

CABLE DRAWING: MWA-3017

DRAWING TITLE:  
**AC Temperature Monitoring Cable**

DRAWING NO.: <b>MWACAB-0017</b>	DRAWN BY: <b>DRC</b>	DATE: 15-Nov-10	REV: <b>A</b>
		SHEET: 1 of 3	

**Cable Detail:**

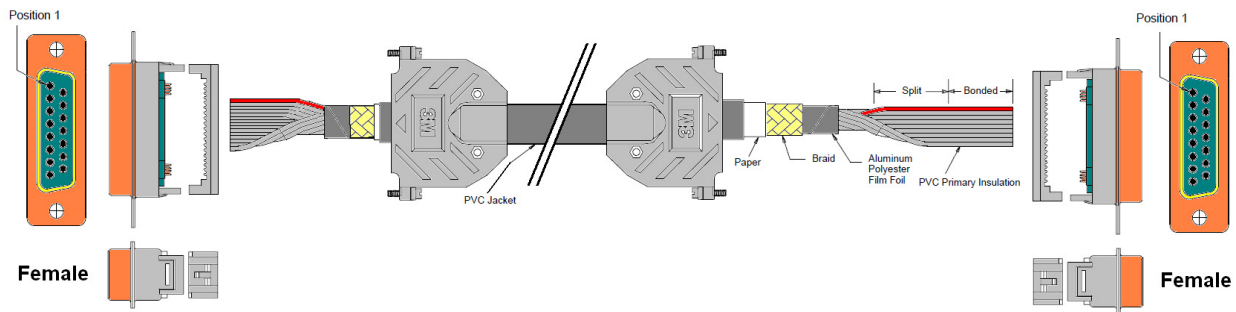
Connectors:	Description	Parts (Qty)
TempMon-AC & SBC	DA15 Female IDC	See Note1 Below(1)
Conductors:		
Cable	Ribbon Cable, Rnd/Flat, 15Way	See Note2 Below(130cm)
Misc:		
Backshell	For Connectors	See Note3 Below(2)
Numbering	Attach Cable Numbers 1 & 7 (Supplier to specify)	See Note4 Below

Overall Length 1200+/-5mm

**Notes:**

1. DA15 Female IDC connector can be supplied from Element14 #469-427. Any equivalent will be OK refer to data sheets supplied with this drawing.
2. The ribbon cable can be supplied from Element14 #297-562. Any equivalent will be OK refer to data sheets supplied with this drawing.
3. The connector backshells can be supplied from Element14 #167-2005. Any equivalent will be OK refer to data sheets supplied with this drawing
4. Cable numbering parts are left to the cable manufacture to decide, only the last two digits are required, for example "MWACAB-0017" is designated as "17" on the cable.

**Typical Drawing:**



**REVISION**

Date	Rev	Remarks
22/06/10	A	Draft
15/11/10	A	Changed one pin to 3V3mcc for sensor power if required.

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		SHEET: 2 of 3	

**Typical Photo:**



**REVISION**

Date	Rev	Remarks
22/06/10	A	Draft
15/11/10	A	Changed one pin to 3V3mcc for sensor power if required.

CABLE DRAWING: MWA-3017

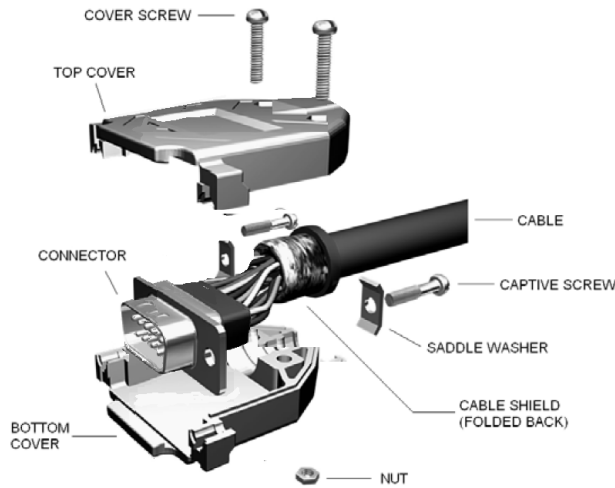
DRAWING TITLE:  
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DRAWING NO.: <b>MWACAB-0017</b>	DRAWN BY: <b>DRC</b>	DATE: 15-Nov-10	REV: <b>A</b>
		SHEET: 3 of 3	

