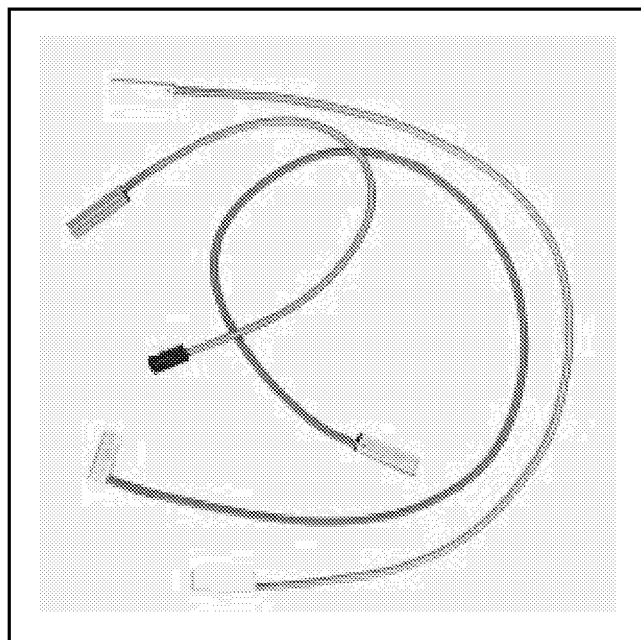


# Shielded Controlled Impedance (SCI)

Cable Assemblies



213

**Stand-Alone version**  
**Carrier version**

## IMPORTANT NOTICE TO PURCHASER

ALL STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON TESTS WE BELIEVE TO BE RELIABLE, BUT THE ACCURACY OR COMPLETENESS THEREOF IS NOT GUARANTEED, AND THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED:

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Date Issued: October 2, 1998

TS-0803-02  
Sheet 1 of 3

## Physical

### Connector Insulation

Material: Thermoplastic  
Flammability: UL 94V-0

### Connector Contact

Material: Beryllium Copper  
Plating: 50/50  $\mu$ " Au/Ni (1.27/1.27  $\mu$ m Au/Ni)

### Connector Shieldbox

Material: Copper Zinc Alloy  
Plating: Solderable Nickel

## Electrical

**Insulation Resistance:**  $>5 \times 10^9 \Omega$

**Withstanding Voltage:** 500 Vdc

**Characteristic Impedance:**  $50 \pm 3 \Omega$ , Bandwidth 3 GHz

**Characteristic Impedance:**  $75 \pm 5 \Omega$ , Bandwidth 1 GHz

## Environmental

**Temperature Rating:** 20, 21, 22, 23:  $-55$  to  $+105^\circ\text{C}$ ;  
24:  $-55$  to  $+125^\circ\text{C}$

## Mechanical

**Center Spacing:** .100" (2.54 mm)

**Mating Pin Dimensions:** .024" min/.026" max (0.61 mm/0.665 mm)

**Mating Pin Length:** 20, 21, 22, 23: .23" nom (5.80 mm); 24: .21" nom (5.02 mm)

**Contact Mating Point 20, 21, 22, 23:** .13" (3.40 mm); 24: .10" (2.60 mm)

**Connector Insertion Force:** 2.3 N max [Pin:0.025" (0.63 mm)]

**Connector Withdrawal Force:** 1.5 N min [Pin:0.025" (0.63 mm)]

**Cable Retention Force:** 50 N min

**Durability (Insertion/Withdrawal):** 500 cycles

UL File No.: E86982 (Optional)

### 3M Electronic Products Division

6801 River Place Blvd.  
Austin, TX 78726-9000

For Technical information and quoting call

**800-334-7372**

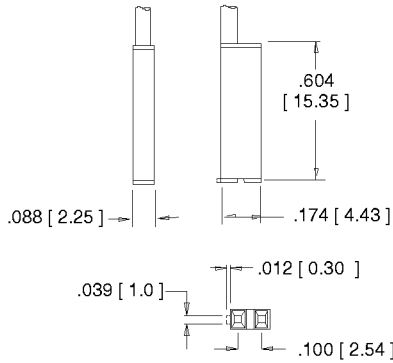
For ordering information call

**800-225-5373**

### Connector Specifications

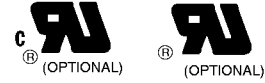
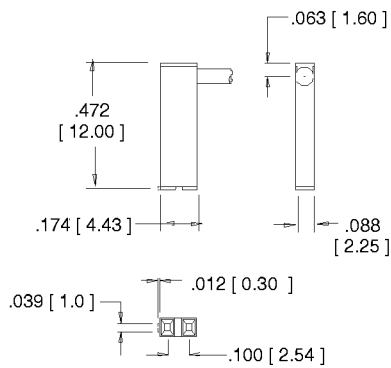
#### Stand Alone Connector

