

.050" 28 AWG STRANDED, MEDIUM FLEX LIFE, HALOGEN FREE PO



ROLLING FLEX CYCLES PER  
EIA-364-41

RADIUS	MINIMUM CYCLES
1/2 <sup>xx</sup>	0.4 MILLION
3/4 <sup>xx</sup>	5 MILLION
1 3/4 <sup>xx</sup>	10 MILLION

NOTE: REPRESENTS MINIMUM ROLLING FLEX CYCLES PERFORMED AT AMBIENT TEMPERATURES AT DATE OF PUBLICATION. ADDITIONAL TESTING IS ONGOING. CABLE CONSTRUCTION AND MATERIAL IS SIMILAR TO 3319 SERIES CABLE WHICH IS RATED TO 100 MILLION CYCLES AT 7/8" RADIUS. SEE TS-0732, CONTACT 3M FOR THE MOST UP-TO-DATE INFORMATION.

NUMBER OF CONDUCTORS	3M PART NUMBER	DIMENSION 'A' ± AS NOTED	DIMENSION 'B' (SEE NOTE 2)
6	HF539/06	0.300"±0.010"	0.250"±0.007"
9	HF539/09	0.450"±0.010"	0.400"±0.007"
10	HF539/10	0.500"±0.010"	0.450"±0.007"
14	HF539/14	0.700"±0.010"	0.650"±0.007"
15	HF539/15	0.750"±0.010"	0.700"±0.007"
16	HF539/16	0.800"±0.015"	0.750"±0.011"
20	HF539/20	1.000"±0.015"	0.950"±0.011"
24	HF539/24	1.200"±0.015"	1.150"±0.011"
25	HF539/25	1.250"±0.015"	1.200"±0.011"
26	HF539/26	1.300"±0.015"	1.250"±0.011"
30	HF539/30	1.500"±0.020"	1.450"±0.015"
34	HF539/34	1.700"±0.020"	1.650"±0.015"
36	HF539/36	1.800"±0.020"	1.750"±0.015"
37	HF539/37	1.850"±0.020"	1.800"±0.015"
40	HF539/40	2.000"±0.020"	1.950"±0.015"
50	HF539/50	2.500"±0.020"	2.450"±0.015"
60	HF539/60	3.000"±0.020"	2.950"±0.015"
64	HF539/64	3.200"±0.020"	3.150"±0.015"

VOLTAGE RATING	USA: 300V, CANADA: 150V, EU: 50V	
INSULATION RESISTANCE	PRIMARY CABLE $>1 \times 10^{10} \Omega/10 \text{ FT}$ [ 3 m ]	
	UNBALANCED	BALANCED
CHARACTERISTIC IMPEDANCE	100 $\Omega$	168 $\Omega$
CAPACITANCE	15.0 pF/ft [ 49.2 pF/m ]	8.4 pF/ft [ 27.7 pF/m ]
INDUCTANCE	0.15 $\mu\text{H}/\text{ft}$ [ 0.49 $\mu\text{H}/\text{m}$ ]	0.24 $\mu\text{H}/\text{ft}$ [ 0.79 $\mu\text{H}/\text{m}$ ]
PROPAGATION DELAY	1.51 ns/ft [ 4.95 ns/m ]	1.42 ns/ft [ 4.66 ns/m ]
VELOCITY OF PROPAGATION	68%	72%

NOTE: UNBALANCED IS MEASURED BETWEEN GROUND-SIGNAL-GROUND CONDUCTORS.  
BALANCED IS MEASURED WITHIN A PAIR.

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**CRUS**

- NOTES

  1. MATERIAL:
    - A) PRIMARY INSULATION: HALOGEN FREE POLYOLEFIN (PO).
    - B) CONDUCTORS: 28 AWG, 19 X 40 AWG (19 X, Ø 0.079), TINNED STRANDED COPPER.
  2. REGULATORY INFORMATION:
 

VISIT [3M.com/regs](http://3M.com/regs) OR CONTACT YOUR 3M REPRESENTATIVE TO FIND THE RoHS COMPLIANCE STATUS OF THE 3M PART YOU ARE INTERESTED IN.

UL FILE NO: E42769,  
UL STYLE NO: 21682.
  3. MARKINGS:
 

STANDARD: NONE  
CANADIAN: SEE "PRINTING ILLUSTRATION" VIEW  
PRIMARY CABLE: BLUE MARK ON EDGES  
DESIGNATES WIRE NUMBER 1.
  4. THE SURFACE DEFINED BY THE "ZIP" PROCESS IS NOT REQUIRED TO BE BLUE.
  5. ENVIRONMENTAL:
 

TEMP RATING: -40°C TO +105°C (EIA-364-32G, METHOD A, TEST CONDITION 2).

-10°C TO +105°C (UL TEMPERATURE RATING)  
FLAMABILITY RATING: HORIZONTAL.
  6. 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.
    - 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.

B	79493	JUN 11, 2018	JNC	BM
		REVISE NOTES 2, 5 & CYCLES CHART		
A	44734	DEC 06, 2012	JNC	RE
		PRODUCTION RELEASE		
REV	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD
DRFT	CASTIGLIONE	DATE NOV 05, 2012	MFG	DATE
CHKD		DATE	APPROV R. EDWARDS	DATE NOV 05, 2012

DESIGN REFERENCE		NEXT ASSEMBLY		REV		ECO		ISSUE DATE AND DESCRIPTION				DRFT		CHKD	
ASSEMBLY CODES				DRFT		CASTIGLIONE		DATE		MFO		DATE			
				CHKD				DATE		ASPLV		DATE			
DIVISION		DIVISION CODE								R. EDWARDS		NOV 05, 2012			
DO NOT SCALE DRAWING		SCALE		TOLERANCES EXCEPT AS NOTED		3M		3M Center St. Paul, MN 55144		© 3M COPYRIGHT 2018 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.					
		THIRD ANGLE PROJECTION		INCHES :0 ± .1 :00 ± .05 :000 ± .010 :0000 ± .0002		MILLIMETERS 0 ± .25 :0 ± 1.3 :00 ± .25 :000 ± .005		TITLE MEDIUM FLEX LIFE FLAT CABLE , .050" , 28 AWG , HF539							
INTERPRET PER ASME Y14.5 - 2009		MAX SURFACE ROUGHNESS		MIN SURFACES		CAGE NUMBER		SIZE		DRAWING NO.		REV.			
✓ <input type="checkbox"/> MARKED ONLY						D		78-5100-2565-9		B					
ANGLE		MODEL		HF539		DET.		STS		YES		NO		SHT 1 OF 2	

REV	DATE	BY	CHKD	DESCRIPTION
1	10/10/2010	1010	1010	1010
2	10/10/2010	1010	1010	1010
3	10/10/2010	1010	1010	1010
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64	10/10/2010	1010	1010	1010
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66	10/10/2010	1010	1010	1010
67	10/10/2			



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