**Pinouts Table:**

AC TempMon Pins(15)		SBC-TempMon Pins(15)
1	Sense1	1
2	Sense2	2
3	Sense3	3
4	Sense4	4
5	Sense5	5
6	Sense6	6
7	Sense7	7
8	Sense8	8
9	3V3mcc	9
10	0V	10
11	0V	11
12	0V	12
13	0V	13
14	0V	14
15	0V	15

**Assembly Details:**



**Connection Detail:**

From: (AC TempMon) AC Control Box  
To: (SBC) SBC Front Panel TempMon Connector

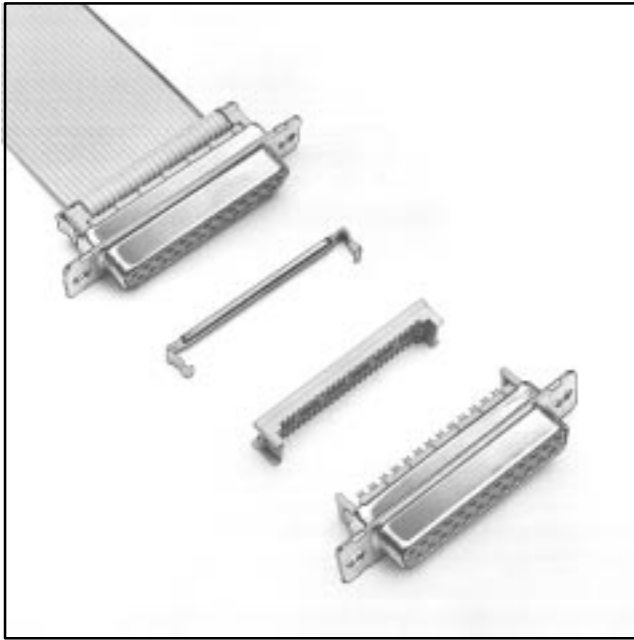
**REVISION**

Date	Rev	Remarks
22/06/10	A	Draft
15/11/10	A	Changed one pin to 3V3mcc for sensor power if required.

# D Sub

## Socket Connector

8300 Series



57

- Available in either preassembled or two piece covers
- Available in either open or closed end cover
- Improved metal strain relief — hooks directly to metal shell
- Low profile
- Four mounting options

Date Modified: September 29, 1999

TS-0235-17  
Sheet 1 of 3

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## Physical

### Insulation

Material: Glass Filled Polyester (PBT)  
Flammability: UL 94V-0  
Color: Gray

### Contact

Material: Copper Alloy  
Plating  
Underplate: 100  $\mu$ " (1.27  $\mu$ m) Nickel — QQ-N-290, Class 2  
Wiping Area: 30  $\mu$ " (0.76  $\mu$ m) Gold — MIL-G-45204, Type II, Grade C

