

SPECIFICATION CONTROL DRAWING

SCD

SHF20K-0113

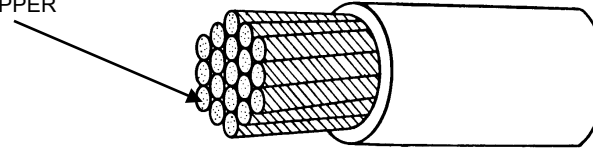
Title WIRE, MODIFIED PERFLUOROALKOXY COPOLYMER RESIN-INSULATED, 1000 VOLT

Date 3-25-21

Revision B

This specification sheet forms a part of the latest issue of Raychem Specification WCD 3111.

CONDUCTOR - NICKEL-COATED COPPER



INSULATION - MODIFIED PFA

TABLE I. CONSTRUCTION DETAILS

PART NUMBER 1/	WIRE SIZE (AWG)	CONDUCTOR STRANDING (number x AWG)	DIAMETER OF STRANDED CONDUCTOR (inch) (mm)		FINISHED WIRE				
					MAXIMUM RESISTANCE AT 20°C (ohms/1000 ft.) (ohms/km)	DIAMETER (inch) mm			NOMINAL WEIGHT (lbs/1000 ft. (kg/km)
			MINIMUM	MAXIMUM		MINIMUM	NOMINAL	MAXIMUM	
SHF20K-0113-24-*	24	105 x 44	.023 (.584)	.027 (.686)	30.6 (100.)	.050 (1.27)	.053 (1.35)	.056 (1.42)	3.10 (4.61)
SHF20K-0113-22-*	22	154 x 44	.029 (.737)	.033 (.838)	21.9 (71.8)	.058 (1.47)	.061 (1.55)	.064 (1.63)	4.23 (6.29)
SHF20K-0113-20-*	20	154 x 42	.037 (.940)	.043 (1.09)	13.3 (43.6)	.069 (1.75)	.072 (1.83)	.075 (1.91)	5.96 (8.87)
SHF20K-0113-18-*	18	259 x 42	.047 (1.19)	.053 (1.35)	8.67 (28.4)	.079 (2.01)	.082 (2.08)	.085 (2.16)	8.58 (12.8)
SHF20K-0113-16-*	16	259 x 40	.061 (1.55)	.067 (1.70)	5.10 (16.7)	.093 (2.36)	.096 (2.44)	.099 (2.51)	12.2 (18.2)
SHF20K-0113-14-*	14	665 x 42	.078 (1.98)	.086 (2.18)	3.32 (10.9)	.112 (2.84)	.116 (2.95)	.120 (3.05)	19.1 (28.4)
SHF20K-0113-12-*	12	665 x 40	.096 (2.44)	.106 (2.69)	1.99 (6.53)	.131 (3.33)	.137 (3.48)	.143 (3.63)	27.3 (40.6)
SHF20K-0113-10-*	10	665 x 38	.126 (3.20)	.140 (3.56)	1.14 (3.74)	.163 (4.14)	.171 (4.34)	.179 (4.55)	44.7 (66.5)
SHF20K-0113-8-*	8	665 x 36	.157 (3.99)	.173 (4.39)	.714 (2.34)	.195 (4.95)	.205 (5.21)	.215 (5.46)	67.7 (101.)
SHF20K-0113-6-*	6	1045 x 36	.192 (4.88)	.208 (5.28)	.490 (1.61)	.231 (5.87)	.242 (6.15)	.253 (6.43)	102. (152.)
SHF20K-0113-4-*	4	1665 x 36	.265 (6.73)	.285 (7.24)	.326 (1.07)	.310 (7.87)	.323 (8.20)	.336 (8.53)	168. (250.)
SHF20K-0113-2-*	2	1665 x 34	.325 (8.26)	.345 (8.76)	.193 (.633)	.373 (9.47)	.387 (9.83)	.401 (10.2)	250. (372.)
SHF20K-0113-1-*	1	2109 x 34	.370 (9.40)	.400 (10.2)	.163 (.535)	.426 (10.8)	.441 (11.2)	.456 (11.6)	308. (458.)
SHF20K-0113-0-*	0	2660 x 34	.435 (11.0)	.465 (11.8)	.133 (.436)	.494 (12.5)	.510 (13.0)	.526 (13.4)	395. (588.)
SHF20K-0113-00-*	00	3325 x 34	.485 (12.3)	.515 (13.1)	.102 (.335)	.546 (13.9)	.564 (14.3)	.582 (14.8)	491. (731.)
SHF20K-0113-000-*	000	4123 x 34	.540 (13.7)	.575 (14.6)	.073 (.240)	.606 (15.4)	.626 (15.9)	.646 (16.4)	604. (899.)
SHF20K-0113-0000-*	0000	5320 x 34	.615 (15.6)	.655 (16.6)	.057 (.187)	.685 (17.4)	.707 (18.0)	.729 (18.5)	774. (1152.)

NOTE: Nominal values are for information only. Nominal values are not requirements.

Users should evaluate the suitability of this product for their application. Specifications are subject to change without notice.
TE Connectivity also reserves the right to make changes in materials or processing, which do not affect compliance with any specification, without notification to Buyer.

1/ COLORS AND COLOR CODE DESIGNATORS SHALL BE IN ACCORDANCE WITH MIL-STD-681. OTHER CODES AND SUFFIXES MAY BE ADDED TO THE PART NUMBER, AS NECESSARY, TO CAPTURE ANY ADDITIONAL REQUIREMENTS IMPOSED BY THE PURCHASE ORDER.





