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REPORT

on

COMPONENT - CONNECTORS FOR USE IN DATA, SIGNAL,
CONTROL AND POWER APPLICATIONS

Tyco Electronics Corp.
Harrisburg, PA

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DESCRIPTION

PRODUCT COVERED:

USR, CNR Components Series Crownedge - Connector, Models 286-0001-00200A and 286-0002-00200A, 286-0012-01300, 286-0012-0**00, 286-0052-02*01, 287-0032-0**01, 286-0052-01301, 285-0112-02300, 284-0112-02300, 284-0102-02300, 285-0102-0**00, 284-0102-0**00, 284-0472-15000C, 284-0472-15000D and 1766354-x, 2204642-1, 6650384-1, 6650384-3, 6651331-1, 6650384-2, 6643460-2, 6650383-2, 6650383-1, 6650383-3, 6650383-2, 1766200-1, **2204754-1**.

USR - Components Connector, Cat. No. 1932652-1.

ELECTRICAL RATINGS:

<u>Connector Model</u>	<u>Contact Type</u>	<u>PWB Cu. Wt.</u>	<u>(USR) Rating</u>	<u>(CNR) Rating</u>
286-0001-00200A, 286-0012-01300, 286-0002-00200A, 286-0012-0**00	Power	5 oz	250 V, 25 A	250 V, 17.5 A
286-0001-00200A, 286-0012-01300, 286-0002-00200A, 286-0012-0**00	Power	2 oz	250 V, 23.5 A	250 V, 12.5 A
286-0052-02*01, 287-0032-0**01, 286-0052-01301	Power		12 V(dc), 35 A	None
285-0112-02300	Signal, Power		60 V/2 A, 250 V/35 A (dc)	60 V/2 A, 250 V/25 A (dc)
284-0112-02300	Signal, Power		60 V/ 2 A, 250 V/35 A (dc)	60 V/2 A, 250 V/20 A (dc)
284-0102-02300, 285-0102-0**00, 284-0102-0**00	Power		250 V/50 A (dc)	250 V/40 A (dc)
284-0472-15000C 2204754-1 2204642-1 284-0472-15000D	Signal, Power		60 V/5A 250V/35A	60V/1A 250V/25A
1932652-1	Signal, Power High Power		60V/3A per contact 250V/17.5A per contact 250V/60A per contact	
1766354-x	Power		250V/35A	250V/25A

These devices are multi-pole connectors employing either standard hot or non-hot plug or shepherd hook contacts of the compliant and soldering termination type for use in electrical equipment where the acceptability of the combinations is determined by Underwriters Laboratories Inc. Models 286-0001-00200A, 286-0002-00200A, 286-0012-0**00, 287-0012-01300, 286-0052-01301, 285-0102-0**00, 284-0102-02300, and 284-0102-0**00 employ contacts of the compliant termination type and Models 285-0112-02300, 286-0012-0**00, 287-0032-0**01, 286-0052-02*01, 285-0102-0**00, 284-0102-02300, 2854-0102-0**00, 284-0112-02300 and 284-0102-02300 employ contacts of the soldering termination type.

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):

CNR indicates investigation to Canadian Standard, Special Use Attachment Plugs, Receptacles, and Connectors, C22.2, No. 182.3-M1987.

Use - For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability - In order to be judged acceptable as a component of electrical equipment, the following conditions should be met:

1. Model 286-0052-02*01, 287-0032-0**01, and 286-0052-01301 can be used where they will interrupt the current.
2. The mating male blade intended to be used with Models 286-0052-02*01, 287-0032-0**01, and 286-0052-01301 shall be mounted rigidly. The mating blade tested with Models 286-0052-02*01, 287-0032-0**01, and 286-0052-01301 has the following dimensions: length of 1.7 in. (43.2 mm), width of 0.40 in (10.2 mm), and thickness of 0.06 in. (1.56 mm), one piece.
3. These devices with 5 ounce PWB traces have been investigated for a current of 17.5 A and 34.5 A carried by each pole with a maximum temperature rise of 30°C and 104°C, respectively, in an ambient of 25°C and 26°C, respectively.
4. Models 286-0001-00200A, 286-0002-00200A, 286-0012-01300, and 286-0012-0**00 tested with 5 ounce PWB traces have been investigated for a current of 17.5 A and 34.5 A carried by each pole with a maximum temperature rise of 30°C and 104°C, respectively, in an ambient of 25°C and 26°C, respectively.
5. For current interruption, Model 286-0052-02*01, 287-0032-0**01, and 286-0052-01301 has been investigated for a current of 35 A carried by each pole with a maximum temperature rise of 27.8°C in an ambient of 19.7°C. This evaluation was only for UL.
6. Models 286-0001-00200A, 286-0002-00200A, 286-0012-01300, and 286-0012-0**00 tested with 2 ounce PWB traces have been investigated for a current of 12.5 A and 23.5 A carried by each pole with a maximum temperature rise of 29°C and 104°C, respectively, in an ambient of 25°C and 26°C, respectively.

- *7. Models 286-0001-00200A, 286-0002-00200A, 286-0012-01300, and 286-0012-0**00 have been mounted on and mated with a continuous filament woven glass fabric reinforced epoxy printed wiring board with the following trace dimensions:

<u>Board Type</u>	<u>Trace Thickness</u>	<u>Trace Width</u>
5 ounce	0.007 in.	0.32 in.
2 ounce	0.0028 in.	0.32 in.