### Shell

Material: Steel  
Plating: Tin

**Strain Relief Material:** Stainless Steel .016 (0.40) Thick

**Wire Accommodation:** 26 & 28 AWG Solid or Stranded

**Marking:** 3M Logo & Contact Position Numbers

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## Electrical

**Current Rating:** 1 A

**Insulation Resistance:**  $> 1 \times 10^9 \Omega$  at 500 VDC

**Withstanding Voltage:** 1000 Vrms at Sea Level

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## Environmental

**Temperature Rating:**  $-55^\circ$  to  $+105^\circ$

UL File No.: E68080

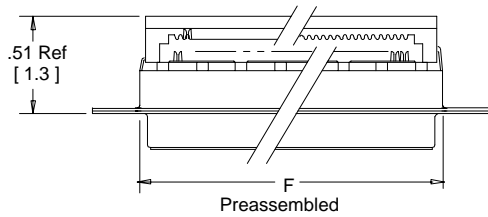
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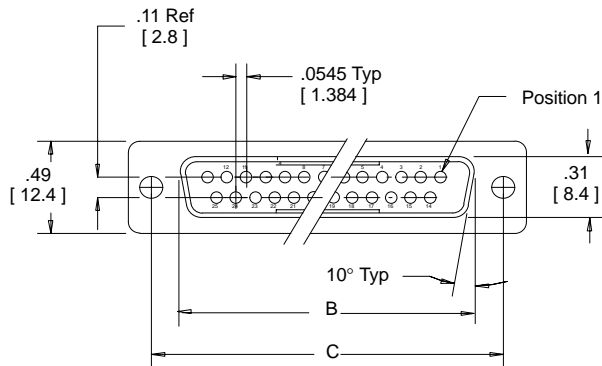
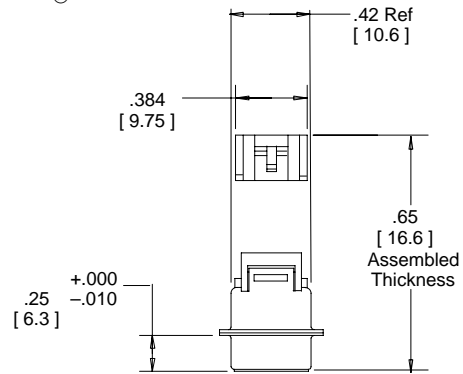
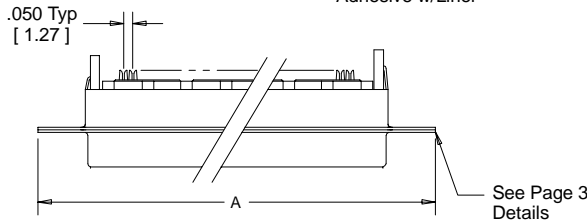
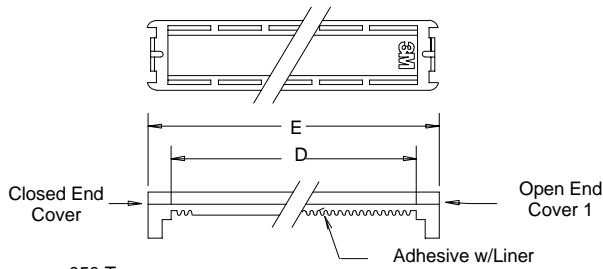
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Contact Quantity	Dimensions					
	A	B	C	D	E	F ± .008
09	1.23 [ 31.2 ]	.64 [ 16.3 ]	.98 [ 24.9 ]	.46 [ 11.7 ]	.67 [ 17.0 ]	.70 [ 17.7 ]
15	1.56 [ 39.6 ]	.97 [ 25.6 ]	1.31 [ 33.3 ]	.76 [ 19.3 ]	.99 [ 25.2 ]	1.03 [ 26.2 ]
25	2.10 [ 53.3 ]	1.51 [ 38.4 ]	1.85 [ 47.0 ]	1.27 [ 32.3 ]	1.54 [ 39.1 ]	1.57 [ 39.9 ]
37	2.74 [ 69.6 ]	2.16 [ 54.9 ]	2.50 [ 63.5 ]	1.87 [ 47.5 ]	2.19 [ 55.6 ]	2.22 [ 56.4 ]



Note: Preassembled closed cover on Pin 1 side of connector.



Inch  
[mm]

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

[ ] Dimensions for Reference only

### Ordering Information

#### Connector 83XX-X00X

Contact Quantity

Cover Style:  
6 = Open Cover  
7 = Closed Cover  
8 = Open Cover, w/o Adhesive, Preassembled  
9 = Closed Cover, w/o Adhesive, Preassembled

