vishay.net SAP parts manual for all options)

F	S	T	0	2	5	0	6	E	2	5	R	0	0	J	E		

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)	**02, 05, 06, 14, 15, 20** **FC** = ferrule cap	**E** = lead (Pb)-free	**R** = decimal **K** = thousand **1R500** = 1.5 Ω **1K500** = 1.5 kΩ	**J** = ± 5 % **K** = ± 10 %	**E** = lead (Pb)-free bulk pack	(dash number) from **1** to **99** as applicable **91** = 100 style horizontal high bracket **92** = 200 style push-in bracket **93** = 300 style thru-bolt bracket **CT** = center tap **NI** = non-inductive **NP** = non-inductive + 92 style push-in bracket **NH** = non-inductive + 91 style horizontal bracket **NV** = non-inductive + style vertical bracket

Historical Part Number Example: FST-25-25-5 %

FST-25	25 Ω	5 %	
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE	SPECIAL

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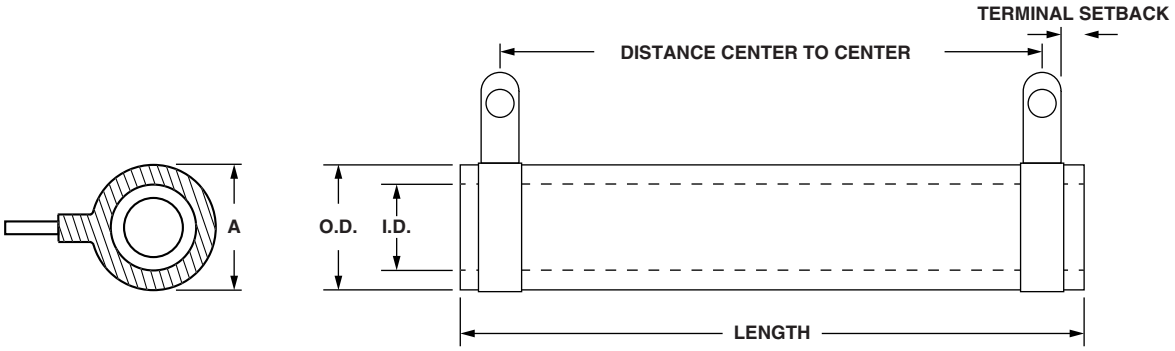
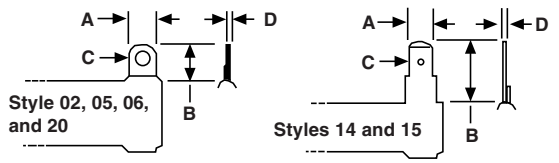
DIMENSIONS in inches (millimeters)



