Faston .250 series and .187 series receptacle
Temperature Derating Curve Evaluation

1. INTRODUCTION

1.1 Purpose

Testing was performed on the TE Connectivity .250 SERIES and .187 SERIES (Flag & Straight) Standard Receptacle to evaluate performance of terminal (2238171-3, 2238172-3, 2238173-3 & 2238174-3).

1.2 Scope

This report covers the Electrical Performance For Faston .250 & .187 SERIES receptacle.
The specimens listed in Table 1 of paragraph 1.4 were subject to the test sequence outlined in Table 2 of paragraph 1.5. Testing was performed at Shanghai Electrical Components Test Date: 5th JULY 2018 and 5th JULY 2018. The associated test number is TP-18-01555-01-001 and TP-18-01555-02-001

1.3 Conclusion

Based on the test results, the product performance is meet product specification. See summary of testing for more details.

1.4 Test Specimens

Specimens with the following part number as Table 1 were used for this test. Refer to table 1 for test specimen identification information.

Table 1

Test Group	Part No	Description	Qty.	Comments
1	2238173-3	FASTON .250 STD.REC.2DAWG 22-12 TPBR	12	
2	2238171-3	FASTON .250 STD.REC.FLAG 2DAWG 22-12 TPBR	12	
3	2238174-3	FASTON .187 STD. REC.2DAWG 24-14 TPBR	12	
	2238172-3	FASTON .187 STD. REC. FLAG 2DAWG 24-14 TPBR	12	

1.5 Test Sequence

Specimens identified in table 1 were subjected to the test sequence outlined in Table 2.

Table 2-Test sequence

Test	Test Group	
	1	2
	Test Sequence	
Examination of the product	1	
Current temperature derating curve		2

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Note:

a). Test group defined per customer requirement;

b). Numbers indicate sequence in which tests are performed.

1.6 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15°C to 35°C

Relative Humidity: 25% to

2. Current temperature derating curve

2.1 Refer to figure 1 for the curve of 2238171-3 (Faston) with AWG12#.

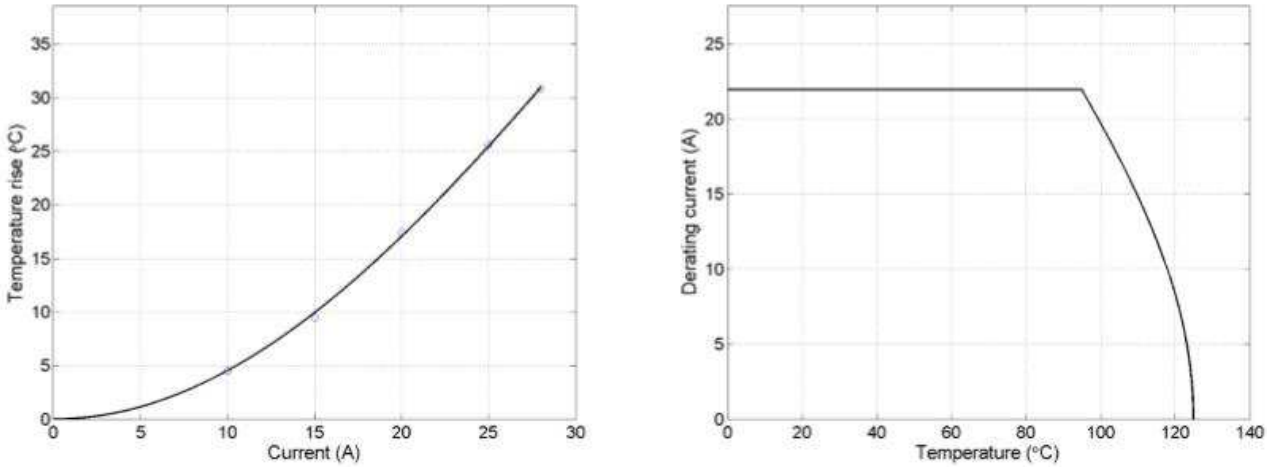

Figure 1- typical derating curve of 2238171-3 AWG12#

The temperature rise value reach 30℃ when the loading current is 27.5A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 23.9A & 75℃ ambient temperature