Mounting Style:  
0 = ∅ .120 [ 3.05 ]  
3 = 4-40 UNC  
4 = M3

#### Strain Relief (Order Separately) 3448-8DXXA

09 = 9 Position  
15 = 15 Position  
25 = 25 Position  
37 = 37 Position

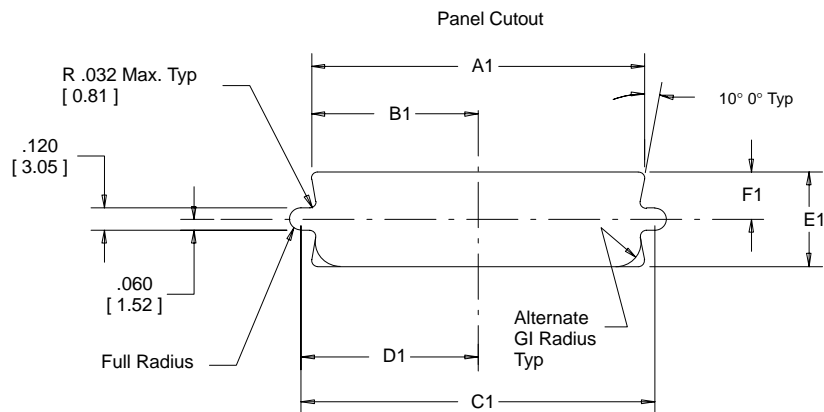
TS-0235-17  
Sheet 2 of 3

# D Sub Socket Connector

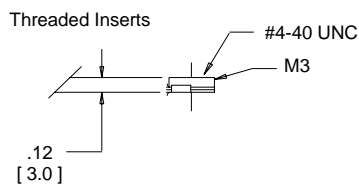
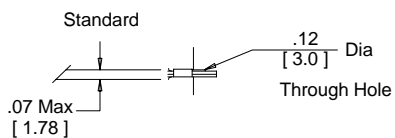
8300 Series

Mounting Method*	Contact Quantity	Dimensions						
		A1	B1	C1	D1	E1	F1	G1
Front	9	.87 [ 22.0 ]	.44 [ 11.2 ]	.98 [ 24.9 ]	.49 [ 12.5 ]	.51 [ 13.0 ]	.26 [ 6.6 ]	.12 [ 3.1 ]
	15	1.20 [ 30.5 ]	.60 [ 15.2 ]	1.31 [ 33.3 ]	.66 [ 16.8 ]			
	25	1.74 [ 44.2 ]	.87 [ 22.1 ]	1.85 [ 47.0 ]	.93 [ 23.6 ]			
	37	2.39 [ 60.7 ]	1.20 [ 30.5 ]	2.50 [ 63.5 ]	1.25 [ 31.8 ]			
Rear	9	0.81 [ 20.6 ]	.40 [ 10.2 ]	.98 [ 25.0 ]	.49 [ 12.5 ]	0.45 [ 11.4 ]	0.22 [ 5.8 ]	.12 [ 3.1 ]
	15	1.13 [ 28.7 ]	.57 [ 14.5 ]	1.31 [ 33.3 ]	.66 [ 16.8 ]			
	25	1.67 [ 42.4 ]	.84 [ 21.3 ]	1.85 [ 47.0 ]	.93 [ 23.6 ]			
	37	2.33 [ 59.2 ]	1.16 [ 29.5 ]	2.50 [ 63.5 ]	1.25 [ 31.8 ]			

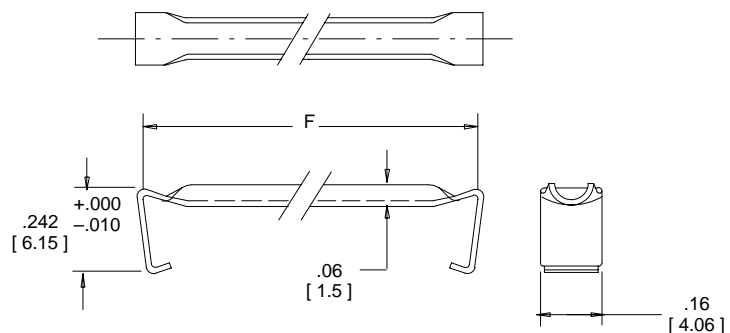
\* Front Mount—The connector is mounted in front of the panel.  
Rear Mount—The connector is mounted behind the panel.



