

CABLE DRAWING: **CAB-0XXX (SALEM CODE)**

DRAWING TITLE:  
**ATIM-T Control Cable**

DRAWING NO.: <b>MWACAB-0019</b>	DRAWN BY: <b>DRC</b>	DATE: 22-Dec-09	REV: <b>A</b>
		SHEET: 1 of 3	

**Cable Detail:**

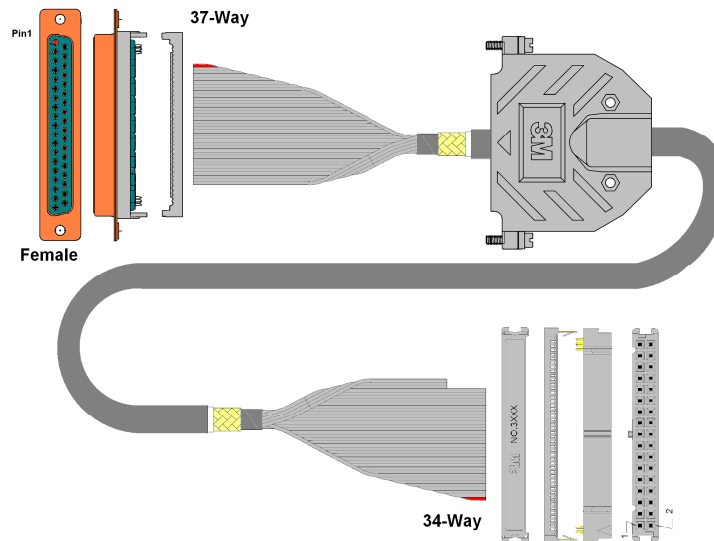
Connectors:	Description	Parts (Qty)
SBC-ATIM	DC37 Female IDC	See Note1 Below(1)
ATIM-T	34way IDC Socket	See Note2 Below(1)
Conductors:		
Cable	Ribbon Cable, Rnd/Flat, 37Way	See Note3 Below(??)
Misc:		
Backshell	For DC37 connector	See Note4 Below(1)

Overall Length ??+/-5mm

**Notes:**

1. DC37 Female IDC connector can be supplied from Farnell #469-440. Any equivalent will be OK refer to data sheets supplied with this drawing.
2. 34way IDC connector can be supplied from Farnell #468-058. Any equivalent will be OK refer to data sheets supplied with this drawing.
3. The ribbon cable can be supplied from Farnell #297-628. Any equivalent will be OK refer to data sheets supplied with this drawing.
4. The connector backshells can be supplied from Farnell #167-2007. Any equivalent will be OK refer to data sheets supplied with this drawing

**Typical Drawing:**



**REVISION**

Date	Rev	Remarks
22/12/09	A	Draft



CABLE DRAWING:

**CAB-0XXX (SALEM CODE)**

DRAWING TITLE:

**ATIM-T Control Cable**

DRAWING NO.:  
**MWACAB-0019**

DRAWN BY:  
**DRC**

DATE: 22-Dec-09

SHEET: 2 of 3

REV:

**A**

**Pinouts Table:**

SBC-ATIM		ATIM-T
Pins(37)		Pins(34)
1	BPFDrv1	1
20	3V3_I2C	2
2	Wx1	3
21	AS_hi	4
3	TxC1k1	5
22	0V	6
4	RxC1k1	7
23	BPFDrv0	8
5	Rxd1	9
24	Wy0	10
6	Txd1	11
25	Txd0	12
7	Wy1	13
26	Rxd0	14
8	AS_lo	15
27	RxC1k0	16
9	SCL	17
28	TxC1k0	18
10	SDA	19
29	Wx0	20
11	Wx2	21
30	Wy3	22
12	TxC1k2	23
31	Txd3	24
13	RxC1k2	25
32	Rxd3	26
14	Rxd2	27
33	RxC1k3	28
15	Txd2	29
34	TxC1k3	30
16	Wy2	31
35	Wx3	32
17	BFPDrv2	33
36	BFPDrv3	34
18	NC	
37	NC	
19	NC	

**REVISION**

Date	Rev	Remarks
22/12/09	A	Draft

CABLE DRAWING:

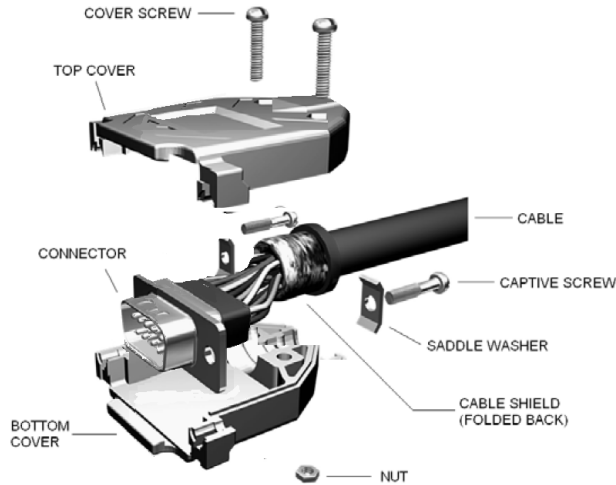
**CAB-0XXX (SALEM CODE)**

DRAWING TITLE:

**ATIM-T Control Cable**

DRAWING NO.: <b>MWACAB-0019</b>	DRAWN BY: <b>DRC</b>	DATE: 22-Dec-09	REV: <b>A</b>
		SHEET: 3 of 3	

**Assembly Details:**



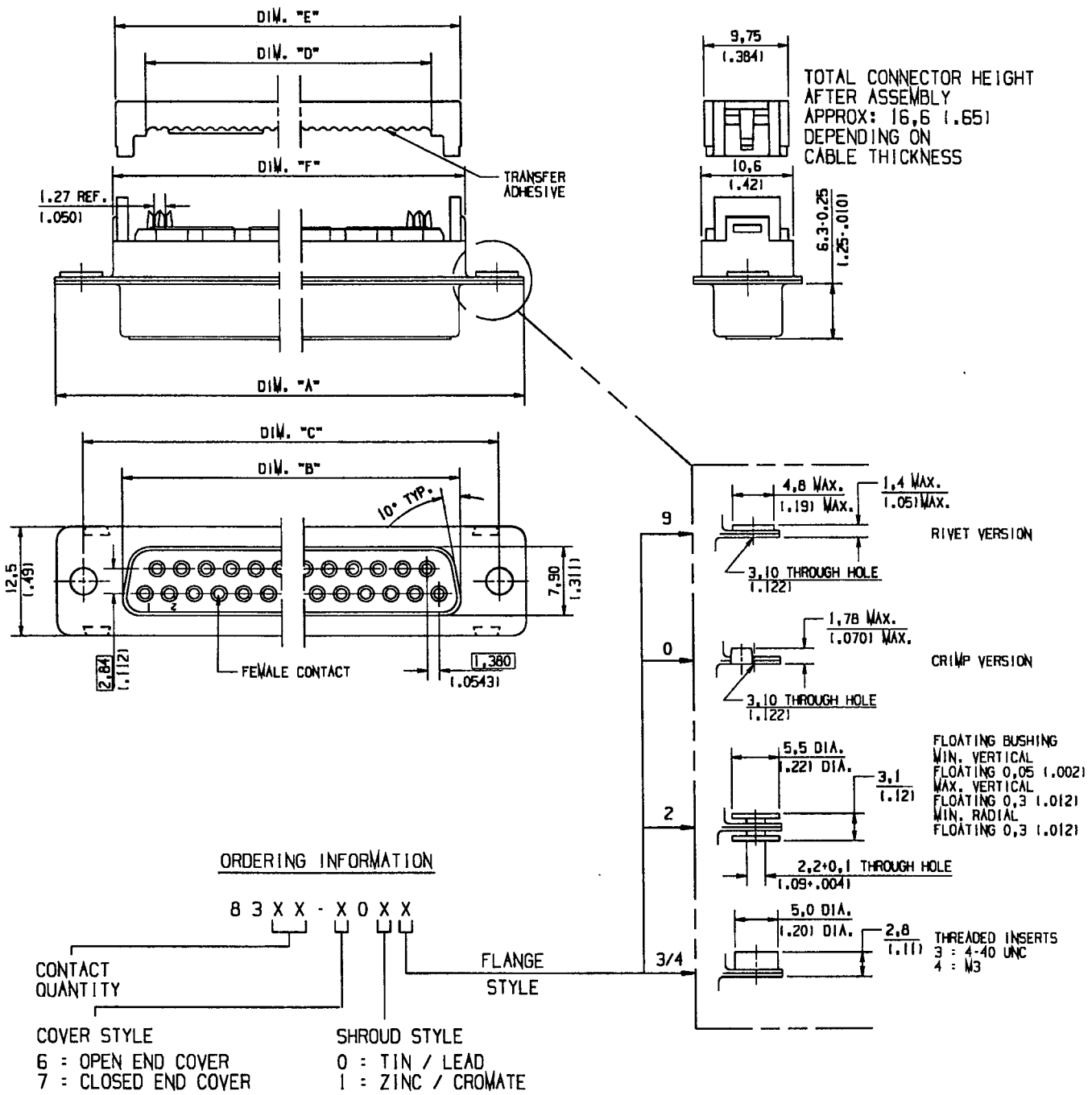
**Connection Detail:**

From: (SBC )      Front Panel ATIM Control Connector  
 To:    (ATIM-T)    ATIM-T Control Connector

