

# MIL-W-81822 wire

**MIL-W-81822 (SAE AS81822)** wires have solid conductors for wire-wrap termination, with extruded insulation of PTFE, PTFE with polyimide hardcoat, or ETFE. Each insulation type is available with a choice of three silver-plated conductor materials (see below). All are rated at 300 volts.

Some sizes are available in thin-wall versions—these are noted in the tables on the following pages as MIL-W-81822 numbers with “V” following the AWG size.

## Construction characteristics—MIL-W-81822 wires

MIL-W-81822 Specification	Insulation Material	Conductor Material	Temperature Rating	Page
MIL-W-81822/4	Extruded PTFE with polyimide “H” dip coating	Type A: Annealed solid ETP silver-plated copper Type B: Annealed solid OFHC silver-plated copper	200	89
MIL-W-81822/6	Extruded PTFE	Type C: Solid silver-plated high-strength copper alloy (Alloy 135)	200	90
MIL-W-81822/13	Extruded ETFE		150	91

Temperature in °C.

## MIL-W-81822 part numbering and example

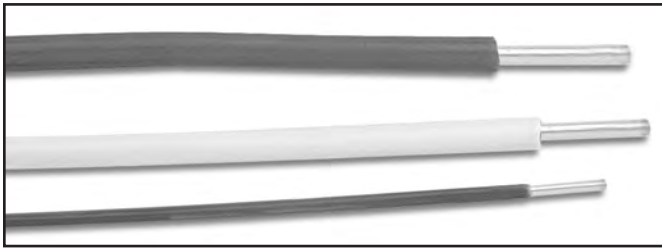
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Conductor material	
Letter	Material
A	Annealed solid ETP silver-plated copper
B	Annealed solid OFHC silver-plated copper
C	Solid silver-plated high-strength copper alloy (Alloy 135)

AWG size

Color code	
Number	Color
0	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	White

# MIL-W-81822/4 wire—PTFE/polyimide insulation



## Construction Details

**Insulation:** Thin-wall extruded PTFE with polyimide top coat.

**Conductor:** Type A: Silver-plated ETP copper;  
Type B: Silver-plated OFHC copper;  
Type C: Silver-plated high strength copper alloy.

**Colors:** Color coded to MIL-STD-104.

MIL-W-81822/4 wires have thin wall extruded PTFE insulation with a polyimide top coat for increased cut-through and abrasion resistance.

All have solid conductors for wire-wrap applications such as backpanel wiring, with a choice of three conductor materials.

## Performance:

**Voltage rating:** 300V.

**Temperature rating:** -55 to 200° C.

## Dimensions, Resistance, and Weights—type A conductor (silver-plated ETP copper)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/4-A20-*	20	.0320 (.813)	.0440 (1.12)	.0480 (1.22)	4.19 (6.24)	10.4 (34.1)	20-MTH-120
M81822/4-A22-*	22	.0253 (.643)	.0370 (.940)	.0410 (1.04)	2.80 (4.17)	16.8 (55.1)	22-MTH-122
M81822/4-A24-*	24	.0201 (.511)	.0325 (.826)	.0355 (.902)	1.91 (2.84)	26.5 (86.9)	24-MTH-124
M81822/4-A26-*	26	.0159 (.404)	.0280 (.711)	.0310 (.787)	1.32 (1.96)	42.7 (140)	26-MTH-126
M81822/4-A28-*	28	.0126 (.320)	.0250 (.635)	.0280 (.711)	.960 (1.43)	68.0 (223)	28-MTH-128
M81822/4-A30-*	30	.0100 (.254)	.0185 (.470)	.0205 (.521)	.550 (.817)	108 (355)	30-MMTH-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).

## Dimensions, Resistance, and Weights—type B conductor (silver-plated OFHC copper)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/4-B20-*	20	.0320 (.813)	.0440 (1.12)	.0480 (1.22)	4.19 (6.24)	10.4 (34.1)	20-MTOH-120
M81822/4-B22-*	22	.0253 (.643)	.0370 (.940)	.0410 (1.04)	2.80 (4.17)	16.8 (55.1)	22-MTOH-122
M81822/4-B24-*	24	.0201 (.511)	.0325 (.826)	.0355 (.902)	1.91 (2.84)	26.5 (86.9)	24-MTOH-124
M81822/4-B26-*	26	.0159 (.404)	.0280 (.711)	.0310 (.787)	1.32 (1.96)	42.7 (140)	26-MTOH-126
M81822/4-B28-*	28	.0126 (.320)	.0250 (.635)	.0280 (.711)	.960 (1.43)	68.0 (223)	28-MTOH-128
M81822/4-B30-*	30	.0100 (.254)	.0185 (.470)	.0205 (.521)	.550 (.817)	108 (355)	30-MMTOH-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).

