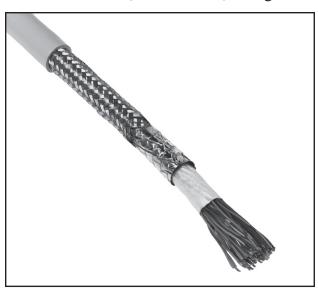
3M[™] Round, Shielded/Jacketed, Disc. Wire Cable

28 AWG Stranded, Twisted Pair, Halogen Free PO/PO

HF644 Series



- Low Smoke Zero Halogen (LSZH). Advantages of LSZH insulation are the low smoke (IEC 61034-2:2005), and low toxicity of combustion gases (NF X 70-100-2:2006), reducing the risk to firefighters, and reducing soot and corrosion damage to nearby equipment.
- Broad operating temperature range from -40°C to 105°C
- · Stranded wire provides flexible routing
- Twisted pair construction helps reduce crosstalk for balanced drive applications
- Dual shielding with aluminum film foil and copper braid provides EMI/ESD protection
- · Wires are color coded for easy identification
- See the Regulatory Information Appendix (RIA) in the "RoHS compliance" section of www.3Mconnector.com for compliance information (RIA E1 & C1 apply)

Date Modified: December 9, 2010

TS-2355-B Sheet 1 of 3

Physical

Jacket Material: Halogen Free Polyolefin (PO)

Color: Dark Gray

Primary Material: Halogen Free Polyolefin (PO)

Color: See "Pair Identification" table

Marking Standard: None

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

otorial 0.001 [0.03] Thick Aluminum/Polyester Film Foil and 90% Coverage Tinned

Copper Braid

Electrical

Voltage Rating: USA: 300V Canada 150V EU: <50V **Insulation Resistance:** (Primary Cable)> $1 \times 10^{10} \Omega/10$ ft. [3.05 m]

Characteristic Impedance: Unbalanced Balanced

 58Ω 95 Ω

 Capacitance:
 27.7 pF/ft [90.9 pF/m]
 17.0 pF/ft [55.8 pF/m]

 Inductance:
 0.09 μH/ft [0.30 μH/m]
 0.15 μH/ft [0.49 μH/m]

 Propagation Delay:
 1.62 ns/ft [5.31 ns/m]
 1.61 ns/ft [5.28 ns/m]

Velocity of Propagation: 63%

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

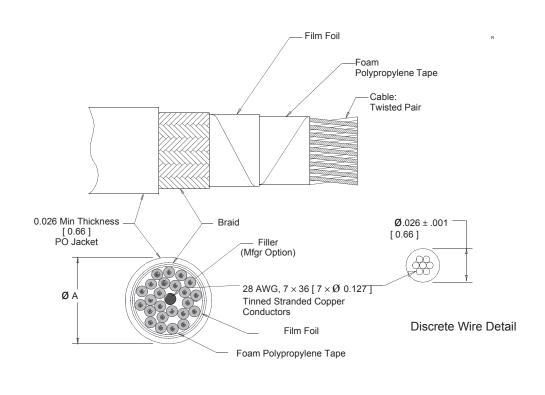
Environmental

Temperature Rating: -40°C to +105°C

Flammability Rating: VW-1

Halogen Free is defined as both 1) no halogen compounds that are intentionally added to the product or used in the manufacturing process for the product and 2) any impurities present are less than 900 ppm bromine, less than 900 ppm chlorine and/or less than 1500 ppm total bromine and chlorine. The latter are the levels set forth in certain industry standards for printed circuit boards, such as the International Electrotechnical Commission (IEC) 61249-2-21 standard. This information represents 3M's knowledge and belief which may be based in whole or in part on information provided by 3rd party suppliers to 3M.