MODEL	A MAX.	CORE DIMENSIONS			TERMINAL SETBACK ± 0.031 (0.79)	DISTANCE CENTER TO CENTER (REF.)	TERMINAL DESIGNATION	
		LENGTH	O.D. ± 0.031 (0.79)	I.D. ± 0.031 (0.79)			STANDARD	OPTIONAL (QUICK CONNECT)
FST005	0.406 (10.31)	1.000 (25.40)	0.313 (7.95)	0.188 (4.78)	0.094 (2.39)	0.625 (15.88)	05	14
FST010	0.406 (10.31)	1.750 (44.45)	0.313 (7.95)	0.188 (4.78)	0.094 (2.39)	1.375 (34.93)	05	14
FST020	0.563 (14.30)	2.000 (50.8)	0.438 (11.13)	0.260 (6.60)	0.094 (2.39)	1.625 (41.28)	02	14
FST20A	0.563 (14.30)	2.000 (50.8)	0.438 (11.11)	0.313 (7.94)	0.094 (2.38)	1.625 (41.28)	02	14
FST025	0.688 (17.48)	2.000 (50.8)	0.563 (14.30)	0.313 (7.95)	0.094 (2.39)	1.562 (39.67)	06	15
FST25A	0.906 (23.01)	2.000 (50.8)	0.750 (19.05)	0.500 (12.70)	0.094 (2.39)	1.562 (39.67)	06	15
FST25B	0.770 (19.56)	2.000 (50.8)	0.625 (15.88)	0.453 (11.51)	0.094 (2.39)	1.562 (39.67)	06	15
FST050	0.688 (17.48)	4.000 (101.6)	0.563 (14.30)	0.313 (7.95)	0.094 (2.39)	3.562 (90.47)	06	15
FST50A	0.906 (23.01)	4.000 (101.6)	0.750 (19.05)	0.500 (12.70)	0.062 (1.57)	3.626 (92.10)	06	15
FST50B	0.906 (23.01)	4.500 (114.3)	0.750 (19.05)	0.547 (13.89)	0.125 (3.18)	4.000 (101.60)	06	15
FST075	0.688 (17.48)	6.000 (152.4)	0.563 (14.30)	0.313 (7.95)	0.094 (2.39)	5.562 (141.27)	06	15
FST75A	0.906 (23.01)	6.000 (152.4)	0.750 (19.05)	0.500 (12.70)	0.094 (2.39)	5.562 (141.27)	06	15
FST080	1.313 (33.34)	4.000 (101.6)	1.125 (28.58)	0.750 (19.05)	0.219 (5.56)	2.812 (71.42)	20	15
FST100	0.906 (23.01)	6.500 (165.1)	0.750 (19.05)	0.500 (12.70)	0.125 (3.18)	6.000 (152.40)	06	15
FST130	1.313 (33.35)	6.500 (165.1)	1.125 (28.58)	0.750 (19.05)	0.282 (7.16)	5.374 (136.50)	20	15
FST160	1.313 (33.35)	8.500 (215.9)	1.125 (28.58)	0.750 (19.05)	0.267 (6.78)	7.404 (188.06)	20	15
FST175	1.313 (33.34)	8.500 (215.9)	1.125 (28.58)	0.750 (19.05)	0.219 (5.56)	7.312 (185.72)	20	15
FST200 FST225	1.313 (33.35)	10.500 (266.7)	1.125 (28.58)	0.750 (19.05)	0.266 (6.76)	9.406 (238.91)	20	15

TERMINAL DIMENSIONS in inches (millimeters)



DIMENSIONS	TERMINAL STYLE					
	20	02	05	06	14	15
WIDTH A	0.375 (9.53)	0.188 (4.76)	0.188 (4.76)	0.250 (6.35)	0.188 (4.76)	0.250 (6.35)
HEIGHT B	0.562 (14.07)	0.393 (9.98)	0.393 (9.98)	0.500 (12.70)	0.563 (14.29)	0.594 (15.08)
DIAMETER C	0.204 (5.18)	0.133 (3.38)	0.133 (3.38)	0.172 (4.36)	0.050 (1.27)	0.065 (1.65)
THICKNESS D	0.020 (0.51)	0.020 (0.51)	0.020 (0.51)	0.020 (0.51)	0.020 (0.51)	0.031 (0.79)

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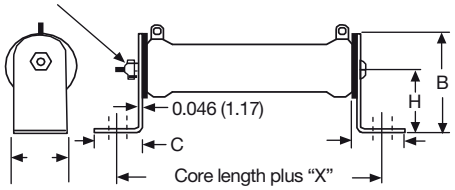
MOUNTING HARDWARE

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
FST005	n/a	202	n/a
FST010	101	202	301
FST020	101	203	301
FST20A	101	203	301
FST025	102	204	301
FST25A	102	206	302
FST25B	102	205	301
FST050	102	204	302
FST50A	102	206	302
FST50B	102	208	302
FST075	102	204	301
FST75A	102	206	302
FST100	102	206	302
FST130	103	207	302
FST175	103	207	303
FST200	103	207	303
FST225	103	207	303