2.2 Refer to figure 2 for the curve of 2238172-3 (Faston) with AWG14#.

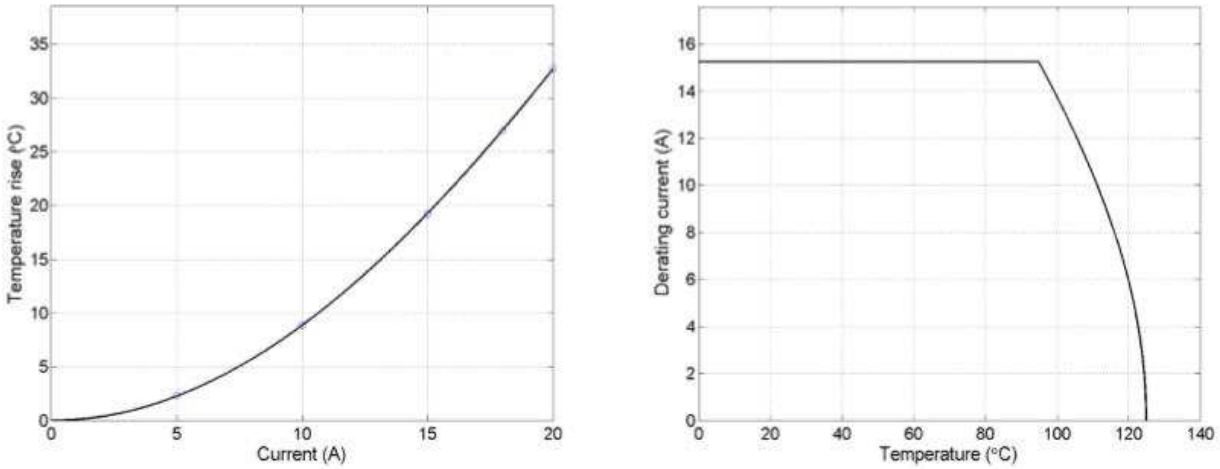

Figure 2- typical derating curve of 2238172-3 AWG14#

The temperature rise value reach 30℃ when the loading current is 19.1A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 15.1A & 75℃ ambient temperature.

2.3 Refer to figure 3 for the curve of 2238174-3 (Faston) with AWG14#.

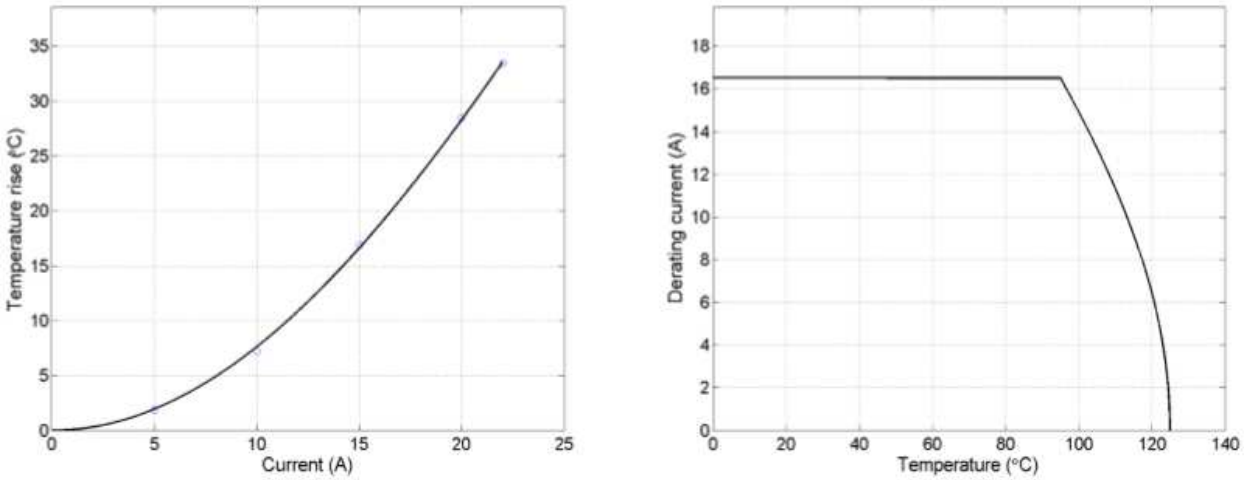

Figure 3- typical derating curve of 2238174-3 AWG14#

The temperature rise value reach 30℃ when the loading current is 20.7A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 16.3 A & 75℃ ambient temperature.