## Dimensions, Resistance, and Weights—type C conductor (silver-plated high-strength copper alloy)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/4-B20-*	20	.0320 (.813)	.0440 (1.12)	.0480 (1.22)	4.19 (6.24)	12.2 (40.0)	20-MTTFH-120
M81822/4-B22-*	22	.0253 (.643)	.0370 (.940)	.0410 (1.04)	2.80 (4.17)	19.7 (64.6)	22-MTTFH-122
M81822/4-B24-*	24	.0201 (.511)	.0325 (.826)	.0355 (.902)	1.91 (2.84)	31.0 (102)	24-MTTFH-124
M81822/4-B26-*	26	.0159 (.404)	.0280 (.711)	.0310 (.787)	1.32 (1.96)	50.4 (165)	26-MTTFH-126
M81822/4-B28-*	28	.0126 (.320)	.0250 (.635)	.0280 (.711)	.960 (1.43)	79.4 (260)	28-MTTFH-128
M81822/4-B30-*	30	.0100 (.254)	.0185 (.470)	.0205 (.521)	.550 (.817)	126 (415)	30-MMTTFH-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).

# MIL-W-81822/6 wire—extruded PTFE insulation

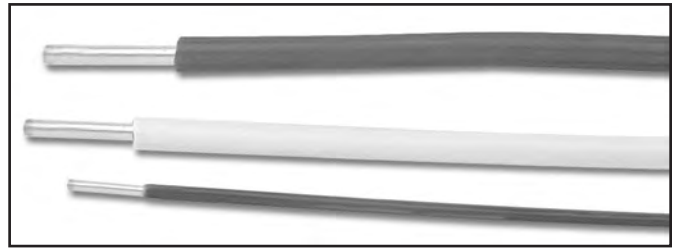
MIL-W-81822/6 wires have extruded PTFE insulation for high-temperature applications.

All have solid conductors for wire-wrap applications such as backpanel wiring, with a choice of three conductor materials.

## Performance:

**Voltage rating:** 300V.

**Temperature rating:** -55 to 200° C.



## Construction Details

**Insulation:** Thin-wall extruded PTFE.

**Conductor:** Type A: Silver-plated ETP copper;  
Type B: Silver-plated OFHC copper;  
Type C: Silver-plated high strength copper alloy.

**Colors:** Color coded to MIL-STD-104.

## Dimensions, Resistance, and Weights—type A conductor (silver-plated ETP copper)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/6-A20-*	20	.0320 (.813)	.0540 (1.37)	.0580 (1.47)	5.00 (7.44)	10.4 (34.1)	20-TE-120
M81822/6-A22-*	22	.0253 (.643)	.0460 (1.17)	.0500 (1.27)	3.43 (5.10)	16.8 (55.1)	22-TE-122
M81822/6-A24-*	24	.0201 (.511)	.0400 (1.02)	.0440 (1.12)	2.43 (3.62)	26.5 (86.9)	24-TE-124
M81822/6-A26-*	26	.0159 (.404)	.0290 (.737)	.0330 (.838)	1.43 (2.13)	42.7 (140)	26-MT-126
M81822/6-A28-*	28	.0126 (.320)	.0240 (.610)	.0280 (.711)	.970 (1.44)	68.0 (223)	28-MT-128
M81822/6-A30-*	30	.0100 (.254)	.0210 (.533)	.0240 (.610)	.670 (1.00)	108 (355)	30-MT-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).