**REVISION**

Date	Rev	Remarks
22/12/09	A	Draft

CONTACT QUANTITY	3M PART NUMBER	DIM. "A" + 0 mm - 0,76 mm	DIM. "B" + 0,10 mm - 0,10 mm	DIM. "C" + 0,10 mm - 0,10 mm	DIM. "D" + 0,10 mm - 0,10 mm	DIM. "E" + 0,10 mm - 0,10 mm	DIM. "F" + 0,25 mm - 0,25 mm
9	8309-X0XX	31,19(1,228)	16,30(.641)	25,00(.984)	11,75(.462)	16,90(.665)	17,81(.70)
15	8315-X0XX	39,52(1,556)	24,70(.972)	33,30(1,311)	19,40(.763)	25,20(.992)	26,11(1,03)
25	8325-X0XX	53,42(2,103)	38,40(1,511)	47,00(1,850)	32,20(1,267)	39,00(1,535)	39,81(1,57)
37	8337-X0XX	69,70(2,744)	54,80(2,157)	63,50(2,500)	47,60(1,874)	55,50(2,185)	56,31(2,22)



B	OCTOBER 10, 1996	76.
ISSUE	ISSUE DATE	REV. CH.
D - SUB CONNECTOR FEMALE		
CS 4224		SHEET 1/2

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Electronic Products Division  
**3M**

TOLERANCE UNLESS NOTED			MM (INCH)	SCALE %
	.0	.00	.000	
MM	± .25	± .10	DR. SPIJKER	
(INCH)	± .01	± .005	APP. HORNIG	

# DELTA CONNETOR SPECIFICATION

**SCOPE :** This specification details the requirements for a multipurpose socket connector having .0545" (1,384 mm)x .112" (2,84 mm) contact spacing transition between round conductor flat cable on .050" (1,27 mm ) centers and a plug connector having similar spacing

**UL FILE NO. :** E 68080  
**CSA FILE NO.:** LR 40971

## SPECIFICATIONS:

<u>PHYSICAL</u>	INSULATOR MATERIAL	Glass reinforced polyester Flammability rating:UL 94V-0
	COLOR	Grey
	MARKING	Raised figures; 3M logo; part identification/date code number;contact position number
	SHELL MATERIAL	Steel
	PLATING	Tin
	CONTACT MATERIAL	Copper alloy
	PLATING	Selective gold in functional area over nickel
	WIRE ACCOMMODATION	26 AWG solid or stranded 28 AWG solid or stranded
	THREADED INSERT PUSH OUT FORCE	50 N min
<u>ELECTRICAL</u>	CURRENT RATING	1A
	INSULATING RESISTANCE	$>1 \times 10^9 \Omega$ @ 500 vdc
	WITHSTANDING VOLTAGE	1000 VRMS @ Sea Level
<u>ENVIRONMENTAL</u>	TEMPERATURE RATING	-67 °F to +221 °F (-55 °C to +105 °C)