##### Type 21, 23



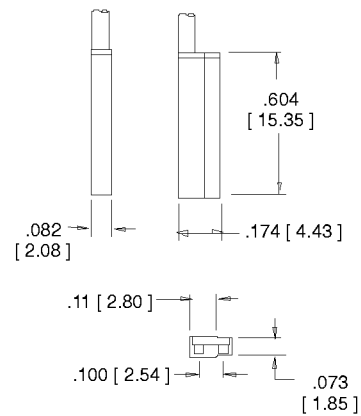
#### Right Angle Version

##### Type 20, 22



#### Carrier Version

##### Type 24



### Ordering Information

#### 98XXXX-XXX-XXX.X X

Left Connector Type/Right Connector Type

- 20 = Right angle, polarized
- 21 = Straight, polarized
- 22 = Right angle, nonpolarized
- 23 = Straight, nonpolarized
- 24 = Carrier version, straight

Cable Type

- 017 = 50 Ω
- 041 = 75 Ω
- XXX = For other cable options contact 3M (if non standard)

Length Tolerance

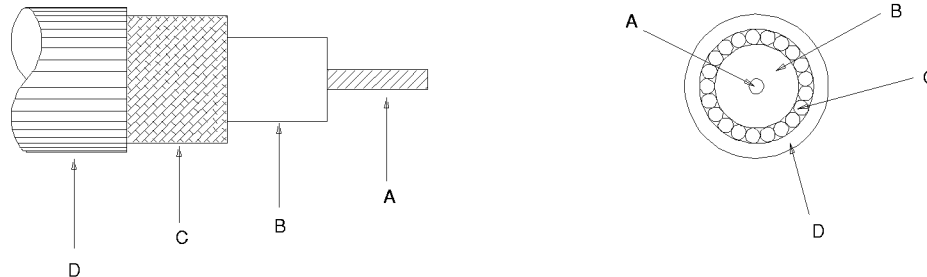
- <10": ±1/4"
- 10" to 36": ±1/2"
- 36" to 120": ±1"
- >120": ±2"
- Minimum Length: 4.3"

Certification

- Y = CUL
- N = No Certification

TS-0803-02  
Sheet 2 of 3

### Cable Specification



#### Mechanical Specifications (TYP)

Cable Type		A Center Conductor	B Dielectric Material	C Shield (Braid)	D Jacket
017	50 Ω ± 2 Ω	30 AWG SCCC S Stranded (7/38) .012" O.D. (0.30 mm O.D.)	PTFE .033" O.D. (0.84 mm O.D.)	38 AWG SPC Braid 95% nominal coverage .059" O.D. (1.50 mm O.D.)	FEP Natural Color .07" O.D. (1.90 mm O.D.)
041	75 Ω ± 3 Ω	30 AWG SPC Stranded (7/38) .012" O.D. (0.30 mm O.D.)	FEP .045" O.D. (1.1 mm O.D.)	40 AWG TPC Braid 90% nominal coverage .059" O.D. (1.50 mm O.D.)	FEP Gray Color .074" O.D. (1.88 mm O.D.)

#### Electrical Specifications (TYP)

Cable Type		Capacitance	Propagation Delay	Attenuation	Conductor Resistance
017	50 Ω ± 2 Ω	32 pF/ft Max (105 pF/m Max)	1.46 ns/ft nominal (4.8 ns/m nominal)	33 dB Max/100 ft @ 400 MHz (108 dB/100 m)	.24 Ω/ft at 68°F (0.8 Ω/m at 20°C)
041	75 Ω ± 3 Ω	16 pF/ft Max (52 pF/m Max)	1.22 ns/ft nominal (4.0 ns/m nominal)	10 dB Max/100 ft @ 100 MHz (27.5 dB/100 m)	.09 Ω/ft at 68°F (0.3 Ω/m at 20°C)

**Inch**  
[mm]

Tolerance Unless Noted			
	.0	.00	.000
Inch	± .1	± .01	± .005

[ ] Dimensions for  
Reference only

TS-0803-02  
Sheet 3 of 3