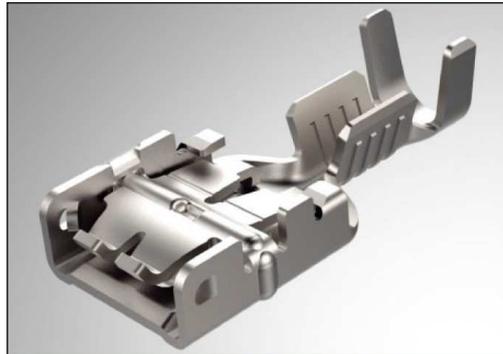

E-SPRING CONTACT IN CuNiSi



1. SCOPE

1.1 Content

This specification covers the performance requirements, tests and quality requirements for E-SPRING CONTACT that mate with tab size 6,3 mm with hole and that is according to the commercial standard IEC 61210. PN Involved are the CuNiSi and CuNiSi tin plated versions of: 336075, 336076 and 1644008.

These terminals are suitable for Consumer Goods applications in which low insertion and high retention forces are needed.

1.2. Classification

When tests are performed on the subject product line, the procedures specified in this Product Specification shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. TE Specifications

- A. 109-1 : General Requirements for Test Specifications
- B. 114-22017 : 6.35 SRS E-Spring Contacts, Application of

2.2. Commercial Standards

- IEC Publication 60512
- IEC Publication 61210

2.2. Agency Approvals Documents

- VDE Test Report n. 201489-CC3-2

A1	Clarified derating and included VDE details	DC	31JUL2015	DC	31JUL2015
A	Released	DC	17JUL2015	DC	17JUL2015
rev	rev. record	DR	Date	CHK	Date

DR	DATE	APVD	DATE
Senthil Kumar P K**	25 Feb 2014	Rajendra Pai**	25 Feb 2014

3. REQUIREMENTS

3.1. Design and Construction

Terminals shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

Terminals: CuNiSi and CuNiSi tin plated
 (For Brass Version see 108-22128)
 (For Pre-Ni Steel Version see 108-22150)

3.3. Ratings

- A. Current/Voltage: 16 A maximum / 240 Vac
- B. Operating Temperature: -40°C to +160°C for plain, tin plated connection

Maximum operating temperature included the temperature increasing due to working current flow.

4. PERFORMANCE AND TEST DESCRIPTION

Terminals shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

4.1 Test Requirements and Procedures Summary

Figure 1

TEST DESCRIPTION	REQUIREMENTS	PROCEDURE
Examination of Product	Meets requirements of product drawing and AMP Specification 114-22017	Visual, dimensional and functional per applicable inspection plan Ref. standard IEC 60512-1-1
ELECTRICAL		
Temperature Rise (a)	Temperature rise of any individual termination shall not exceed 30°C. To use the same 12 samples (temp rise = temp of conn - room temp)	Procedure according to test 5a of IEC 60512-5-1. Temp. rise at rated current shall be acc. to IEC 61210, par 8.3 and certified by VDE with 12A and 1,0mm ² wire.
Current Temperature Derating	Test the greater section of each PN. The max. temperature will be the max. operating temperature specified at point 3.3. Wire section Test current 1,0 mm ² 8 A 1,5 mm ² 10 A 2,5 mm ² 16 A <u>Additional condition:</u> Wire section Test current 1,0 mm ² 12 A	Contact without housing. Procedure according to test 5b of the IEC 60512-5-2. Additional condition (12A with 1,0mm ² wire) certified by VDE. (See par. 5.4, Figure 3)

<p>Electrical Overload Resistance (Current Loading, cyclic)</p>	<p>After 24 cycles and at the completion of 500 cycles for the same 12 samples, the following requirement shall be met</p> <p>Temperature rise of each termination shall not exceed 85 °C</p>	<p>Subject mated contacts to 500 cycles at indicated current for 45 minutes 'ON' - 15 minutes 'OFF'.</p> <p>Test shall be performed in accordance with IEC 61210, par. 8.4 and IEC 60512-9-5.</p> <p>Certified by VDE (15A with 1,0mm² wire)</p>
<p>Elevated Temperature Test</p>	<p>Temperature rise ≤ 45 °C</p>	<p>Subject mated contacts to 8 cycles at indicated current for 23h 'ON' - 1 h 'OFF'.</p> <p>Test current: 12A (1,0mm² wire)</p> <p>Test shall be performed in accordance with IEC 61210, par. 8.5.</p> <p>Certified by VDE.</p>

TEST DESCRIPTION	REQUIREMENTS		PROCEDURE
MECHANICAL			
<p>Crimp Tensile</p>	<p>Wire Size</p> <p>Mm²</p> <p>0,5 1,0 1,5 2,5</p>	<p>Crimp Tensile</p> <p>Min. Force for each of the 10 samples to be used (N)</p> <p>60 110 150 230</p>	<p>Determine crimp tensile at a rate of 50 mm minute, according to test method 16d of IEC 60512-16-4.</p> <p>In double crimping case, the crimp tensile test must be done pulling only the less wire section and the minimum force to test will be the same with simple crimping with the same wire section.</p> <p>Also according to IEC 61210, par. 8.6 (specific requirement: 108N min. with wire size 1,0mm²) as certified by VDE.</p>
<p>Insertion Forces</p>	<p>According to IEC 61210.</p> <p>Number of samples is 10.</p>		<p>Test shall be performed in accordance with test 13b of IEC 60512-13-2.</p> <ul style="list-style-type: none"> • Male tabs TE PN 928814 or 63274-1 (or equivalent) without any plating shall be used. • Insertion withdrawal speed shall be 10 mm/min. <p>Also acc. to IEC 61210 par. 8.1 as certified by VDE.</p>

Withdrawal Forces	<p>According to IEC 61210.</p> <p>The same 10 samples to be used.</p>	<p>Test shall be performed in accordance with test 13b of IEC 60512-13-2.</p> <ul style="list-style-type: none"> • Male tabs TE PN 928814 or 63274-1 (or equivalent) without any plating shall be used. • Insertion withdrawal speed shall be 10 mm/min. <p>Also acc. to IEC 61210 par. 8.1 as certified by VDE.</p>
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End Figure 1

- (a) Maximum rated current that can be carried by this product is limited by maximum operating temperature of housings, which is +105° C, and temperature rise of contacts, which is 30°C. Variables which shall be considered for each application are: wire size, connector size, contact material and ambient temperature.

4.2. Connector Test and Sequences

Figure 2

	TE and VDE certified				VDE certified
TEST OR EXAMINATION	TEST GROUP (a)				
	1	2	3	4	5
Examination of product	1,4	1,4	1,3	1,3	1,6
Temperature Rise vs Current	2				2
Electrical Overload Resistance (Current Loading, cyclic)			2		4
Elevated Temperature Test					5
Derating Curve	3				3
Crimp Tensile				2	
Insertion Forces		2			
Withdrawal Forces		3			

5. QUALITY ASSURANCE PROVISIONS

5.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. Each group shall consist of 10 or more samples per wire size.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

C. Acceptance

Failure attributed to equipment, test group, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification.

5.2. Re-qualification Testing

Re-qualification shall be established by the cognizant divisional engineering function and may consist of all or any part of the overall qualification program provided that it is conducted within the required time period.

5.3. Quality Conformance Inspection

The applicable AMP inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

5.4. Derating curve

Derating curve for terminal 336075-6 (12A and 1,0mm² wire) as shown below:

Figure 3