CS 4224 Sheet 2/2 Issue B

# 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

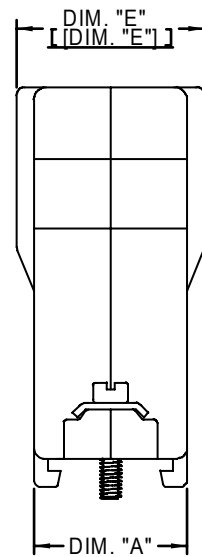
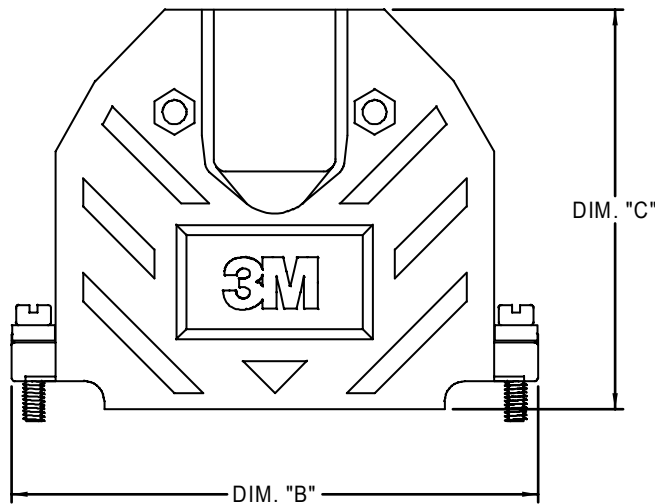
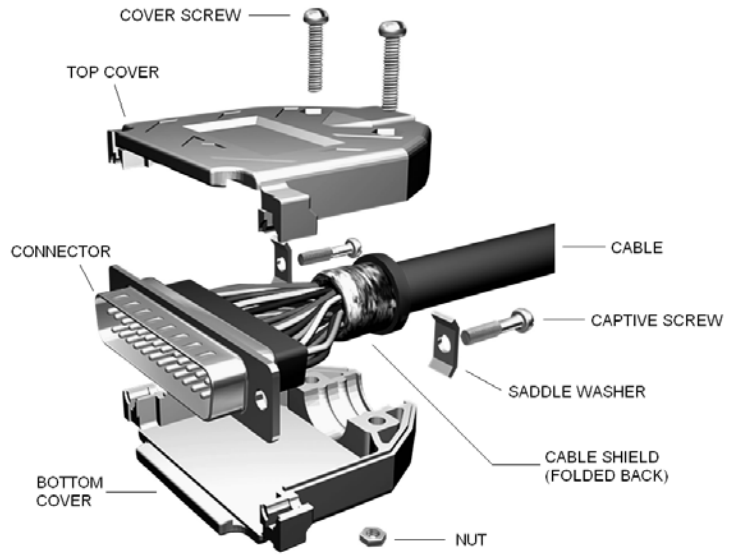
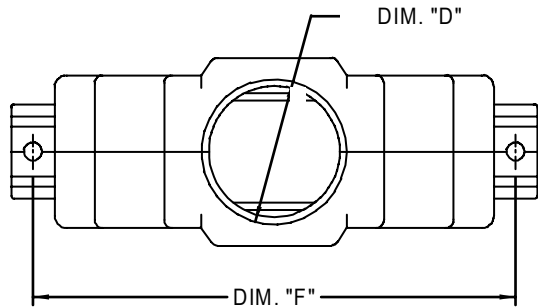


Table 1 - Junction Shell

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]

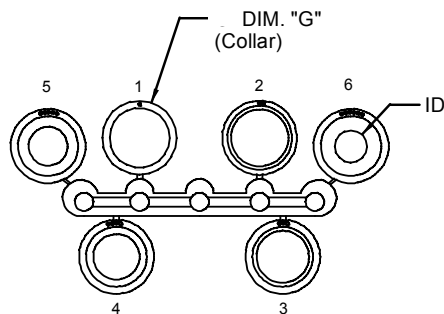
Note: \*These numbers will vary depending upon the compressibility of the wire.

**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



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Minimum 10%  
Post-Consumer Fiber

Printed in USA.

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# .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