SPECIFICATION CONTROL DRAWING

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Revision

B

SCD

SHF20K-0113

TABLE II. PERFORMANCE DETAILS

PART NUMBER 1/	BEND TESTING				WEIGHT	
	MANDREL DIAMETER (inch) (mm) (± 3%)				(lb) (kg) (± 3%)	
	LIFE CYCLE	MINIMUM BEND RADIUS	WRAP TEST	COLD BEND	LIFE CYCLE	COLD BEND
SHF20K-0113-24-*	.500 (12.7)	.500 (12.7)	.500 (12.7)	1.00 (25.4)	1.50 (.680)	3.00 (1.36)
SHF20K-0113-22-*	.500 (12.7)	.750 (19.1)	.750 (19.1)	1.00 (25.4)	2.00 (.907)	3.00 (1.36)
SHF20K-0113-20-*	.500 (12.7)	.750 (19.1)	.750 (19.1)	1.00 (25.4)	3.00 (1.36)	4.00 (1.81)
SHF20K-0113-18-*	.750 (19.1)	1.00 (25.4)	1.00 (25.4)	1.50 (38.1)	4.00 (1.81)	4.00 (1.81)
SHF20K-0113-16-*	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.50 (38.1)	4.00 (1.81)	5.00 (2.27)
SHF20K-0113-14-*	1.00 (25.4)	1.25 (31.8)	1.25 (31.8)	2.00 (50.8)	6.00 (2.72)	5.00 (2.27)
SHF20K-0113-12-*	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	2.00 (50.8)	6.00 (2.72)	5.00 (2.27)
SHF20K-0113-10-*	2.00 (50.8)	2.00 (50.8)	2.00 (50.8)	3.00 (76.2)	6.00 (2.72)	5.00 (2.27)
SHF20K-0113-8-*	3.00 (76.2)	2.25 (57.2)	2.25 (57.2)	4.00 (102.)	8.00 (3.63)	6.00 (2.72)
SHF20K-0113-6-*	4.00 (102.)	2.75 (69.9)	2.75 (69.9)	5.00 (127.)	8.00 (3.63)	10.0 (4.54)
SHF20K-0113-4-*	5.00 (127.)	3.75 (95.3)	3.75 (95.3)	6.00 (152.)	8.00 (3.63)	10.0 (4.54)
SHF20K-0113-2-*	6.00 (152.)	4.50 (114.)	4.50 (114.)	8.00 (203.)	12.0 (5.44)	15.0 (6.80)
SHF20K-0113-1-*	8.00 (203.)	5.00 (127.)	5.00 (127.)	10.0 (254.)	12.0 (5.44)	15.0 (6.80)
SHF20K-0113-0-*	8.00 (203.)	6.00 (152.)	6.00 (152.)	10.0 (254.)	12.0 (5.44)	15.0 (6.80)
SHF20K-0113-00-*	10.0 (254.)	6.00 (152.)	6.00 (152.)	12.0 (305.)	16.0 (7.26)	20.0 (9.07)
SHF20K-0113-000-*	10.0 (254.)	7.50 (191.)	7.50 (191.)	12.0 (305.)	16.0 (7.26)	20.0 (9.07)
SHF20K-0113-0000-*	10.0 (254.)	8.00 (203.)	8.00 (203.)	12.0 (305.)	16.0 (7.26)	20.0 (9.07)

WIRE RATINGS AND ADDITIONAL REQUIREMENTS

TEMPERATURE RATING: 260°C for 20,000 hours

VOLTAGE RATING: 1000 volts (rms) at sea level

COLOR: White (9) preferred

(Note: Laser markable white is designated as "9LM".)

CONCENTRICITY: 70% (minimum)

INSULATION ELONGATION AND TENSILE STRENGTH:

Elongation, 150% (minimum)

Tensile Strength, 2000 lbf/in² (13.8 N/mm²) (minimum)

INSULATION FLAWS:

Spark Test, 6.0 kV (rms)

Impulse Dielectric Test, 8.0 kV (peak)

LOW TEMPERATURE-COLD BEND: -65 ± 2°C for 4 hours

SHRINKAGE: 290 ± 2°C for 6 hours,

AWG 24-00: 0.125 in. (3.18 mm) (maximum) in 12 inches (305 mm)

AWG 000-0000: 0.250 in. (6.35 mm) (maximum) in 12 inches (305 mm)

SMOKE TEST (Qualification):

Per WCD 3111, no visible smoke

Per SAE AS4373, Method 803 (Flaming Mode only),

0.02 Ds (nominal) after 16 minutes

THERMAL SHOCK RESISTANCE: 260 ± 2°C,

AWG 24-12: 0.060 in. (1.52 mm) (maximum)

AWG 10-8: 0.100 in. (2.54 mm) (maximum)

AWG 6-00: 0.125 in. (3.18 mm) (maximum)

AWG 000-0000: 0.250 in. (6.35 mm) (maximum)

UV LASER MARKING CONTRAST (9LM color only, AWG 2 & smaller only):

Solid Laser, 50% (minimum)

Dot Matrix Laser, 50% (minimum)

VOLTAGE WITHSTAND (Post Environmental): 3000 volts (rms)

WRAP TEST: 290 ± 2°C for 2 hours

1/ PART NUMBER:

The "" in the part numbers in Tables I and II shall be replaced by a color code designator.

Examples: AWG 0, white: SHF20K-0113-0-9

AWG 2, laser markable white: SHF20K-0113-2-9LM

1/ See footer section on page 1