### Mounting Styles



### Strain Relief (Order Separately or with Connector)



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Sheet 3 of 3

## 3M Interconnect Solutions Division

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Austin, TX 78726-9000

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**800-225-5373**

# .050" Round, Shielded/Jacketed, Flat Cable

28 AWG Stranded, Mass-Term, PVC/PVC

3659 Series



- Round construction permits easier routing
- 28 AWG wire on .050 inch pitch permits mass termination to broad line of IDC connectors
- Continuous split/bond repeat allows for mass termination on 2.4 inch centers (approximate)
- Primary cable is zippable for branching or discrete terminations
- Meets external wiring requirements of National Electrical Code, Article 725 (CL2)
- UL listed for USA and Canadian markets
- Dual shielding provides 35 db average shielding effectiveness

Date Modified: July 29, 1999

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Sheet 1 of 2

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## Physical

### Jacket


Material: Polyvinyl Chloride (PVC)

Color: Black

**Primary Material:** PVC

Color: Gray

### Marking

Standard: (UL) CL2 75C 28 AWG or AWM 20267 3M NU  AWM IIA/B 80C 300V FT1  
EU <50V

**Conductors:** 28 AWG 7 × 36 [ 7 × 0.127 ] Tinned Stranded Copper

**Shielding:** .001 [ 0.03 ] Thick Aluminum/Polyester Film Foil and 90% Coverage Tinned Copper Braid

## Electrical

**Voltage Rating:** USA: N.E.C. 725, CL2 or AWM; 300V      Canada: 300V      EU: <50V

**Insulation Resistance:**  $> 1 \times 10^{10} \Omega/10 \text{ ft. [ 3m ]}$

	Unbalanced	Balanced
<b>Characteristic Impedance</b>	62 $\Omega$	106 $\Omega$
<b>Capacitance</b>	27.7 pF/ft. [ 90.88 pF/m ]	15.2 pF/ft. [ 49.9 pF/m ]
<b>Inductance</b>	.13 $\mu\text{H}/\text{ft. [ 0.43 } \mu\text{H/m ]}$	.20 $\mu\text{H}/\text{ft. [ 0.66 } \mu\text{H/m ]}$
<b>Propagation Delay</b>	1.72 ns/ft. [ 5.64 ns/m ]	1.62 ns/ft. [ 5.32 ns/m ]
<b>Velocity of Propagation</b>	59%	62%

Note: Unbalanced is measured between ground-signal-ground conductors with shield grounded. Balanced is measured between signal conductors within a pair, with the shield floating.

## Environmental

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

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

UL File No.: E118773, Power Limited Circuit Cable: CL2 (or AWM Style 20267)

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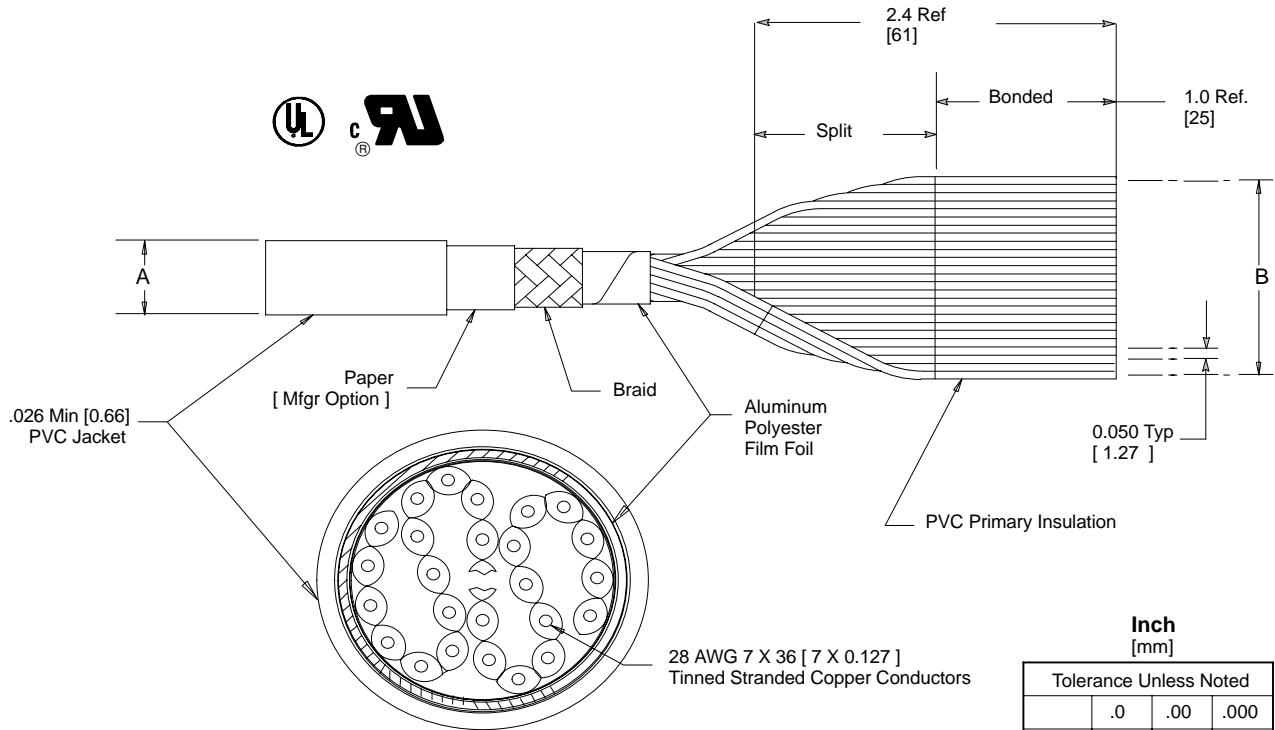
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# .050" Round, Shielded/Jacket, Flat Cable