TS-0083-14  
Sheet 1 of 2

34

## 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)

### 3M Interconnect Solutions Division

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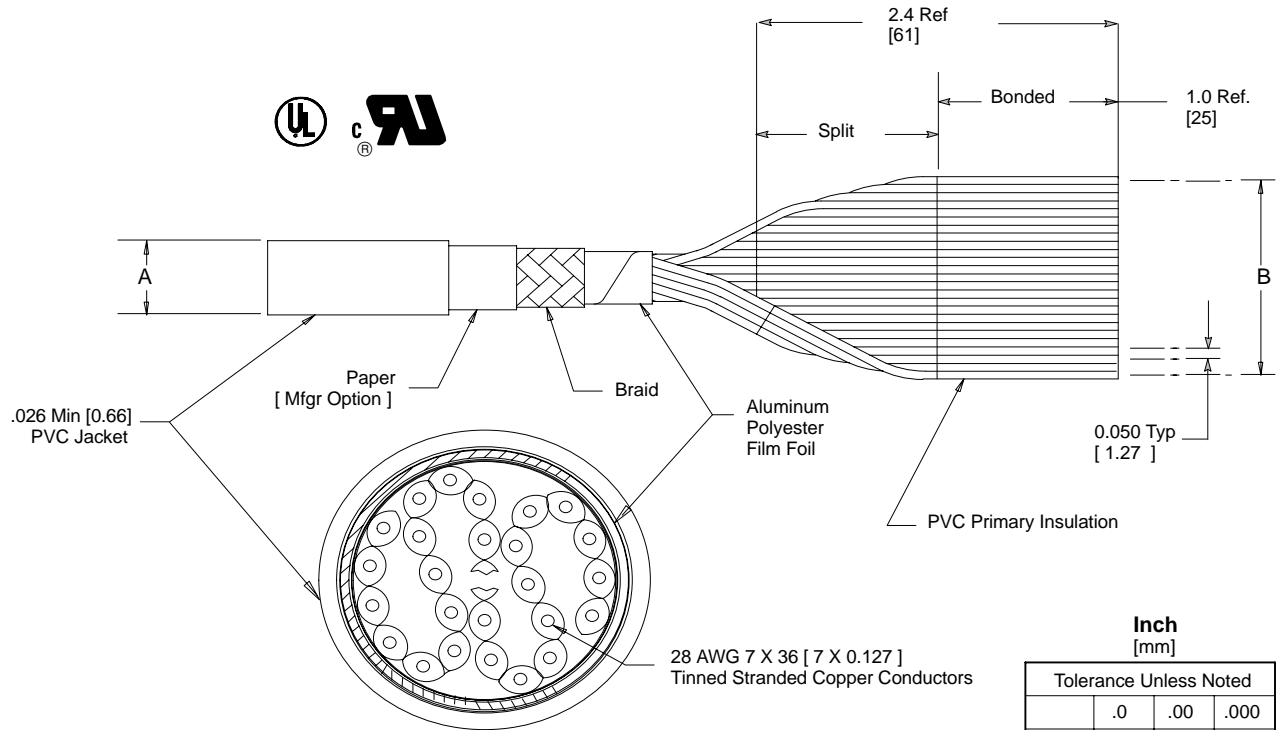
For technical, sales or ordering information call  
**800-225-5373**

# .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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# .100" × .100" Wiremount Socket

.050" Pitch Cable (Optional Plastic or Metal Strain Relief)

3000 Series



- Industry standard IDC socket
- Optional plastic or low profile metal strain relief
- Positive locking metal “J” clips provide high cover retention
- Mates with 3M headers, plugs and pin strips for quick connect/disconnect capability
- Open or closed end covers available
- Accepts flat cable or discrete wire
- Military polarization, with or without centerbump

Date Modified: September 17, 1999

TS-0718-04  
Sheet 1 of 2

4

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## Physical

### Insulation

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

### Contact

Material: Copper Alloy  
Plating  
Underplate & U-Slot: 100  $\mu$ " [ 2.54  $\mu$ m ] Nickel — QQ-N-290, Class 2  
Wiping Area: 30  $\mu$ " [ 0.76  $\mu$ m ] Gold — MIL-G-45204, Type II, Grade C

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

**Marking:** 3M Logo, Part Identification Number and Orientation Triangle

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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:**  $-55^\circ\text{C}$  to  $+105^\circ\text{C}$

UL File No.: E68080

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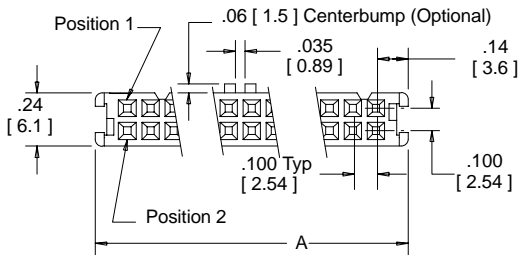
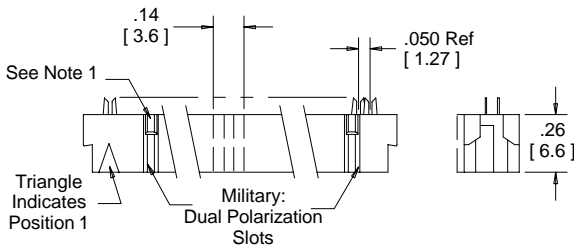
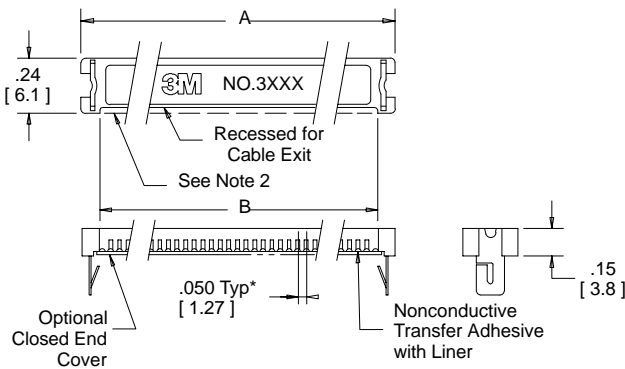
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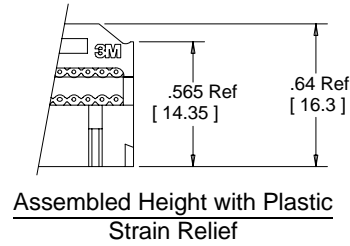
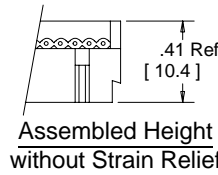
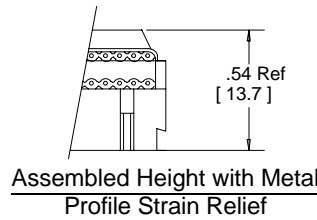
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# .100" × .100" Wiremount Socket .050" Pitch Cable (Optional Plastic or Metal Strain Relief)