## Dimensions, Resistance, and Weights—type B conductor (silver-plated OFHC copper)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/6-B20-*	20	.0320 (.813)	.0540 (1.37)	.0580 (1.47)	5.00 (7.44)	10.4 (34.1)	20-TEO-120
M81822/6-B22-*	22	.0253 (.643)	.0460 (1.17)	.0500 (1.27)	3.43 (5.10)	16.8 (55.1)	22-TEO-122
M81822/6-B24-*	24	.0201 (.511)	.0400 (1.02)	.0440 (1.12)	2.43 (3.62)	26.5 (86.9)	24-TEO-124
M81822/6-B26-*	26	.0159 (.404)	.0290 (.737)	.0330 (.838)	1.43 (2.13)	42.7 (140)	26-MTO-126
M81822/6-B28-*	28	.0126 (.320)	.0240 (.610)	.0280 (.711)	.970 (1.44)	68.0 (223)	28-MTO-128
M81822/6-B30-*	30	.0100 (.254)	.0210 (.533)	.0240 (.610)	.670 (1.00)	108 (355)	30-MTO-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).

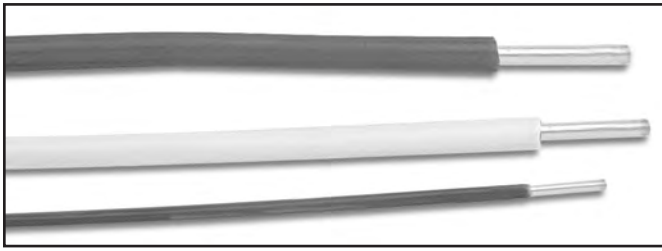
## Dimensions, Resistance, and Weights—type C conductor (silver-plated high-strength copper alloy)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/6-C20-*	20	.0320 (.813)	.0540 (1.37)	.0580 (1.47)	5.00 (7.44)	12.2 (40.0)	20-TETF-120
M81822/6-C22-*	22	.0253 (.643)	.0460 (1.17)	.0500 (1.27)	3.43 (5.10)	19.7 (64.6)	22-TETF-122
M81822/6-C24-*	24	.0201 (.511)	.0400 (1.02)	.0440 (1.12)	2.43 (3.62)	31.0 (102)	24-TETF-124
M81822/6-C26-*	26	.0159 (.404)	.0290 (.737)	.0330 (.838)	1.43 (2.13)	50.4 (165)	26-MTTF-126
M81822/6-C28-*	28	.0126 (.320)	.0240 (.610)	.0280 (.711)	.970 (1.44)	79.4 (260)	28-MTTF-128
M81822/6-C30-*	30	.0100 (.254)	.0210 (.533)	.0240 (.610)	.670 (1.00)	126 (415)	30-MTTF-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).

# MIL-W-81822/13 wire—extruded ETFE insulation



## Construction Details

**Insulation:** Extruded ETFE. Types noted as “V” in the charts below have ultra thin-wall insulation.

**Conductor:** Type A: Silver-plated ETP copper;  
Type B: Silver-plated OFHC copper;  
Type C: Silver-plated high strength copper alloy.

**Colors:** Color coded to MIL-STD-104.

MIL-W-81822/13 wires have extruded ETFE insulation for aerospace and other applications requiring light weight, tight jacket diameter tolerances, and enhanced mechanical toughness.

ETFE insulation also provides exceptional resistance to radiation and chemicals.

All have solid conductors for wire-wrap applications such as backpanel wiring, with a choice of three conductor materials.

## Performance:

**Voltage rating:** 300V.

**Temperature rating:** -55 to 150° C.

## Dimensions, Resistance, and Weights—type A conductor (silver-plated ETP copper)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/13-A20-*	20	.0320 (.813)	.0440 (1.12)	.0480 (1.22)	4.03 (6.00)	10.4 (34.2)	20-MCF-120
M81822/13-A22-*	22	.0253 (.643)	.0370 (.940)	.0410 (1.04)	2.66 (3.96)	16.8 (55.1)	22-MCF-122
M81822/13-A24-*	24	.0201 (.511)	.0325 (.826)	.0355 (.902)	1.80 (2.68)	26.5 (86.9)	24-MCF-124
M81822/13-A24V-*	24	.0201 (.511)	.0285 (.724)	.0315 (.800)	1.64 (2.44)	26.5 (86.9)	24V-MCF-124
M81822/13-A26-*	26	.0159 (.404)	.0280 (.711)	.0310 (.787)	1.22 (1.82)	42.7 (140)	26-MCF-126
M81822/13-A26V-*	26	.0159 (.404)	.0245 (.622)	.0275 (.699)	1.11 (1.65)	42.7 (140)	26V-MCF-126
M81822/13-A28-*	28	.0126 (.320)	.0250 (.635)	.0280 (.711)	.880 (1.31)	68.0 (223)	28-MCF-128
M81822/13-A28V-*	28	.0126 (.320)	.0215 (.546)	.0245 (.622)	.770 (1.15)	68.0 (223)	28V-MCF-128
M81822/13-A30-*	30	.0100 (.254)	.0185 (.470)	.0205 (.521)	.510 (.760)	108 (354)	30-MCF-130