## 28 AWG Stranded, Mass-Term, PVC/PVC

3659 Series

Number of Conductors	3M Part Number	Dimension A ± .03	Dimension B Ref (See Note 2)
09	3659/09	0.27 [ 6.9 ]	0.40 [ 10.2 ]
10	3659/10	0.27 [ 6.9 ]	0.45 [ 11.4 ]
14	3659/14	0.31 [ 7.9 ]	0.65 [ 16.5 ]
15	3659/15	0.31 [ 7.9 ]	0.70 [ 17.8 ]
16	3659/16	0.31 [ 7.9 ]	0.75 [ 19.1 ]
20	3659/20	0.34 [ 8.6 ]	0.95 [ 24.1 ]
24	3659/24	0.37 [ 9.4 ]	1.15 [ 29.2 ]
25	3659/25	0.37 [ 9.4 ]	1.20 [ 30.5 ]
26	3659/26	0.37 [ 9.4 ]	1.25 [ 31.8 ]
34	3659/34	0.41 [ 10.4 ]	1.65 [ 41.9 ]
36	3659/36	0.43 [ 10.9 ]	1.75 [ 44.5 ]
37	3659/37	0.43 [ 10.9 ]	1.80 [ 45.7 ]
40	3659/40	0.43 [ 10.9 ]	1.95 [ 49.5 ]
50	3659/50	0.48 [ 12.2 ]	2.45 [ 62.2 ]
60	3659/60	0.51 [ 13.0 ]	2.95 [ 74.9 ]
64	3659/64	0.54 [ 13.7 ]	3.15 [ 80.0 ]



**Inch [mm]**

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

[ ] Dimensions for Reference only

- Notes:
1. Red marking on one edge of primary cable designates wire #1.
  2. Dimension B pertains to bonded area only.

### Ordering Information

**3659X/XX**

Jacket Color Options  
 Blank = "Standard" Black Jacket  
 C = "Special" Cream Jacket  
 G = "Special" Gray Jacket  
 L = "Special" Light Olive Jacket

Number of Conductors  
 (See Table)

Note: Available in standard length of 100 or 300 ft/roll, please specify when ordering.

TS-0083-14  
 Sheet 2 of 2

### 3M Interconnect Solutions Division

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# 3M™ D Sub EMI Junction Shell

Metalized Plastic



- Protection from EMI/ESD
- Easy assembly reduces time and labor for low cost
- Light weight and a compact design
- Strain Relief compensates for multiple cable diameters
- Jack screws provide positive retention
- RoHS\* compliant

Date Modified: January 15, 2007

TS-2132-02  
Sheet 1 of 3

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## Physical

### Shell and Hardware

Shell Material: ABS

Shell Plating: Nickel Over Copper

Hardware: (2) Jackscrews #4-40 × .438"

(2) Saddle Washers #4

(2) Nuts #4-40

(2) Screws #4-40 × .450"

Material: Steel

Plating: Bright Zinc

### Compression Insert:

Material: Thermo Plastic Elastomer

Flammability: UL 94HB

Durometer: 75 + / -5

Mounting Hardware: See Specification Sheet TS-0142

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## Environmental

Temperature Rating: 0°C to +75°C

"RoHS compliant" means that the product or part does not contain any of the following substances in excess of the following maximum concentration values in any homogeneous material, unless the substance is in an application that is exempt under RoHS: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's knowledge and belief based upon information provided by third party suppliers to 3M.