3000 Series



Contact Quantity	Dimensions			
	Socket Series	A	B	C
10	3473	0.68 [ 17.3 ]	0.54 [ 13.7 ]	0.62 [ 15.7 ]
14	3385	0.88 [ 22.4 ]	0.74 [ 18.8 ]	0.82 [ 20.8 ]
16	3452	0.98 [ 24.9 ]	0.84 [ 21.3 ]	0.92 [ 23.4 ]
20	3421	1.18 [ 30.0 ]	1.04 [ 26.4 ]	1.12 [ 28.4 ]
24	3626	1.38 [ 35.1 ]	1.24 [ 31.5 ]	1.32 [ 33.5 ]
26	3399	1.48 [ 37.6 ]	1.34 [ 34.0 ]	1.42 [ 36.1 ]
30	3419	1.68 [ 42.7 ]	1.54 [ 39.1 ]	1.62 [ 41.1 ]
34	3414	1.88 [ 47.7 ]	1.74 [ 44.2 ]	1.82 [ 46.2 ]
36	9436	1.98 [ 50.3 ]	1.84 [ 46.7 ]	1.92 [ 48.8 ]
40	3417	2.18 [ 55.4 ]	2.04 [ 51.8 ]	2.12 [ 53.8 ]
44	9444	2.38 [ 60.5 ]	2.24 [ 56.9 ]	2.32 [ 58.9 ]
50	3425	2.68 [ 68.1 ]	2.54 [ 64.5 ]	2.62 [ 66.5 ]
60	3334	3.18 [ 80.8 ]	3.04 [ 77.2 ]	3.12 [ 79.2 ]



**Notes:**

1. This polarizing groove is non-existent on 3385 and 3473 Series.
2. The optional high cable-profile cover for cable thicker than .040 [ 1.02 ] (does not have cable exit recess).
3. The low profile strain relief can be used with the 4600 Series Plug and .1 x .1 Headers with ejector latches. The latches will only function as an ejector.
4. See TS-0721 for mating post pattern.

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

[ ] Dimensions for Reference only

## Ordering Information

### Sockets XXXX-XXXX

Socket Series:  
See Table for  
3M Part Number

Polarization:  
0 = Military (Dual Slot)  
6 = Centerbump and  
Military

Strain Relief:  
00 = No Strain Relief  
XX = "Contact Quantity"  
for Plastic  
Strain Relief  
(i.e. 50 for a 50  
Position Strain Relief)

Cover:

- 6 = Open End  
(For Daisy Chaining or Bussing)
- 7 = Closed End  
(For End Cable Termination)
- 8 = Open End for Higher Profile Cables  
(60 Pos Only)
- 9 = Closed End for Higher Profile Cables  
(60 Pos Only)

### Strain Relief (Order Separately) 3448-X0XX

Type:  
2 = Low Profile  
(Metal)  
3 = Plastic

XX = "Contact Quantity"  
See Table  
(i.e. 50 for  
a 50 Position  
Strain Relief)

See TS-0720

### Keying Plug (Order Separately) 3435-0

### Pull Tabs (Order Separately) 3490-X

TS-0718-04  
Sheet 2 of 2

## 3M Interconnect Solutions Division

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For technical, sales or ordering information call  
**800-225-5373**