2.4 Refer to figure 4 for the curve of 2238173-3 (Faston) with AWG22#.

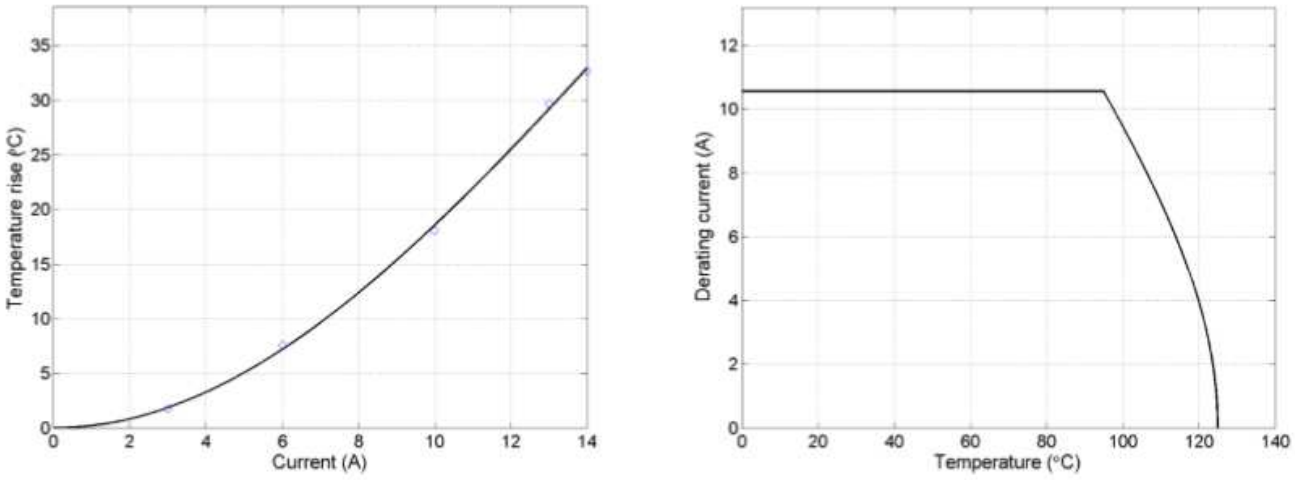

Figure 4- typical derating curve of 2238173-3 AWG22#

The temperature rise value reach 30℃ when the loading current is 13.2A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 10.3 A & 75℃ ambient temperature.

2.5 Refer to figure 5 for the curve of 2238171-3 (Faston) with AWG22#.

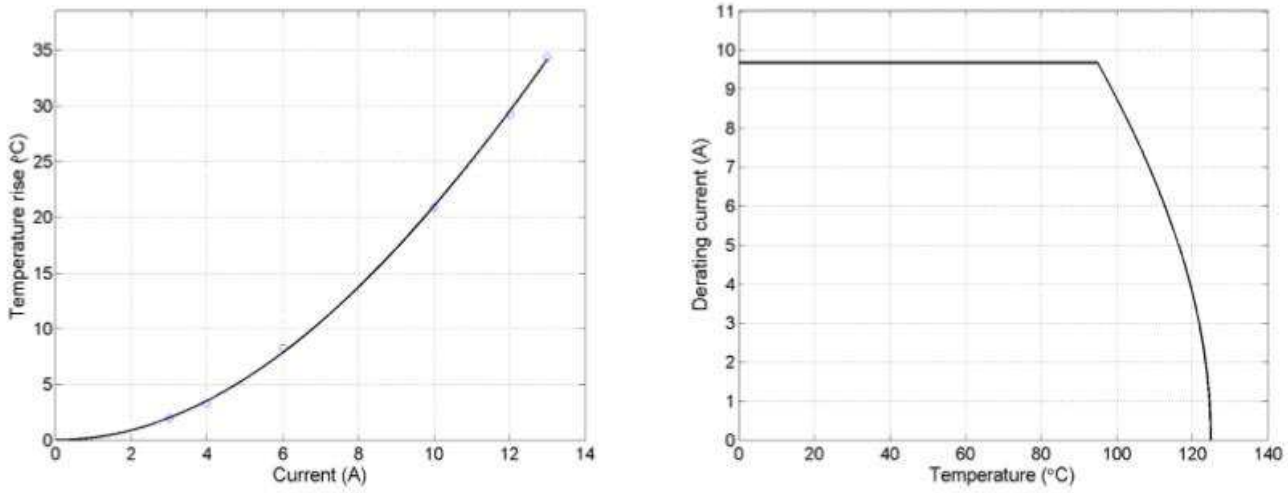

Figure 5- typical derating curve of 2238171-3 AWG22#

The temperature rise value reach 30℃ when the loading current is 12.1A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 9.7A & 75℃ ambient temperature.