## Dimensions, Resistance, and Weights—type B conductor (silver-plated OFHC copper)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/13-B20-*	20	.0320 (.813)	.0440 (1.12)	.0480 (1.22)	4.03 (6.00)	10.4 (34.1)	20-MCFO-120
M81822/13-B22-*	22	.0253 (.643)	.0370 (.940)	.0410 (1.04)	2.66 (3.96)	16.8 (55.1)	22-MCFO-122
M81822/13-B24-*	24	.0201 (.511)	.0325 (.826)	.0355 (.902)	1.80 (2.68)	26.5 (86.9)	24-MCFO-124
M81822/13-B24V-*	24	.0201 (.511)	.0285 (.724)	.0315 (.800)	1.64 (2.44)	26.5 (86.9)	24V-MCFO-124
M81822/13-B26-*	26	.0159 (.404)	.0280 (.711)	.0310 (.787)	1.22 (1.82)	42.7 (140)	26-MCFO-126
M81822/13-B26V-*	26	.0159 (.404)	.0245 (.622)	.0275 (.699)	1.11 (1.65)	42.7 (140)	26V-MCFO-126
M81822/13-B28-*	28	.0126 (.320)	.0250 (.635)	.0280 (.711)	.880 (1.31)	68.0 (223)	28-MCFO-128
M81822/13-B28V-*	28	.0126 (.320)	.0215 (.546)	.0245 (.622)	.770 (1.15)	68.0 (223)	28V-MCFO-128
M81822/13-B30-*	30	.0100 (.254)	.0185 (.470)	.0205 (.521)	.510 (.760)	108 (354)	30-MCFO-130

## Dimensions, Resistance, and Weights—type C conductor (silver-plated high-strength copper alloy)

M81822 P/N	AWG Size	Conductor Diameter	Insulation Diameter		Weight	Maximum Resistance	Thermax P/N
			Minimum	Maximum			
M81822/13-C20-*	20	.0320 (.813)	.0440 (1.12)	.0480 (1.22)	4.03 (6.00)	12.2 (40.0)	20-MCFTF-120
M81822/13-C22-*	22	.0253 (.643)	.0370 (.940)	.0410 (1.04)	2.66 (3.96)	19.7 (64.6)	22-MCFTF-122
M81822/13-C24-*	24	.0201 (.511)	.0325 (.826)	.0355 (.902)	1.80 (2.68)	31.0 (102)	24-MCFTF-124
M81822/13-C24V-*	24	.0201 (.511)	.0285 (.724)	.0315 (.800)	1.64 (2.44)	31.0 (102)	24V-MCFTF-124
M81822/13-C26-*	26	.0159 (.404)	.0280 (.711)	.0310 (.787)	1.22 (1.82)	50.4 (165)	26-MCFTF-126
M81822/13-C26V-*	26	.0159 (.404)	.0245 (.622)	.0275 (.699)	1.11 (1.65)	50.4 (165)	26V-MCFTF-126
M81822/13-C28-*	28	.0126 (.320)	.0250 (.635)	.0280 (.711)	.880 (1.31)	79.4 (260)	28-MCFTF-128
M81822/13-C28V-*	28	.0126 (.320)	.0215 (.546)	.0245 (.622)	.770 (1.15)	79.4 (260)	28V-MCFTF-128
M81822/13-C30-*	30	.0100 (.254)	.0185 (.470)	.0205 (.521)	.510 (.760)	126 (413)	30-MCFTF-130

Dimensions in inches (mm). Weight is maximum in pounds/1000 feet (Kg/1000 M). Resistance in  $\Omega$ /1,000 feet ( $\Omega$ /Km), @20° C.

\* Add color coding per MIL-STD-104 (see page 88).