

File E28476  
Project 95ME14640

Issued: May 1, 1995  
Revised: April 7, 2017

REPORT

on

**\*CONNECTORS FOR USE IN DATA, SIGNAL, CONTROL AND POWER  
APPLICATIONS**

TYCO ELECTRONICS CORP  
MIDDLETOWN PA 17057-3170

Copyright © 1995 Underwriters Laboratories Inc.

Underwriters Laboratories Inc. authorizes the above named company to reproduce this Report only for purposes as described in the Conclusion. The Report should be reproduced in its entirety; however to protect confidential product information, the Construction Details Descriptive pages may be excluded.



## ELECTRICAL RATING: (Cont)

Cat. No.	Current (A) / Voltage	Wire AWG (str)
Housing 1969656-1 with Contacts 63009-1	7 /600V AC/DC	18
	10 /600V AC/DC	16
	15 /600V AC/DC	14
Housing 1969657-1 with Contacts 63010-1	7 /600V AC/DC	18
	10 /600V AC/DC	16
	15 /600V AC/DC	14

Housings 1969705-1, 1969706-1 with FASTON 250 Series Quick Connect Connectors - Cat. No. 63009 (E66717 report issued 1982-01-28)	No Electrical Ratings	14 - 18 AWG str
--	-----------------------	-----------------

Cat. No.	Current (A) / Voltage (V)
Housings 480416-1,-2; 2-480416-4, 2-480416-4, 1969507-2,-3 with Recognized Component (RFWV2) FASTON 250 Series Quick Connect Connectors; 480435-1,-2, 2-480435-2 with Recognized Component (RFWV2) FASTON 187 Series Quick Connect Connectors	No Electrical Ratings
<b>1-1969186-1 with Recognized Component (RFWV2) Cat. Nos. 62092-1, 61399-1, 63677-1</b>	<b>No Electrical Ratings</b>
<b>2-176498-6 with Recognized Component (RFWV2) Quick-Connect Faston Series 187 tabs</b>	<b>No Electrical Ratings</b>
Housings 2-480416-5, 1969507-9, 1969295-4,-5, 1-1969141-1,-2; 1969199-2, 1969201-2, 1969202-2, 1-1969232-1,-2,-3,-4; 1969422-2, 1-1969705-1, 1-1969706-1, 1969437-2, 2-521498-0,-1,-2;; 1-520212-3, 521358-2, 2-521498-7,-8,-9, 1-521771-1, 1-521785-1 with Recognized Component (RFWV2) FASTON 250 Series Quick Connect Connectors; 3-480435-1 with Recognized Component (RFWV2) FASTON 187 Series Quick Connect Connectors	No Electrical Ratings
521787-x employing housing 521787-x with Recognized Component (RFWV2) FASTON 187 Series Quick Connect Connectors	600V
521701-x, 521702-x employing housings 521701-x, 521702-x respectively with Recognized Component (RFWV2) FASTON 250 Series Quick Connect Connectors	600V

Cat. Nos. 2133857-1, 2133857-3 and 2133857-4 - No electrical ratings.



## and Report

Connector Cat. No. [1]	Contact Cat. No.	Wire Gauge	Investigated Current	Maximum Temp Rise
1969657-1 (representing 1969656-1)	63010-1 (representing 63009-1)	18	7	8.6
		16	10	11.4
		14	15	19.1

3. The suitability of the mounting means shall be determined in the end use.
4. The electrical and mechanical suitability of the wiring terminals shall be determined in the end use.
5. The placement of these devices within the equipment enclosure should be such that spacings between the live parts and the equipment are suitable for the particular application.
6. The suitability of the spacings between adjacent poles and the associated voltage rating shall be determined in the end use. (Dielectric testing has not been performed.)

Dielectric testing was performed on below connectors:

Cat. No.
Housing 8-735075-0 with Contacts 444334-x
Housing 8-735075-0 with Contacts 444335-x
Model 1969387-1 with Contacts 63306

Note - Housing 8-735075-0 represents Housing 6-735075-0

\*

## and Report

7. The electrical and mechanical contact between the connector and the discreet wire is to be determined in the end use equipment.
8. The suitability of the insulating materials used in the molded bodies shall be judged in the end use equipment.
9. For all devices except for Cat. Nos. 1969387-1, 1969507-2, 1969507-3, 1969538-1, 1969547-1, 2-480435-1, 2-480435-2 and Series Faston Dual Tab Connector, Cat. No. 1969375-1, the materials may be used interchangeably at a max operating temperature of 65°C. For Series Faston Dual Tab Connector, Cat. No. 1969375-1, the materials may be used interchangeably at a max operating temperature of 120°C. Cat. Nos. 1969507-2, 2-480435-1 may be used at 150°C, Cat. No. 1969507-3 may be used at 130°C, Cat. Nos. 1969538-1, 1969547-1 may be used at 120°C, Cat. No. 2-480435-2 may be used at 140°C, and Cat. No. 1969632-1 may be used at 240°C.
10. The max operating temperature of Model 1969387-1 is 120°C.
11. The factory assembled contacts have been investigated for the following wire ranges and maximum tensile forces.

Part No.	Wire Ranges (AWG)	Tensile Force (lbs)
Contacts 444334-x	22	8
Contacts 444334-x	18	20
Contacts 444335-x	1.0 mm <sup>2</sup>	20
Contacts 444335-x	2.5 mm <sup>2</sup>	20
Contacts 63306	14	25
Contacts 63306	16	20
Contacts 63306	18	20
Contacts <b>63010-1, 63009-1</b>	18	20
Contacts 63010-1, 63009-1	14	25

and Report

12. These devices employ insulating materials with properties as tabulated below at the minimum thickness employed in the connector housing, the suitability of the insulating materials based on the documented values shall be determined in the end-use application. Please note the values specified in the table when multiple materials are indicated represent the minimum values for the group of materials.