# 3M™ D Sub EMI Junction Shell

Metalized Plastic

Inch		[mm]	
Tolerance Unless Noted			
	.0	.00	.000
inch	±.1	±.01	±.005

[ ] Dimensions for Reference Only

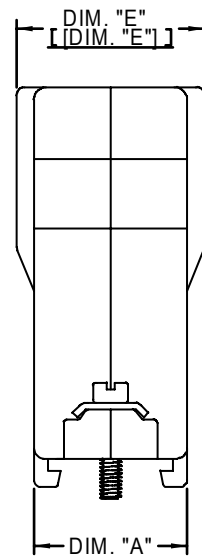
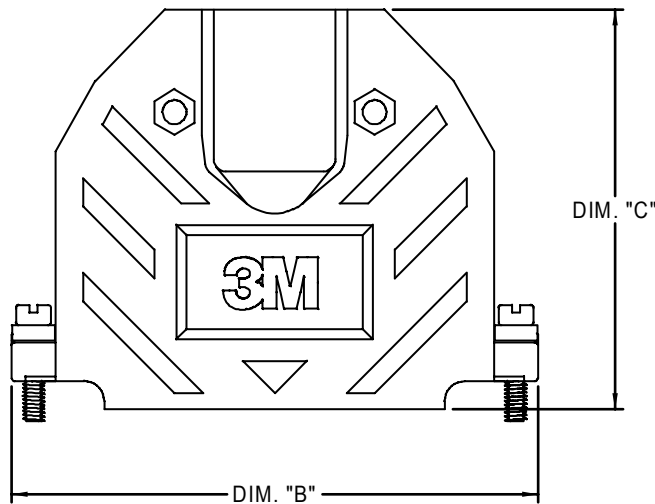
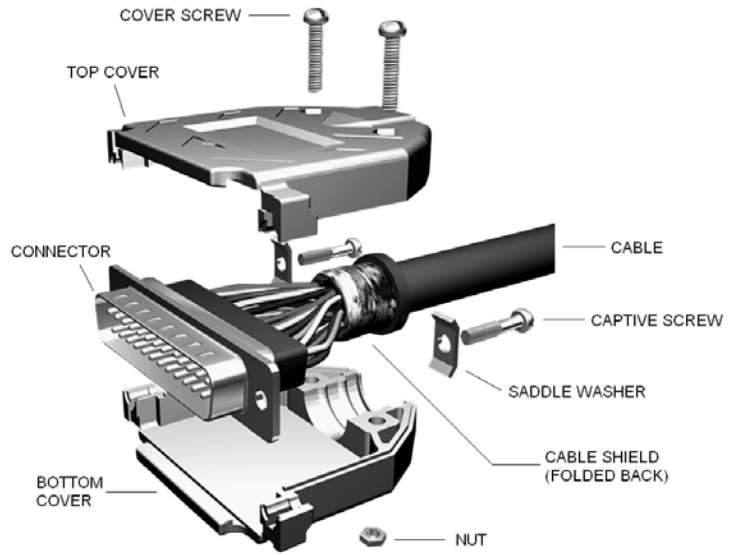
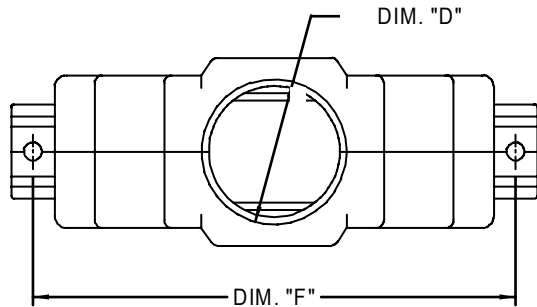