Number of Conductors	3M Part Number	Dimension A ± .02	
14 (7 pair)	HF644/14	.22 [5.6]	
16 (8 pair)	HF644/16	.23 [5.8]	
20 (10 pair)	HF644/20	.24 [6.1]	
24 (12 pair)	HF644/24	.25 [6.4]	
26 (13 pair)	HF644/26	.25 [6.4]	
30 (15 pair)	HF644/30	.27 [6.9]	
36 (18 pair)	HF644/36	.29 [7.4]	
40 (20 pair)	HF644/40	.30 [7.6]	
50 (25 pair)	HF644/50	.32 [8.1]	
68 (34 pair)	HF644/68	.37 [9.4]	
80 (40 pair)	HF644/80	.39 [9.9]	
100 (50 pair)	HF644/100	.44 [11.2]	



Inch	
[mm]	

Tole	lerance Unless Noted			
	.0	.00	.000	
Inch	±.1	±.05	±.010	

[] Dimensions for Reference Only

TS-2355-B Sheet 2 of 3

3M[™] Round, Shielded/Jacketed, Disc. Wire Cable

28 AWG Stranded, Twisted Pair, Halogen Free PO/PO

HF644 Series

Pair Identification 1st Conductor Cond 2nd Conductor							
Pairs Cond		1st Conductor					
4	1	Solid	Band	-	Solid	Band	
1	1	White	Tan	2	Tan	White White	
3	3 5	White	Brown	6	Brown		
4	7	White	Pink	8	Pink	White	
		White	Orange		Orange	White	
5	9 11	White	Yellow	10	Yellow	White White	
6		White	Green		Green		
7	13	White	Blue	14	Blue	White	
8	15	White	Violet	16	Violet	White	
9	17	White	Gray	18	Gray	White	
10	19	Tan	Brown	20	Brown	Tan	
11	21	Tan	Pink	22	Pink	Tan	
12	23	Tan	Orange	24	Orange	Tan	
13	25	Tan	Yellow	26	Yellow	Tan	
14	27	Tan	Green	28	Green	Tan	
15	29	Tan	Blue	30	Blue	Tan	
16	31	Tan	Violet	32	Violet	Tan	
17	33	Tan	Gray	34	Gray	Tan	
18	35	Brown	Pink	36	Pink	Brown	
19	37	Brown	Orange	38	Orange	Brown	
20	39	Brown	Yellow	40	Yellow	Brown	
21	41	Brown	Green	42	Green	Brown	
22	43	Brown	Blue	44	Blue	Brown	
23	45	Brown	Violet	46	Violet	Brown	
24	47	Brown	Gray	48	Gray	Brown	
25	49	Pink	Orange	50	Orange	Pink	
26	51	Pink	Yellow	52	Yellow	Pink	
27	53	Pink	Green	54	Green	Pink	
28	55	Pink	Blue	56	Blue	Pink	
29	57	Pink	Violet	58	Violet	Pink	
30	59	Pink	Gray	60	Gray	Pink	
31	61	Orange	Yellow	62	Yellow	Orange	
32	63	Orange	Green	64	Green	Orange	
33	65	Orange	Blue	66	Blue	Orange	
34	67	Orange	Violet	68	Violet	Orange	
35	69	Orange	Gray	70	Gray	Orange	
36	71	Yellow	Green	72	Green	Yellow	
37	73	Yellow	Blue	74	Blue	Yellow	
38	75	Yellow	Violet	76	Violet	Yellow	
39	77	Yellow	Gray	78	Gray	Yellow	
40	79	Green	Blue	80	Blue	Green	
41	81	Green	Violet	82	Violet	Green	
42	83	Green	Gray	84	Gray	Green	
43	85	Blue	Violet	86	Violet	Blue	
44	87	Blue	Gray	88	Gray	Blue	
45	89	Violet	Gray	90	Gray	Violet	
46	91	White	<u> </u>	92	Tan	1 -	
47	93	Gray	T -	94	Brown	1 –	
48	95	Blue	† –	96	Pink	 	
49	97	Violet	† –	98	Orange	 	
50	99	Green	 	100	Yellow	 	

Ordering Information

HF644/XX XX

Blank = Standard

Number of Conductors
(See Table)

Note: Available in standard 100-ft rolls. 14 to 68 conductors available in 300-ft rolls. 80 to 100 conductors available in 200-ft rolls. Contact 3M for availability of additional conductor counts and/or custom roll lengths.

TS-2355-B Sheet 3 of 3

Important Notice All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M. Warranty; Limited Remedy; Limited Liability. This product will be free from defects in material and manufacture for a period of one (1) year from the time of purchase. 3M MAKES NO OTHER WARRANTIES

INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of

3M is a trademark of 3M Company.

the legal theory asserted.

6801 River Place Blvd. Austin, TX 78726-9000

www.3Mconnector.com

U.S.A. 1-800-225-5373

3M Electronics Solutions Division