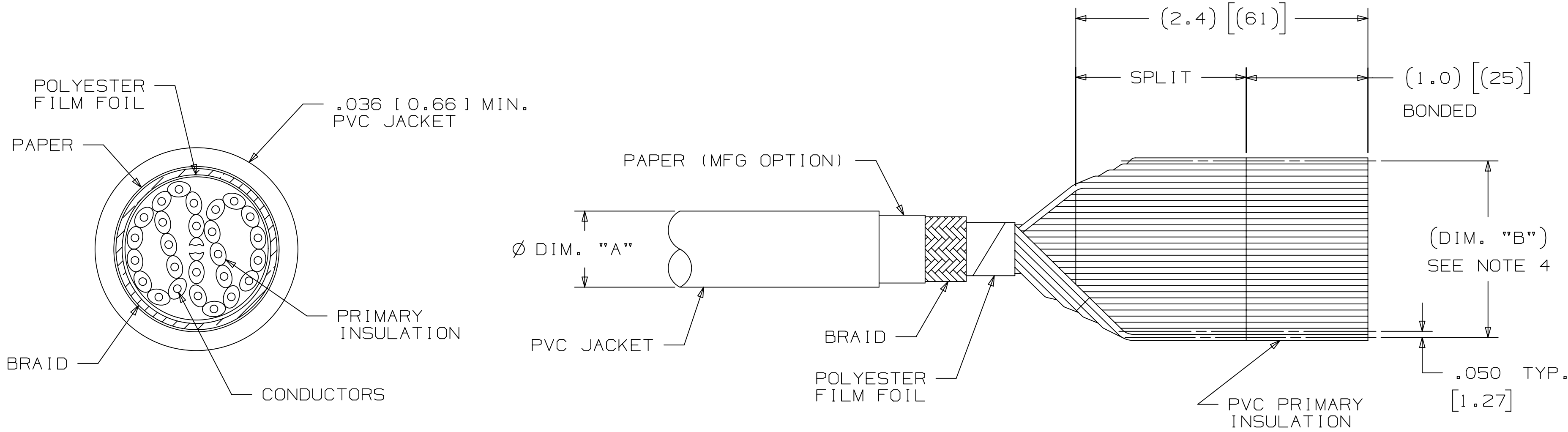


3M™ ROUND SHIELDED/JACKETED, FLAT CABLE, 3659 SERIES
.050" 28 AWG STRANDED, MASS TERMINATABLE, PVC/PVC



ORDERING INFORMATION
3659/XX XX XX

NUMBER OF CONDUCTORS
(SEE TABLE 1)

BLANK = STANDARD
SF = SPLICE FREE

BLANK = STANDARD
SO = CONTINUOUSLY BONDED WIRE (NO SPLIT)

NOTE:
AVAILABLE IN STANDARD LENGTHS OF 100 FT OR 300 FT ROLLS,
PLEASE SPECIFY WHEN ORDERING.
CONTACT 3M FOR AVAILABILITY OF ADDITIONAL CONDUCTOR COUNTS
AND/OR CUSTOM ROLL LENGTHS.

2 PHYSICAL :

JACKET MATERIAL: POLYVINYL CHLORIDE (PVC)
COLOR: BLACK
PRIMARY MATERIAL: PVC
COLOR: GRAY

MARKING:
STANDARD: SEE "PRINTING ILLUSTRATION" BELOW
CONDUCTORS: 28 AWG, 7 X 36 AWG [7 X Ø.127] TINNED STRANDED COPPER
SHIELDING: .001 [.03] THICK ALUMINUM/POLYESTER FILM FOIL AND 90%
COVERAGE TINNED COPPER BRAID.

2 ELECTRICAL :

VOLTAGE RATING: USA: N.E.C. 725, CL2 OR AWM; 300V CANADIAN 300V, EU: <50V
INSULATION RESISTANCE: (PRIMARY CABLE) >1 X 10¹⁰Ω/10ft. [3m]

CHARACTERISTIC	UNBALANCED	BALANCED
IMPEDANCE:	62Ω	106Ω
CAPACITANCE:	27.7 pF/ft [90.88 pF/m]	15.2 pF/ft [49.9 pF/m]
INDUCTANCE:	0.11μH/ft [0.35μH/m]	0.17μH/ft [0.57μH/m]
PROPAGATION DELAY:	1.72 ns/ft [5.64 ns/m]	1.62 ns/ft [5.31 ns/m]
VELOCITY OF PROPAGATION:	59%	62%

NOTE: UNBALANCED IS MEASURED BETWEEN GROUND-SIGNAL-GROUND CONDUCTORS
WITH SHIELD GROUNDING.
BALANCED IS MEASURED BETWEEN SIGNAL CONDUCTORS WITHIN A PAIR.
WITH THE SHIELD FLOATING.