Table 1 - Junction Shell

3M Part Number	Dimensions						Cable O.D. Range	
	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Dim. "E"	Dim. "F"	Min	Max*
3357-6209-1C	.640 [16.26]	1.217 [30.91]	1.692 [42.98]	.400 [10.16]	N/A	.984 [24.99]	0.19 [4.8]	0.35 [8.9]
3357-6215-1C		1.540 [39.12]	1.650 [41.91]	.400 [10.06]	N/A	1.312 [33.32]	0.19 [4.8]	0.35 [8.9]
3357-6225-1C		2.090 [53.08]	1.800 [45.72]	.522 [13.26]	.710 [18.03]	1.857 [47.17]	0.19 [4.8]	0.46 [11.7]
3357-6237-1C		2.734 [69.44]	1.975 [50.17]	.726 [18.44]	.906 [23.01]	2.500 [63.50]	0.30 [7.6]	0.68 [17.27]
3357-6250-1C		.770 [19.56]	2.645 [67.18]	2.000 [50.80]	.726 [18.44]	.940 [23.88]	2.406 [61.11]	0.30 [7.6]

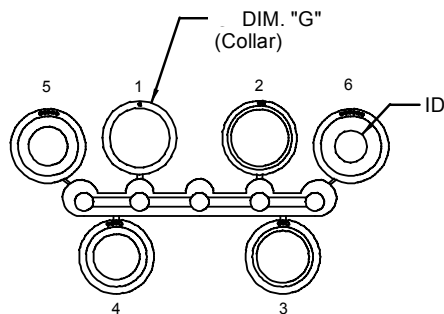
Note: \*These numbers will vary depending upon the compressibility of the wire.

**Backshell Dimension Table**  
**Table 1**

TS-2132-02  
Sheet 2 of 3

# 3M™ D Sub EMI Junction Shell

Metalized Plastic



**Elastomeric Backshell Inserts  
Figure 1**

**Table 2 - Compression Inserts**

Insert For	Dimensions												G
	1		2		3		4		5		6		
	OD	ID	OD	ID	OD	ID	OD	ID	OD	ID	OD	ID	
3357-6209	0.475 [ 12.07 ]	0.320 [ 8.13 ]	0.360 [ 9.14 ]	0.315 [ 8.00 ]	0.360 [ 9.14 ]	0.285 [ 7.24 ]	0.360 [ 9.14 ]	0.255 [ 6.48 ]	0.360 [ 9.14 ]	0.210 [ 5.33 ]	N/A	N/A	0.475 [ 12.07 ]
3357-6215	0.600 [ 15.24 ]	0.450 [ 11.43 ]	0.450 [ 11.43 ]	0.410 [ 10.41 ]	0.450 [ 11.43 ]	0.370 [ 9.40 ]	0.450 [ 11.43 ]	0.300 [ 7.62 ]	0.450 [ 11.43 ]	0.230 [ 5.84 ]	N/A	N/A	0.600 [ 15.24 ]
3357-6225	0.655 [ 16.64 ]	0.650 [ 16.51 ]	0.700 [ 17.78 ]	0.620 [ 15.75 ]	0.810 [ 20.57 ]	0.570 [ 14.48 ]	0.655 [ 16.64 ]	0.500 [ 12.70 ]	0.655 [ 16.64 ]	0.425 [ 10.80 ]	0.655 [ 16.64 ]	0.350 [ 8.89 ]	0.810 [ 20.57 ]
3357-6237	0.810 [ 20.57 ]	0.650 [ 16.51 ]	0.700 [ 17.78 ]	0.620 [ 15.75 ]	0.655 [ 16.64 ]	0.570 [ 14.48 ]	0.655 [ 16.64 ]	0.500 [ 12.70 ]	0.655 [ 16.64 ]	0.425 [ 10.80 ]	0.655 [ 16.64 ]	0.350 [ 8.89 ]	0.810 [ 20.57 ]

**Cable Insert Dimension Table  
Table 2**

## Ordering Information

**3357-62XX-1C**

Backshell Size  
09 = 9 Pin  
15 = 15 Pin  
25 = 25 Pin  
37 = 37 Pin  
50 = 50 Pin

TS-2132-02  
Sheet 3 of 3

## Important Notice

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Minimum 10%  
Post-Consumer Fiber

Printed in USA.

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