8. Model 285-0112-02300 tested with 2 oz. PWB traces has been investigated for a current of 35 A on the power contacts and 2 A on the signal contacts carried by each pole with a maximum temperature rise of 40°C and 35°C, respectively, in an ambient of 22°C for UL.
9. Model 285-0112-02300 tested with 2 oz. PWB traces has been investigated for a current of 25 A on the power contacts and 2 A on the signal contacts carried by each pole with a maximum temperature rise of 24°C and 21°C, respectively, in an ambient of 21°C for C-UL.
10. Model 284-0112-02300 tested with 2 oz. PWB traces has been investigated for a current of 35 A on the power contacts and 2 A on the signal contacts carried by each pole with a maximum temperature rise of 67°C and 43°C, respectively, in an ambient of 22°C for UL.
11. Model 284-0112-02300 tested with 2 oz. PWB traces has been investigated for a current of 20 A on the power contacts and 2 A on the signal contacts carried by each pole with a maximum temperature rise of 22°C and 26°C, respectively, in an ambient of 22°C and 21°C, respectively for C-UL.

12. Models 284-0102-02300, 285-0102-0**00, and 284-0102-0**00, tested with 'L' Module blades has been investigated for a current of 50 A on the power contacts carried by each pole with a maximum temperature rise of 45°C in an ambient of 22°C for UL. The mating male blade intended to be used with Models 284-0102-02300, 285-0102-0**00, and 284-0102-0**00, shall be mounted rigidly. The mating blade tested with Models 284-0102-02300, 285-0102-0**00, and 284-0102-0**00, has the following dimensions: length of 1.19 in. (30.24 mm), width of 0.40 in. (10.2 mm), and thickness of 0.06 in. (1.56 mm), one piece.
13. Models 284-0102-02300, 285-0102-0**00, and 284-0102-0**00, tested with 'L' Module blades has been investigated for a current of 40 A on the power contacts carried by each pole with a maximum temperature rise of 29°C in an ambient of 22°C for C-UL. The mating male blade intended to be used with Models 284-0102-02300, 285-0102-0**00, and 284-0102-0**00, shall be mounted rigidly. The mating blade tested with Models 284-0102-02300, 285-0102-0**00, and 284-0102-0**00, has the following dimensions: length of 1.19 in. (30.24 mm), width of 0.40 in. (10.2 mm), and thickness of 0.06 in. (1.56 mm), one piece.
14. Compliant termination type contacts have only been evaluated for their electrical properties of conducting current through the pin or contact. They have not been evaluated termination to a PWB without the use of solder. The acceptability shall be determined in the end product evaluation. Consideration shall be given to many variables, such as various types of materials used and thicknesses for making PWBs, the thickness and width of PWB traces and the long term effects of heating and cooling.
15. Model 284-0472-15000C has been tested mated with a continuous filament woven glass fabric reinforced epoxy printed wiring board 0.054 inches thick with terminals soldered to 5 ounce copper alloy traces having the following dimensions:

<u>Circuit Type</u>	<u>Trace length</u>	<u>Trace Width</u>
Signal	1½.50 in.	0.071 in.
Power	1.75 in.	0.48 in.

Model 284-0472-15000C was investigated for a current rating of 5 A for signal and 35 A for power contacts carried by each pole with a maximum temperature rise of 56°C and 62°C, respectively, in an ambient of 22°C and 22°C, respectively for UL, and investigated for a current of 1 A for signal and 25 A for power contacts carried by each pole with a maximum temperature rise of 23°C and 29°C, respectively, in an ambient of 22°C and 22°C, respectively for C-UL.

*Model 1932652-1 has been tested mated with a continuous filament woven glass fabric reinforced epoxy printed wiring board 1.6 mm thick with terminals soldered to 6 ounce copper alloy traces having the following dimensions:

<u>Circuit Type</u>	<u>Trace length</u>	<u>Trace Width</u>
Signal	11.0 mm	1.875 mm
Power	31.0 mm	10.0 mm
High Power	27.0 mm	16.0 mm

Model 1932652-1 was investigated for a current rating of 3 A for signal 17.5 A for power and 60A for high power contacts, carried by each pole with a maximum temperature of 49.2°C , 53.5°C and 74.1°C, respectively, in an ambient of 25°C, for UL.

Model 2204754-1 has been mounted on and mated with a continuous filament woven glass fabric reinforced epoxy printed wiring board with the following trace dimensions::

<u>Board Type</u>	<u>Trace Thickness</u>	<u>Trace Width</u>
5 ounce	0.007 in.	0.42 in.

Model 2204754-1 was investigated for a current rating of 5 A for signal and 35 A for power contacts carried by each pole with a maximum temperature of 66.2 °C and 64.8 °C, respectively, in an ambient of 24.5 °C and 24.6 °C, respectively for UL, and investigated for a current of 1 A for signal and 25 A for power contacts carried by each pole with a maximum temperature rise of 45.0 °C and 46.4 °C, respectively, in an ambient of 25.9 °C and 26.1 °C, respectively for C-UL.

16. These devices have been subjected to the Temperature test with the rated currents and maximum temperature rise values tabulated below. The conductors terminated by the device and other associated components are to be reviewed in the end-use to determine whether the temperature rise from the connector exceeds their maximum operating temperature ratings.

Series Mini Crownedge	Current, A	Maximum Temperature °C	Maximum Temperature Rise, °C
1766354-x	35A	68.4°C	--
	25A	--	22.4°C

Spacings and Voltage Ratings

17. Model No. 1766354-x may be used at potentials not exceeding 250 V based on Dielectric Voltage-Withstand testing conducted at 1500 Vac.
18. The operating temperature of these devices should not exceed the temperature ratings of the insulating materials. These materials may be used interchangeably at a maximum temperature of 130°C