2 ENVIRONMENTAL :

TEMPERATURE RATING: USA; CL2; 75°C OR AWM; -20°C TO +80°C
CANADA; -20°C TO +80°C

FLAMMABILITY RATING: USA; N.E.C. 725, CL2
CANADA; FT1

"PRINTING ILLUSTRATION"

UL® CL2 75°C 28 AWG OR AWM 20267 3M NU UL® AWM II A/B 80°C 300V FT1 EU <50V



UL FILE NUMBER: E118773, CL2 (VOLUME 1, SECTION 1)
E42769, STYLE 20267

- * ROUND CONSTRUCTION PERMITS MORE EASY ROUTING.
- * 28 AWG WIRE ON .050 INCH CENTERS 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 TERMINATION.
- * MEETS EXTERNAL WIRING REQUIREMENTS OF NATIONAL ELECTRICAL CODE: ARTICAL 725 (CL2).
- * DUAL SHIELDING PROVIDES 35 db AVERAGE SHIELDING EFFECTIVENESS.

- NOTES
1. REGULATORY INFORMATION:
VISIT 3M.com/regs
 2. IN THE EVENT OF CONFLICT BETWEEN THIS DATA AND THAT CONTAINED IN THE PRODUCT SPECIFICATION, THE PRODUCT SPECIFICATION TAKES PRECEDENT.
 3. RED MARKING ON ONE EDGE OF PRIMARY CABLE DESIGNATES WIRE #1.
 4. DIMENSION "B" PERTAINS TO BONDED AREA ONLY.

TABLE 1			
NO. OF CONDUCTORS	3M PART NUMBER	DIM. "A"	DIM. "B" REFERENCE
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]

CONTACT 3M FOR AVAILABLE OF ADDITIONAL
CONDUCTOR COUNTS.

3M ELECTRONICS MATERIALS SOLUTIONS DIVISION
INTERCONNECT SOLUTIONS
http://www.3M.com/interconnect

3M IS A TRADEMARK OF 3M COMPANY.
FOR TECHNICAL, SALES OR ORDERING
INFORMATION CALL 800-225-5373

DIMENSIONS: INCHES [MM]
[MM] IS FOR REF. ONLY

DESIGN REFERENCE	NEXT ASSEMBLY	REV	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD
ACROSS CODES		DRFT	C	64249	JUN 28, 2023	JNC FJR
DIVISION	DIVISION CODE	DRFT	B	23307	APR 24, 2009	RED ARM
DO NOT SCALE DRAWING	SCALE	DRFT	A	23052	APR 07, 2009	RED ARM
THIRD ANGLE PROJECTION	TOLERANCES EXCEPT AS NOTED	DRFT	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD
INTERPRET PER ASME Y14.5 - 2018	INCHES	DRFT	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD
MAX. SURFACE ROUGHNESS	MILLIMETERS	DRFT	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD
MARKED ONLY	ANGLES	DRFT	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD

3M	3M Center St. Paul, MN 55144	© 3M COPYRIGHT 2023 This document and the information it contains are 3M property and may not be reproduced or further distributed without 3M permission, or used or disclosed other than for 3M authorized purposes. All rights reserved.
TITLE	RD SHIELDED/JACKETED, FLAT CABLE, 3659 SERIES	
CAGE NUMBER	SIZE	DRAWING NO.
D	78-5100-0083-5	C
MODEL	3659	LISTS
YES	NO	SHT 1 OF 2

8	7	6	5	4	3	2	1
3M™ ROUND SHIELDED/JACKETED, FLAT CABLE, 3659 SERIES .050" 28 AWG STRANDED, MASS TERMINATABLE, PVC/PVC							
Regulatory: For regulatory information about this product, visit 3M.com/regs or contact your 3M representative.							
Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.							
Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.							
Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement or repair of the 3M product or refund of the purchase price.							
Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by applicable law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.							
Disclaimer: For industrial use only. Not intended, labeled or packaged for consumer sale or use.							
3M Company Electronics Materials Solutions Division 13011 McCallen Pass, Bldg. C Austin, TX 78753-5380 1-800-225-5373 www.3M.com/interconnect							
3M ELECTRONICS MATERIALS SOLUTIONS DIVISION INTERCONNECT SOLUTIONS http://www.3M.com/interconnect							
3M IS A TRADEMARK OF 3M COMPANY. FOR TECHNICAL, SALES OR ORDERING INFORMATION CALL 800-225-5373							
8	7	6	5	4	3	2	1

C		64249	JUN 28,2023 REVISE NOTES AND REDRAW		JNC	FJR		
B		23307	APR 24,2009 REVISE NOTES		RED	ARM		
A		23052	APR 07,2009 REVISE ORDERING INFO		RED	ARM		
REV	ECO	ISSUE DATE AND DESCRIPTION			DRFT	CHKD		
DRFT	CASTIGLIONE	DATE	JUN 28,2023	MFG	DATE			
CHKD		DATE		APPR	F. RODRIGUEZ	DATE	JUN 28,2023	
DESIGN REFERENCE		NEXT ASSEMBLY						
XREFS								
DIVISION		DIVISION CODE EMSD						
DO NOT SCALE DRAWING		SCALE 1 1		TOLERANCES EXCEPT AS NOTED				
THIRD ANGLE PROJECTION		INCHES 0 ±.1 .00 ±.05 .000 ±.010 .0000 ±.0005		MILLIMETERS 0 ± .0 ± .00 ± .000 ±				
MAX. SURFACE ROUGHNESS ALL SURFACES MARKED ONLY		INTERPRET PER ASME Y14.5 - 2018		ANGLES ±				
CAGE NUMBER		SIZE	DRAWING NO.			REV.		
D		78-5100-0083-5	C					
MODEL		3659			DET LISTS		YES NO	SHT 2 OF 2