2.6 Refer to figure 6 for the curve of 2238174-3 (Faston) with AWG24#.

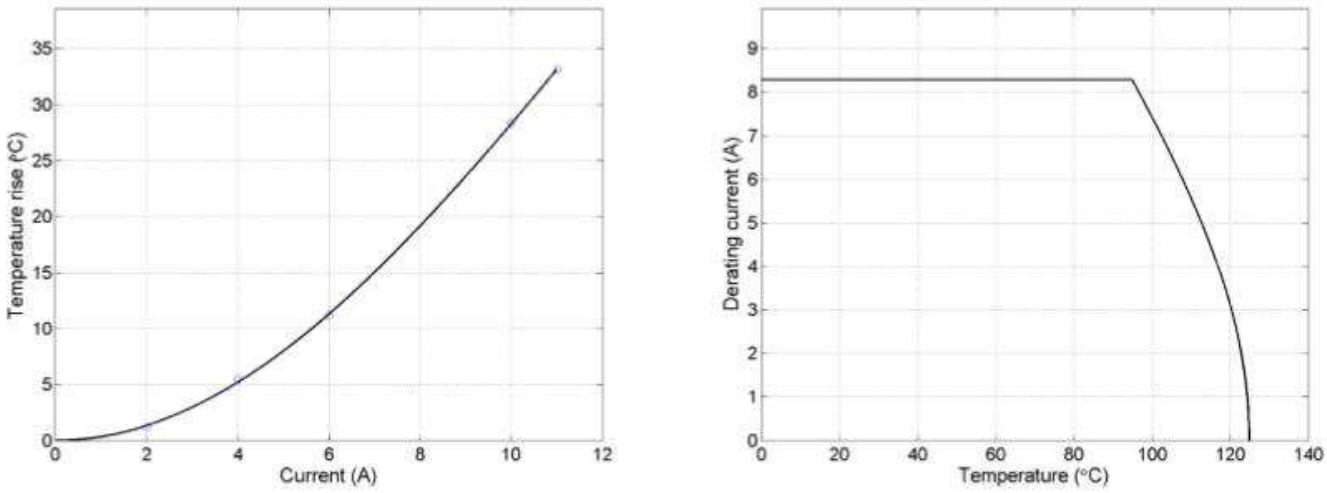

Figure 6- typical derating curve of 2238174-3 AWG24#

The temperature rise value reach 30℃ when the loading current is 10.4A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 8.3A & 75℃ ambient temperature.

2.7 Refer to figure 7 for the curve of 2238173-3 (Faston) with AWG12#.

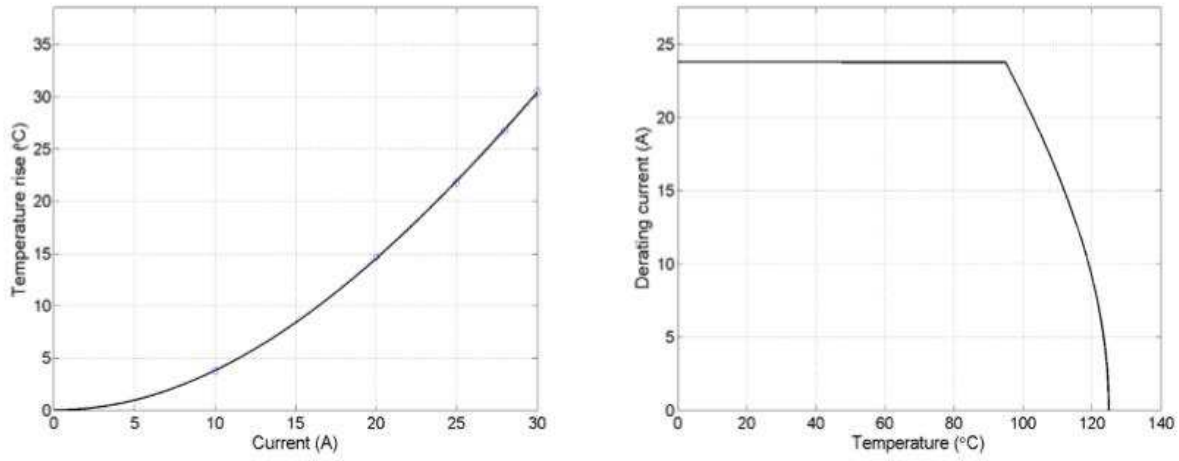

Figure 7- typical derating curve of 2238173-3 AWG12 #

The temperature rise value reach 30℃ when the loading current is 29.8A after data fitting the current versus average temperature rise value. the break-point of derating curve corresponds to the current 24A &75℃ ambient temperature.

