

# 3M™ Shielded/Jacketed, Flat Cable

.050" 28 AWG Stranded, Twisted Pair, PVC/PVC

1785 Series



- Meets external wiring requirements of National Electrical Code, Article 725
- UL listed for US and Canadian markets
- Expanded copper shielding provides easier termination than aluminum/mylar shielding
- 360 degree expanded copper shielding provides 20 db average shielding effectiveness
- Twist and flat repeat has variable length options
- RoHS\* compliant

Date Modified: June 17, 2008

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## Physical

**Jacket Material:** Polyvinyl Chloride (PVC)

Color: Black

**Primary Material:** PVC

Color: 10 Color Repeat with Tan Common

**Marking Standard:** (UL) CL2 75C 28 AWG OR AWM 2912 3M NU C  AWM IIA/B 80C 150V FT1 EU <50V

**Conductors:** 28 AWG, 7 x 36 AWG [7 x Ø 0.127] Tinned Stranded Copper

**Shielding:** Expanded Copper

## Electrical

**Voltage Rating:** USA: N.E.C. 725, CL2 or AWM 150V Canada: 150V EU: <50V

**Insulation Resistance:** (Primary Cable)  $>1 \times 10^9 \Omega / 10 \text{ ft} [3 \text{ m}]$

**Characteristic Impedance:** Unbalanced

67  $\Omega$

**Balanced**

118  $\Omega$

**Capacitance:** 24.7 pF/ft [ 81.0 pF/m ]

13.8 pF/ft [ 45.3 pF/m ]

**Inductance:** 0.11  $\mu\text{H}/\text{ft}$  [ 0.36  $\mu\text{H}/\text{m}$  ]

0.19  $\mu\text{H}/\text{ft}$  [ 0.62  $\mu\text{H}/\text{m}$  ]

**Propagation Delay:** 1.65 ns/ft [ 5.41 ns/m ]

1.63 ns/ft [ 5.35 ns/m ]

**Velocity of Propagation:** 62%

62%

Note: Unbalanced is measured between conductors within a pair with one conductor connected to the shield. Balanced is measured between conductors within a pair with the shield floating..

## Environmental

**Temperature Rating:** USA: CL2;75°C or AWM:-20°C to +80°C Canada: 80°C

**Flammability Rating:** USA: N.E.C. 725, CL2

Canada: FT1

\*"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. This information represents 3M's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

UL File No.: E118773, Power Limited Circuit Cable CL2: (or AWM Style 2912)

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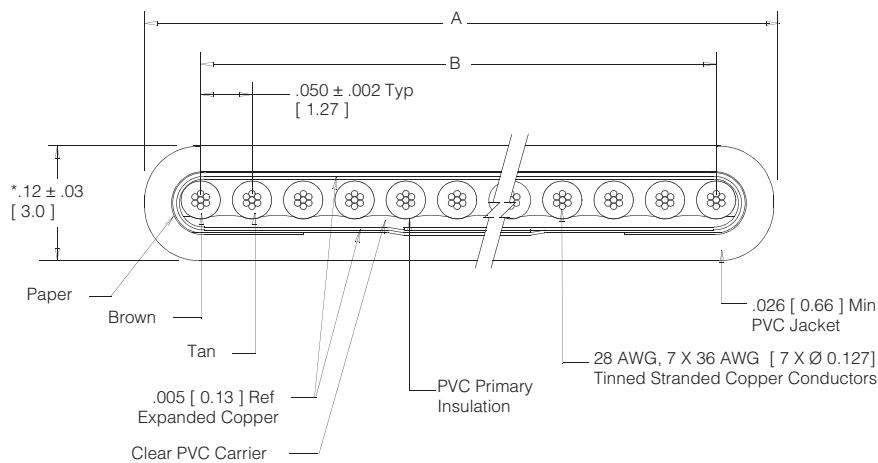
.050" 28 AWG Stranded, Twisted Pair, PVC/PVC

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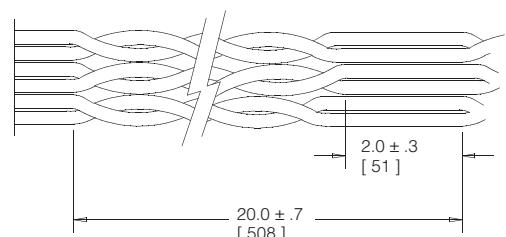
Number of Conductors	3M Part Number	Dimension A	Dimension B
10 (5 pair)	1785/10	0.63 [16.0]	0.450 ± .010 [11.43]
16 (8 pair)	1785/16	0.93 [23.6]	0.750 ± .015 [19.05]
20 (10 pair)	1785/20	1.13 [28.7]	0.950 ± .015 [24.13]
26 (13 pair)	1785/26	1.43 [36.3]	1.250 ± .015 [31.75]
34 (17 pair)	1785/34	1.83 [46.5]	1.650 ± .020 [41.91]
36 (18 pair)	1785/36	1.93 [49.0]	1.750 ± .020 [44.45]
40 (20 pair)	1785/40	2.13 [54.1]	1.950 ± .020 [49.53]
50 (25 pair)	1785/50	2.63 [66.8]	2.450 ± .020 [62.23]
60 (30 pair)	1785/60	3.13 [79.5]	2.950 ± .020 [74.93]
64 (32 pair)	1785/64	3.38 [85.9]	3.150 ± .020 [80.01]

## Section Through Termination Area



10 Color Repeat

Brown/Tan  
Red/Tan  
Orange/Tan  
Yellow/Tan  
Green/Tan  
Blue/Tan  
Violet/Tan  
Gray/Tan  
White/Tan  
Black/Tan



\* Caliper in Twist Area is .15 ± .03 [ 3.8 ]

Example of alternate twist and flat repeats

Variable Flat-Repeat Length Suffix Table		
Alternative Twist and Flat Repeats		
Suffix	Repeat (in.)	Flat (in.)
Blank (Standard)	20.0	2.0
TO	22.0	4.0
TB	7.5	1.0
TD	43.0	3.0
BP	9.0	1.5
BA	10.5	2.0
BW	34.0	2.0

Inch  
[mm]

Tolerance Unless Noted			
	.0	.00	.000
Inch	±.1	±.05	±.010

[ ] Dimensions for Reference Only

## Ordering Information

1785/XX XX X00 XX

Number of Conductors  
(See Table)

Blank = Standard  
SF = Splice Free

Length of Roll in Feet  
100 = 100 ft Standard  
200 = 200 ft Standard

Blank = Standard

Variable Flat-Repeat Length  
(See Variable Flat-Repeat Length Suffix Table)

Note:

1. The twist-flat repeat can be specified from 8.5 inches (16.5 cm) to 48 inches (1.219 m), and the flat can be specified as anything over 1 inch (2.54 cm).
2. Contact 3M for availability of custom roll lengths or other special requirements.

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