Cat. No.	Raw Material Designation	Measure d Minimum Thickness	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, °C
Housing 735075		A 0.48 mm	V-2	-	-	65	65
Overmold 1969375-1		B 2.34 mm	V-0	4	0	120	120
Housing 1969422-1		C 0.45 mm	V-0	-	-	65	65
Housing 1969437-1		C 0.72 mm	V-0	0	0	130	130
Housing 1969507-2, 2-480435-1		D 0.76 mm	V-0	4	2	150	150
Housing 1969507-3		E 0.76 mm	V-0	0	0	130	130
Housings 1969538-1, 1969547-1		F 0.76 mm	V-0	4	0	120	120
Housing 2-480435-2		G 0.76 mm	V-0	4	0	140	140
Housing 2-480435-3		H 0.76 mm	--(+)	1(++ )	4(++ )	240	240
H; connector Cat. Nos. 1969656-1, 1969657-1		D 0.76 mm	V-0	4	2	150	150
Housing 1969632-1		I	V-0	-	-	240	240
Connector Cat. Nos. 1969639-1 and 1969640-1		F 0.76 mm	V0	4	0	120	120
Housings 1969705-1, 1969706-1		J 0.76 mm	V-0	0	0	130	130
Housings 1969725-1, 1969843-1		D 0.64 mm	V-0	4	2	150	150
2133857-1		0.6mm	V2	4	0	105	105
2133857-3		0.6mm	V2	--	--	130	130
2133857-4		0.6mm	V2	(++)	(++)	(++)	(++)
	1 M			--	--	65 (GENERIC)	65 (GENERIC)
Housings 1969843-1, 1969725-1		N 0.64mm	V-0	0	0	150	150
<b>Housing PNs 2-480416-4, 1969507-2,3; 2-480435-2</b>		<b>N 0.2mm</b>	<b>V-0</b>	<b>--</b>	<b>--</b>	<b>150</b>	<b>150</b>

\*

## and Report

Cat. No.	Raw Material Designation	Measure d Minimum Thickne ss	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, °C
2-480416-5,1-480416-7, 3-480435-1, 1969507-9. 1969295-1,-2,-4,-5; x-521498-x; 1-1969141-1,-2; 1969141-1,-2; 1969199-1,-2, 1969201-1,-2, 1969202-1,-2, 1-1969232-1,-2,-3,-4; 1969232-1,-2,-3,-4; 1969422-1,-2, 1-1969705-1,1969705-1,1-1969706-1, 1969706-1, 1-520212-3, 520212-3, 2-521498-7,-8,-9, 521498-7,-8,-9, 1-521771-1, 521771-1, 1-521785-1, 521785-1, 1969437-1,-2, 521701-x, 521702-x, 521787-x	o	0.4	V0	0	0	130	130
<b>1-1969186-1, 2-176498-6</b>	o	0.5	V0	0	0	130	130
Housing PNs 480416-1,-2, 1-480416-0,-1, 480435-1,-2; 1-480435-0,-3; 521358-1,-2	P	0.45	V0	4	0	130	130

## Note

- (+): Thickness is less than the minimum Recognized material thickness, as such no assigned Flame class. UL746C 12mm Flammability test conducted.  
(++): These PLCs are based on the minimum Recognized material thickness.

- A - 1. Dielectric strength (kV/mm): -  
2. CTI: 2
- B - 1. Dielectric strength (kV/mm): -  
2. CTI: 0
- C - 1. Dielectric strength (kV/mm): - 26  
2. CTI: 1
- D - 1. Dielectric strength (kV/mm): - 14  
2. CTI: 0
- E - 1. Dielectric strength (kV/mm): - 26  
2. CTI: 1
- F - 1. Dielectric strength (kV/mm): - --  
2. CTI: 0
- G - 1. Dielectric strength (kV/mm): - --  
2. CTI: 2
- H - 1. Dielectric strength (kV/mm): - 21  
2. CTI: 3
- I - 1. Dielectric strength (kV/mm): - 21  
2. CTI: 3
- J - 1. Dielectric strength (kV/mm): - 26  
2. CTI: 1
- K - 1. Dielectric strength (kV/mm): - --  
2. CTI: 0
- L - 1. Dielectric strength (kV/mm): - 18  
2. CTI: 1
- M - 1. Dielectric strength (kV/mm): - --  
2. CTI: 2
- N - 1. Dielectric strength (kV/mm): - 20  
2. CTI: 0
- O - 1. Dielectric strength (kV/mm): 17  
2. CTI: 2**
- P - 1. Dielectric strength (kV/mm): 13  
2. CTI: 0**

13. For Housings 8-735075-0 and 6-735075-0 with Contacts 444334-x or Contacts 444335-x, when conducting temperature test, each mating male contact was connected with two connectors, six connectors were tested in series and there are 40 in conductor lengths between each connector assembly. Repeat of temperature test shall be considered in the end product.
14. The Series Faston Dual Tab Connector, Cat. No. 1969375-1, is intended for use with mating connectors size .250 in.
15. Cat. Nos. 1969725-1, 1969843-1 employs the following contacts and intended tooling:

Contact	Wire Range - Cu str	Tooling
63477-1	16 - 20 AWG	Tooling: Ocean Applicator PN 2150007 Crimp height (in) (min/max wire range): 16AWG - .060 +-.002; 20AWG - .049+- .002
1742975-1	18 - 22 AWG	Tooling: Ocean Applicator 2150325 Crimp Height (in) (min/max wire range): 18AWG - .049+-0.002; 22AWG - .039+-0.002

The suitability of any other tooling shall be an end product consideration.