E-SPRING High Temp. CONTACT 6.35 Receptacles P.N. 336075-5

1. INTRODUCTION

1.1 Purpose

Testing was performed on E-SPRING High temperature CONTACT 6.35 Receptacle to determine its conformance to the requirements of Tyco electronics AMP Product Specification 108-22150 Rev. F.

1.2 Scope

This report covers the electrical, mechanical and environmental performance of the E-SPRING High temperature CONTACT 6.35 Receptacle manufactured by the Tyco Electronics AMP España S. A. The testing was performed between Nov 15, 2002 and July 17, 2003.

1.3 Conclusion

The E-SPRING High temperature CONTACT 6.35 Receptacle P.N. 336075-5 meets the electrical, mechanical, and environmental performance requirements of Tyco Electronics AMP Product specification 108-22128 Rev. F.

1.4 Product Description

The E-SPRING High temperature CONTACT 6.35 is a receptacle for FASTON 6.35 tabs.
The contact material is nickel plated steel. Tests tabs are brass for insertion / extraction forces according (IEC 760, 1983).Steel tabs are for the rest of test.

1.5 Test Samples

The test samples were randomly selected from normal current production lots, and the following part numbers were used for test:

Test Group	Qty	Part Number	Description
1	120	336075-5	E-SRING CONTACT Receptacle.
2	50	336075-5	E-SPRING CONTACT Receptacle. /0.5mm² / 0.75mm² / 0.5+0.5mm² / 1.0mm² / 1.5mm²
3, 4, 5	48	336075-5	E-SPRING CONTACT Receptacle. / 0,5mm² / 1.5mm²

1.6 Qualification Test Sequence

	TEST GROUPS				
TEST OR EXAMINATION	1	2	3	4	5
	Test Sequence				
Product examination	1	1	1	1	1-5
Insertion Forces	2				
Withdrawal Forces	3				
Crimp Tensile		2			
Termination Resistance			2-7	2-4	2-4
Temperature rise vs. Current			3-6		
Electrical overload cycling			4		
Raised temperature test			5		
Humidity-Temperature cycling				3	
Corrosion salt spray					3

2. SUMMARY OF TESTING

2.1 Examination of product – All Groups

All samples submitted for testing were selected from normal current production lots. They were inspected and accepted by the Quality Assurance Department.

2.2 Insertion forces – Group 1

All insertion forces were less than 45 N.

2.3 Withdrawal forces – Group 1

All withdrawal forces were lower than 80 N for the first operation and higher than 20N for the sixth, withdrawal.

2.4 Crimp Tensile – Group 2

All tensile values were greater than 60 N for 0.50 mm^2 and 0.50 mm^2 + 0.50 mm^2, 80 N for 0.75 mm^2, 110 N for 1.00 mm^2 and 150 N for 1.50 mm^2

2.5 Termination Resistance – Groups 3, 4, 5

All initial and final termination resistance measurements at specified current were less than 5 mohm.

2.6 Temperature Rise vs. Current – Group 3

All samples had a temperature rise of less than 30° C above ambient initially when specific current was applied.

2.7 Electrical overload cycling – Group 3

No evidence of physical damage was visible on tested samples, after 500 cycles of cycling the current on and off. All samples had a temperature rise of less than 85° C above ambient and had less than 15° C change in temperature rise between 24th and 500th cycle when test current was applied.

Current cycling: 4A for 0.5mm^2, 12A for 1.5mm^2.
Test current applied: 8A for 0.5 mm^2, 18A for 1.5mm^2.

2.8 Raised temperature test- Group 3

No evidence of physical damage was visible to test samples, after 8 cycles of cycling temperature (23 hours with current and 1 hour without current) with samples in a cabinet at maximum operating temperature. All samples had a temperature rise of less than 45° C above ambient when specified current was applied.

Specified current applied: 4A for 0.5mm^2 .Not applicable for 1.5mm^2.

2.9 Humidity – Temperature test- Groups 4

All samples had contact resistance values below the maximum limit required after testing. (5mohm).

2.10 Corrosion salt spray test- Groups 5

All samples had contact resistance values below the maximum limit required after testing (6mV/A).

3. TESTS METHODS

3.1 Examination of product (Reference Standard: IEC 60512, test 1a, 1b)

Product drawings and inspections plans were used to examine the samples. They were examined visually and functionally.

3.2 Insertion forces (Reference Standard: IEC 60512 test 13b and IEC 760)

Insertion forces were measured by inserting a test tab into the receptacle at a rate of 10 mm per minute.

3.3 Withdrawal forces (Reference Standard: IEC 60512 test 13b and IEC 760)

Withdrawal forces were measured by withdrawing a test tab from the receptacle at a rate of 10 mm per minute.

3.4 Crimp Tensile (Reference Standard: IEC 60512 test 16b and IEC 760)

An axial load was applied to each sample at a rate of 50 mm per minute.

3.5 Termination Resistance (Reference Standard: IEC 60512, test 2b and IEC 760)

Termination resistance measurements were made using a four terminal technique (Figure 1).

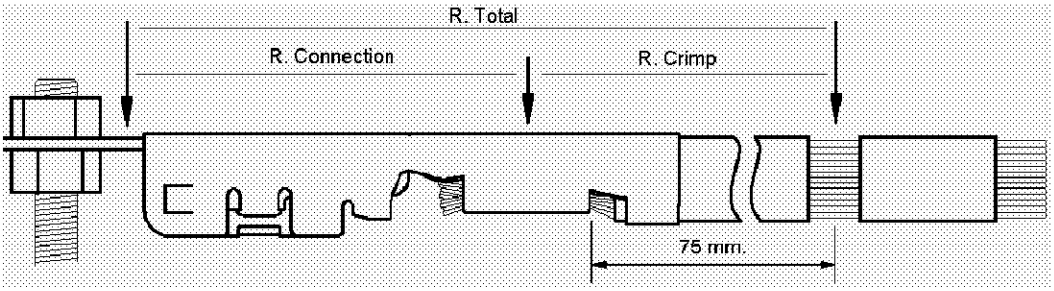

Figure 1

3.6 Temperature Rise vs. Current (Reference Standard: IEC 60512, test 5a and IEC 760)

Terminal temperature was measured while energised at test current. Temperature of the samples was measured after 30 minutes for stabilisation. The ambient temperature was subtracted from measured temperature of the specimen to find the temperature rise.

3.7 Electrical overload cycling (Reference Standard: IEC 60512, test 9b and IEC 760)

The terminals were cycled on and off at test current. Testing consisted of 500 cycles, with each cycle having current for 45 minutes and current off for 15 minutes. Temperature measurements were taken at 24 and 500 cycles.

3.5 Raised temperature test (Reference Standard: EN 61210)

The terminals were cycled on and off at specified current. Testing consisted 8 cycles of 24 hours, with each cycle having current for 23 hours and current off for 1hour. Temperature measurements were taken at finishing test.

3.6 Humidity – Temperature cycling (Reference Standard: IEC 68-2-30)

Testing consisted 2 cycles at 95% (HR); Upper temperature: 40ºC, Lower temperature: 25ºC. Contact resistance values were measured after testing.

3.7 Corrosion salt spray (Reference Standard: UNE 20606-6)

Testing consisted 48 hours at 5% of concentration.Temperature 35ºC +/-2ºC PH 6.5 / 7.2.Contact resistance values were measured after testing.