File E28476
Project 99ME37131

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REPORT

on

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

AMP Incorporated
Harrisburg, PA

DESCRIPTION

PRODUCT COVERED:

USR, CNR - Component Connectors - Series AMP Economy Power Connectors.

Cat Nos. X-1744036-Y, 2232900, 2232900-6, 1744055, 1-1744055-2, 1-1744055-1, 1-1744055-0, 1744055-9, 1744055-8, 1744055-7, 1744055-6, 1744055-5, 1744055-4, 1744055-3, 1744055-2, 1123722, 7-1123722-1, 6-1123722-1, 5-1123722-1, 4-1123722-1, 3-1123722-1, 2-1123722-1, 1-1123722-1, 7-1123722-0, 6-1123722-0, 5-1123722-0, 4-1123722-0, 3-1123722-0, 2-1123722-0, 1-1123722-0, 6-1123722-9, 5-1123722-9, 4-1123722-9, 3-1123722-9, 2-1123722-9, 1-1123722-9, 7-1123722-9, 7-1123722-8, 6-1123722-8, 5-1123722-8, 4-1123722-8, 3-1123722-8, 2-1123722-8, 1-1123722-8, 7-1123722-7, 6-1123722-7, 5-1123722-7, 4-1123722-7, 3-1123722-7, 2-1123722-7, 1-1123722-7, 7-1123722-6, 6-1123722-6, 5-1123722-6, 4-1123722-6, 3-1123722-6, 2-1123722-6, 1-1123722-6, 7-1123722-5, 6-1123722-5, 5-1123722-5, 4-1123722-5, 3-1123722-5, 2-1123722-5, 1-1123722-5, 7-1123722-4, 6-1123722-4, 5-1123722-4, 4-1123722-4, 3-1123722-4, 2-1123722-4, 1-1123722-4, 8-1123722-3, 7-1123722-3, 6-1123722-3, 5-1123722-3, 4-1123722-3, 3-1123722-3, 2-1123722-3, 1-1123722-3, 7-1123722-2, 6-1123722-2, 5-1123722-2, 4-1123722-2, 3-1123722-2, 2-1123722-2, 1-1123722-2, X-1744057-Y, X-1123824-Y, 1123723, 4-1123723-1, 3-1123723-1, 4-1123723-0, 3-1123723-0, 4-1123723-9, 3-1123723-9, 4-1123723-8, 3-1123723-8, 4-1123723-7, 3-1123723-7, 4-1123723-6, 3-1123723-6, 4-1123723-5, 3-1123723-5, 4-1123723-4, 3-1123723-4, 4-1123723-3, 3-1123723-3, 4-1123723-2, 3-1123723-2, 1123724, 8-1123724-2, 2-1123724-6, 1-1123724-7, 8-1123724-6, 7-1123724-6, 1-1123724-6, 9-1123724-6, 7-1123724-5, 6-1123724-5, 5-1123724-5, 4-1123724-5, 3-1123724-5, 2-1123724-5, 1-1123724-5, 9-1123724-4, 8-1123724-4, 7-1123724-4, 7-1123724-1, 6-1123724-4, 5-1123724-4, 4-1123724-4, 3-1123724-4, 2-1123724-4, 1-1123724-4, 7-1123724-3, 6-1123724-3, 5-1123724-3, 4-1123724-3, 3-1123724-3, 2-1123724-3, 1-1123724-3, 6-1123724-2, 5-1123724-2, 4-1123724-2, 3-1123724-2, 2-1123724-2, 1-1123724-2, X-2375267-Y, 237568-X, X-2384273-Y, 2384274-X, 2403362-9, X-2375239-Y, X-2375269-Y, X-2384269-Y, 2384271-X, 2410284-X, 2-2410284-3, X-1744524-Y, X-1744511-Y, X-1744037-Y, X-647676-Y, 1744337-1, 1744291-1, 2-2410284-7, 2410284-9.

GENERAL:

* These devices are multi-pole receptacle and plug connectors employing contacts of the solder and crimp termination type for use with printed circuit boards and discrete wire where the acceptability of the combination is determined by **UL LLC.**
Electrical Ratings:

RATINGS:

Cat Nos.	Wire Size (AWG)	Max Voltage AC/DC (V)	Current (A)
1123722	18	250	7.5
1123722	22-20	250	5
1123723, 2375267, 237568, 2384273, 2384274, 2403362-9, 2375239, 2375269, 2384269, 2384271, 2410284, 2-2410284-3, 1-1744055-2, X-1744524-Y	18	250	7.5
1123723, 2375267, 237568, 2384273, 2384274, 2403362-9, 2375239, 2375269, 2384269, 2384271, 2410284, 2-2410284-3	22-20	250	5
*1123823, **X-1123824-Y**	18	250	8
1123823, 1-1744055-2, X-1744524-Y, **X-1123824-Y**	20	250	6
1123823, 1-1744055-2, X-1744524-Y, **X-1123824-Y**	22	250	5
2-2410284-7	-	250	6
2-2410284-9	-	250	5
1-647676-2, 1-647676-1, 1-647676-0, 647676-9	-	250	5
647676-7, 647676-6, 647676-5, 647676-4, 1744291-1	-	250	6
647676-3, 647676-2	-	250	7
1744337-1	-	250	7

Disconnecting Use – see Sec Gen for required marking.

USR – Products designated USR have been investigated using US requirements as noted in the Test Record.

CNR – Products designated CNR have been investigated using Canadian requirements as noted in the Test Record

NOMENCLATURE:

The Cat Nos. __X-1744511-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
I: - X=0-1 and represents the number of contact positions.
II: - Y=0-9 and represents the number of contact positions.

The Cat Nos. __X-1744524-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
I: - X=0-9 and represents the number of contact positions, different contact omissions, and keying options.
* II: - Y=1-9 and represents the number of contact positions, different contact omissions, and keying options.

The Cat Nos. __X-1744036-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
I: - X=0-2 and represents different keying, as well as the position of the latch window.
II: - Y=0-9 and represents the different contact positions.

The Cat Nos. __X-1744057-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
I: - X=0-4 and represents different contact positions.
II: - Y=0-9 and represents different contact positions.

The Cat Nos. __X-1123824-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
* I: - X=**1-5** and represents color (1= natural, 2= yellow,3= blue, 4= red, 5=black).
II: - Y=1 and represents contact positions.

The Cat Nos. __X-1744037-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
I: - X=0, 1, 3 and represents different positions and boss features.
II: - Y=0-9 and represents different contact positions.

The Cat Nos. __X-647676-Y__ are designated as follows:
Example: ___X___ ___Y___
I II
I: - X=0-1 and represents different keying and contact positions.
II: - Y=0-9 and represents different contact positions.

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

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

Condition of Acceptability – In order to be judged acceptable as component of electrical equipment, the following conditions should be met.

1. These devices should be used only where they will not interrupt the current.

2. Cat. No. 1123722, mated with 1123723has been investigated for a current of 5.0 A carried by each pole, when using 22 AWG wire, with a maximum temperature rise of 25.8°C.

3. Cat. No. 1123722, mated with 1123723 has been investigated for a current of 5.0 A carried by each pole, when using 20 AWG wire, with a maximum temperature rise of 15.5°C.

4. Cat. NO. 1123722, mated with 1123723 has been investigated for a current of 7.5 A carried by each pole, when using 18 AWG wire, with a maximum temperature rise of 27°C.

5. Cat. No. 1123823, mated with 1123824 has been investigated for a current of 5.0 A carried by each pole, when using 22 AWG wire, with a maximum temperature rise of 12.2°C.

6. Cat. No. 1123823, mated with 1123824 has been investigated for a current of 6.0 A carried by each pole, when using 20 AWG wire, with a maximum temperature rise of 12.2°C.

7. Cat. No. 1123823, mated with 1123824 has been investigated for a current of 8.0 A carried by each pole, when using 18 AWG wire, with a maximum temperature rise of 15.0°C.

7A. These devices have been subjected to the Temperature test with the rated currents and maximum temperature rise and recorded temperature (adjusted to 25°C ambient) values tabulated below:

Cat Nos.	Current, A	Maximum Temperature °C	
		Rise	Recorded Temperature
1-1744055-2	7.5	24.6	49.6
	6	23.0	48.0
	5	23.6	48.6
2-2410284-7	6	15.1	40.1
2-2410284-9	5	11.8	36.8
1-647676-2	5	15.8	40.8
647676-7	6	18.8	43.8
647676-3	7	20.6	45.6
1744337-1	7	17.2	42.2

8. The suitability of the mounting means shall be determined in the end use.

9. 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.

10. The suitability of the minimum 2.6 mm (0.10 in) spacings between live parts of opposite polarity (including adjacent poles) and between live parts and exposed dead-metal parts shall be the end use.

11. The electrical and mechanical contact between the connector and the printed circuit board is to be judged in the end-use equipment.