3. TEST PROCEDURES

3.1 Temperature rise test

a. The test specimens were tested in the as-specified state, thermocouple were soldered on the crimp.
b. Wire all terminal poles and connect to DC power supply, measure and record the temperature rising when the temperature is steady.
c. Thermal stability was achieved when the temperature rising of a minimum of three consecutive reading taken at 5 minutes intervals minimum does not differ by more than ±1℃ for each thermocouple.
d. The current shall be maintained for a period over 1 h during the test.
e. refers to figure 8 for temperature rise test set

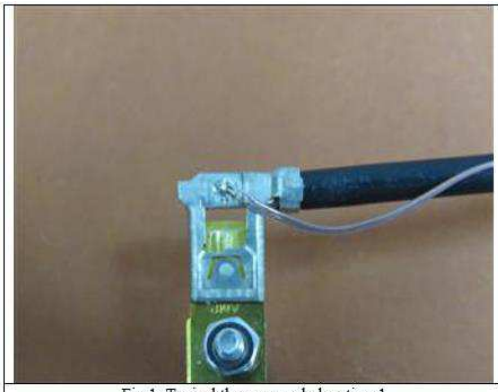
Fig.1: Typical thermocouple location-1

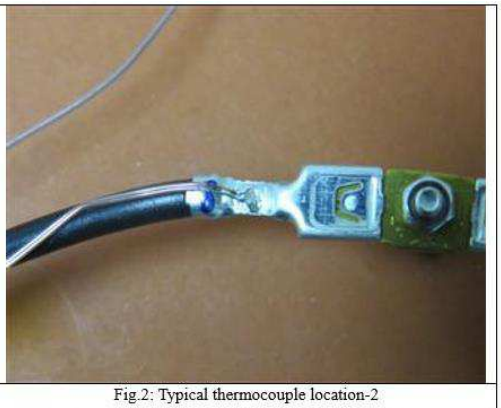
Fig.2: Typical thermocouple location-2

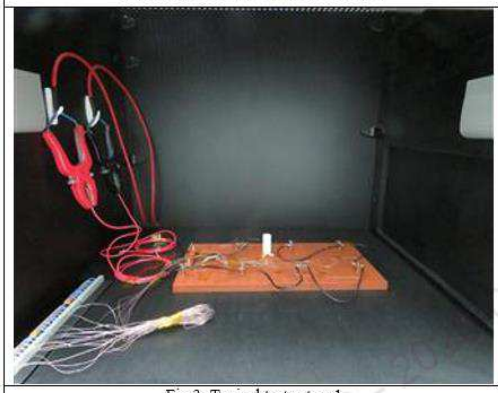
Fig.3: Typical test setup-1

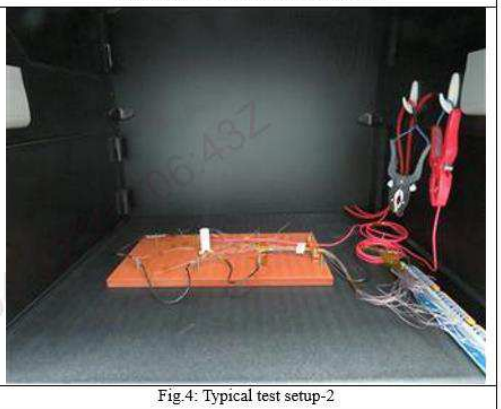
Fig.4: Typical test setup-2

Figure 8 – temperature rise test set

4. CALIBRATION

4.1 Calibration Statement

All equipment containing a calibration number is calibrated and traceable through TE Connectivity (TE).

4.2 Equipment List

Equipment Name	Calibration Number
Memory Hilogger (LR8400-21)	E-00184
Multi-Range DC Power Supply (PSW 30-72)	E-00367
Multi-Range DC Power Supply (PSW 30-72)	E-00485
Memory Hilogger (LR8400-21)	E-00653
Multi-Range DC Power Supply (GWINSTEK PSW 30-72)	E-00738
Multi-Range DC Power Supply (GWINSTEK PSW 30-72)	E-00739
Memory Hilogger (HIOKI 8400-21)	E-00740
Memory Hilogger (HIOKI 8400-21)	E-00741

5. VALIDATION

Requested by:

_____ ____/____/____
Product Engineer
TE Connectivity India Pvt Ltd.

Prepared by:

_____ ____/____/____
Test Engineer
Shanghai Electrical Components Test Lab.

Approved by:

_____ ____/____/____
Manager
Shanghai Electrical Components Test Lab.