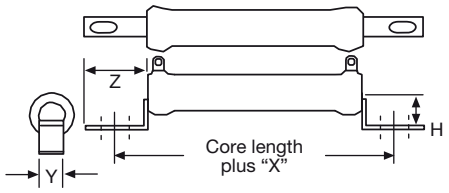
DIMENSIONS in inches (millimeters)

91 = 100 Style Horizontal 1 High Bracket



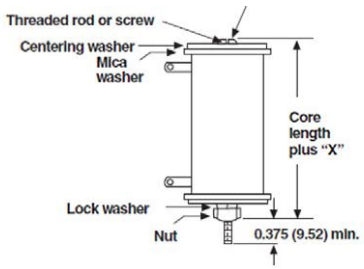
BRACKET TYPE	X	Y	Z	H	MOUNTING SLOT	C	B
101	1.063 (26.99)	0.500 (12.70)	0.950 (24.13)	1.000 (25.40)	0.219 x 0.438 (5.56 x 11.11)	0.750 (19.05)	1.375 (34.93)
102	1.063 (26.99)	0.750 (19.05)	0.859 (21.83)	1.250 (31.75)	0.219 x 0.438 (5.56 x 11.11)	0.750 (19.05)	1.750 (44.45)
103	1.063 (26.99)	1.250 (31.75)	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)

92 = 200 Style Push-In Bracket



BRACKET TYPE	X	H	Y	Z	HOLE (DIA.)
202	0.478 (12.14)	0.250 (6.35)	0.125 (3.175)	0.375 (9.53)	0.170 (4.32)
203	0.583 (14.80)	0.580 (14.73)	0.188 (4.78)	0.460 (11.68)	0.115 (2.92)
204	0.700 (17.78)	0.578 (14.68)	0.250 (6.35)	0.500 (12.70)	0.156 (3.96)
205	0.846 (21.49)	0.800 (20.32)	0.375 (9.53)	0.600 (15.24)	0.343 x 0.213 (8.71 x 5.46)
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)
208	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)

93 = 300 Style Thru-Bolt Bracket



BRACKET TYPE	X (APPROXIMATE)	THREAD
301	0.373 (9.47)	8 to 32
302	0.271 (6.88)	8 to 32
303	0.463 (11.76)	1/4 to 20

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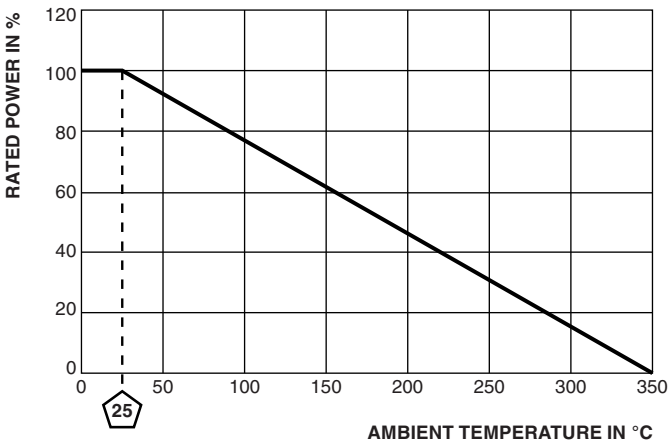
TECHNICAL SPECIFICATIONS		
PARAMETER	**UNIT**	**RESISTOR CHARACTERISTICS**
Power Rating	W	5 to 225
Resistance Range	Ω	0.1 to 645K
Resistance Tolerance	%	5
Temperature Coefficient	ppm/°C	± 260 for 20 Ω and above, ± 400 for 1 Ω to 19.99 Ω
Operating Temperature	°C	-55 °C to 350°C
Temperature Rise	°C	325 °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	-	$(P \times R)^{0.5}$
Insulation 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		Available
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

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 lower, see Standard Electrical Specifications table.

DERATING



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