12. The electrical and mechanical contact between the connector and the wire is to be judged in the end-use equipment.

13. The factory assembled contacts have been inspected for the following wire ranges and maximum tensile forces.

Part No.	Wire Range (AWG)	Tensile force (lb)
1123721	22, 20	8
1123721	18	20

14. The suitability of the insulating materials used in the molded bodies shall be judged in the end-use equipment.

15. The operating temperature of these devices should not exceed the temperature rating of the insulating materials. These materials may be used interchangeably at a maximum temperature of 95°C.

16. The Economy Power Connector Plugs (max 11 position) molded from RM No. 1573697, have not been evaluated for electrical ratings.

17. Right angle header, Cat. No. x-1744428-y where x is either "1" or omitted and y can be any number from 0-9, shall only be molded of Tyco Raw Material P/N 1573697.

18. 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.

Series No.	Insulating Material (#)	Flame Class	HWI	HAI	RTI, °C	Max Operating Temp, °C
Economy Power	A	V-0	4	0	130	130
Economy Power	B	V-0	3	0	140	140
Economy Power	C	V-0	4	0	130	130
Economy Power	E	V-2	4	0	130	130
Economy Power X-1744511-Y X-1744524-Y	F	V-0	4	0	140	140
Economy Power	G	V-2	3	0	130	130
Economy Power	H	V-0	4	1	130	130
Economy Power Header X-1744037-Y	I	V-0	0	0	140	140
Economy Power Plug housing	J	V-0	-	-	130	130
*Economy Power **Header, X-1123824-Y**	K	V-0	4	**0**	130	130
Economy Power Header	L(@1)	V-0	4	0	130	130
Cat. Nos. X-1744036-Y, X-1744037-Y, X-1744057-Y, X-1123824-Y, X-647676-Y, 1744337-1, 1744291-1 Economy Power Plug housing	M(@2)	V-0	4	0	130	130
Economy Power Header	J(@3)	V-0	4	0	130	130
Economy Power Header Assy	B(@4)(@5)	HB	3	0	140	140
Cat. Nos X-2375267-Y, 237568-X, X-2384273-Y, 2384274-X, 2403362-9	N	V-0	4	3	130	130
Cat. Nos X-2375239-Y, X-2375269-Y, X-2384269-Y, 2384271-X	O	V-0	4	3	130	130
Cat. Nos. 2410284-X, 2-2410284-3, 2410284-9, 2-2410284-7	P	V-0	0	0	130	130

(#) – Code for Insulating Body Material.

A. Tyco Raw Material P/N 1573206
1. Dielectric strength (kV/mm): 28

2. CTI: 0

B. Tyco Raw Material P/N 704788
1. Dielectric strength (kV/mm): 43
2. CTI: 3

C. Tyco Raw Material P/N 1573755
1. Dielectric strength (kV/mm): 27
2. CTI: 3

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E. Tyco Raw Material P/N 705304
1. Dielectric strength (kV/mm):
2. CTI: 2

F. Tyco Raw Material P/N 1573697
1. Dielectric strength (kV/mm):
2. CTI: 2

G. Tyco Raw Material P/N 1573161
1. Dielectric strength (kV/mm):
2. CTI: 2

H. Tyco Raw Material P/N 2136278
1. Dielectric strength (kV/mm): 25
2. CTI: 0

I. Tyco Raw Material P/N 2136263
1. Dielectric strength (kV/mm): 6.3
2. CTI: 1

J. Tyco Raw Material P/N 703416
1. Dielectric strength (kV/mm): 28
2. CTI: 0

K. Tyco Raw Material P/N 1573551
1. Dielectric strength (kV/mm): -
2. CTI: 2

L. Tyco Raw Material P/N 1573140
1. Dielectric strength (kV/mm): -
2. CTI: 3

M. Tyco Raw Material P/N 2136597
1. Dielectric strength (kV/mm): -
2. CTI: 3

N. Tyco Raw Material P/N 1573551
1. Dielectric strength (kV/mm): 28
2. CTI: 2

O. Tyco Raw Material P/N 2401706
1. Dielectric strength (kV/mm): 28
2. CTI: 2

P. Tyco Raw Material P/N 705999
1. Dielectric strength (kV/mm): 8
2. CTI: 1

@1: Economy Power Connector, Header, Vertical Single Row, 3.96 Pitch, 12 Pole max (PNs shown in Ill. 6 only)

@2: Economy Power Plug housing, 3.96 Pitch, 11 Pole max (PNs showed in ILL. 7 only)

@3: Economy Power Header, 3.96 Pitch, 12 Pole max (PNs showed in ILL. 8 only)

@4: Economy Power Connector, Header, Vertical Single Row, 3.96 Pitch, 11 Pole max for full pin, 9 pole max for selective pin (PNs showed in ILLs. 10 and 11 only).

@5: With colorant(Tyco P/N 704760).