

DESIGN OBJECTIVES

The product described in this document has not been fully tested to insure conformance to the requirements outlined below. Therefore AMP Incorporated makes no representation or warranty, expressed or implied, that the product will comply with these requirements.

Further, AMP Incorporated may change these requirements based on the results of additional testing and evaluation.

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Per ulteriori informazioni si prega di contattare l'Ufficio Tecnico.

1.6mm CIRCULAR MALE AND FEMALE CONTACTS

Product Code: E498

GPL: A42

rev. letter	rev. record	DR	Date	CHK	Date
A2	REVISED	<i>M.P.</i>	24/01/06	<i>R.M.</i>	24/01/06
A1	REVISED	R.M.	14/10/05	A.G.	14/10/05
A	FIRST ISSUE	R.M.	31/05/05	A.G.	31/05/05
DR.		DATE	APVD		DATE
R. MARTINI		21 APR 2005	A. GENTA		21 APR 2005

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1.0 SCOPE:

This specification covers the requirements for product performances, test methods and quality assurance provisions of:

Description	Tyco Part Number	Wire range
Tin plated female contact	1-1437709-4	0.35mm ²
	1-1437709-5	0.5-1.0mm ²
	1-1437709-6	1.5-2.5mm ²
Tin plated female contact L.I.F.	0-1437709-3	0.35mm ²
	0-1437709-2	0.5-1.0mm ²
	0-1437709-1	1.5-2.5mm ²
Gold plated female contact	0-1437709-9	0.35mm ²
	1-1437709-0	0.5-1.0mm ²
	1-1437709-7	1.5-2.5mm ²
Tin plated male contact	1-1437709-1	0.35mm ²
	1-1437709-2	0.5-1.0mm ²
	1-1437709-3	1.5-2.5mm ²
Gold plated male contact	0-1437709-6	0.35mm ²
	0-1437709-7	0.5-1.0mm ²

2.0 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 TYCO SPECIFICATIONS:

Tyco Document	Description
114-20121	Application Specification
C-1418069	Customer Drawing for female contacts
C-1418070	Customer Drawing for male contacts

REQUIREMENTS:

3.0 DESIGN AND CONSTRUCTION:

Product shall comply with the design, construction and physical dimensions specified in the applicable product drawing.

3.1 CONTACT RATING:

Current carrying capacity	20 A max. with 2.5mm ² wire
Maximum mating cycles	10 for tin-plated contacts 50 for gold-plated contacts
Temperature range	-40°C to 130°C for tin-plated contacts -40°C to 150°C for gold-plated contacts
Operating Voltage	24 V d.c. (for application at higher voltage please contact Tyco Electronics)

3.2 MATERIALS:

Component	Material	Finish
Socket contact, body	Phosphor bronze	Tin plated or selective gold plated
Socket contact, sleeve	Brass	----
Pin contact	Phosphor bronze	Tin plated or selective gold plated
Grease	Tin plated terminals: grease based on a lithium soap. Gold plated terminals: grease based on a synthetic hydro-carbon oil.	----

3.3 QUALITY ASSURANCE PROVISION:

A. Sample preparation:

The test samples to be used for the tests shall be prepared by randomly selecting them from the current production, and the contact shall be crimped in accordance with the relevant Application Spec.

No sample shall be reused, unless otherwise specified.

B. Test Conditions:

All the tests shall be performed under the combination of the following test conditions, unless otherwise specified.

Room temperature: $23 \pm 5^{\circ}\text{C}$
Relative Humidity: 45÷75%
Atmospheric Pressure: 860÷1060 mbar

4.0 TEST REQUIREMENTS AND PROCEDURES SUMMARY:

VISUAL EXAMINATION			
Par.	Test Items	Requirements	Procedures
4.1.0	Confirmation of product and visual examination	Product shall be in accordance with the requirements of applicable product drawing and Application specification. No visible damage, cracking or defect when the product is new and even after environmental, mechanical and electrical tests	Inspect visually, dimensionally and functionally as per applicable quality inspection plan.

ELECTRICAL REQUIREMENTS			
Par.	Test Items	Requirements	Procedure
5.1.0	Contact Resistance	$R_{cont} \leq 3 \text{ m}\Omega$	The contact resistance in new conditions is measured in accordance with IEC 512-2 Test 2a (see Fig. 1) Current rating: < 100 mA Applied voltage: $\leq 20 \text{ mV}$
5.1.1	Crimping Resistance	R_{crimp} : $\leq 1.0 \text{ m}\Omega$ (0.35-0.5mm ²) $\leq 0.8 \text{ m}\Omega$ (>0.5-1.0mm ²) $\leq 0.5 \text{ m}\Omega$ (>1.0-2.5mm ²)	The crimping resistance in new conditions is measured in accordance with IEC 512-2 Test 2a (see Fig. 1) Current rating: < 100 mA Applied voltage: $\leq 20 \text{ mV}$
5.1.2	Current carrying capacity	Max. 20 A See Diagram 2	Contacts in free air, wire size 2.5mm ² , at room temperature. Test to IEC 512-3.
5.1.3	Current ratings depending on the ambient temperature	See Diagram 3	Contacts in housing. Test to IEC 512-3

MECHANICAL REQUIREMENTS			
Par.	Test Items	Requirements	Procedures
6.1.0	Mating Force	<p>1st Mating Force: ≤ 15 N for tin plated contact. ≤ 10 N for gold plated contact.</p>	Operation speed: 25 mm/min.
6.1.1	Unmating Force	<p>1st Unmating Force: ≤ 15 N for tin plated contact. 1st Unmating Force: ≤ 10 N for gold plated contact. 10th Unmating Force: ≥ 3 N for tin plated contact. 10th Unmating Force: ≥ 1.5 N for gold plated contact.</p>	Operation speed: 25 mm/min.
6.1.2	Crimping Retention Force	See Table 1	Operation Speed: 25 mm/min
6.1.3	Contact Retention Force in the housing	<p>With spacer in pre-latched position: > 30 N With spacer in fully latched position: > 80 N</p>	Operation Speed: 25 mm/min

ENVIRONMENTAL REQUIREMENTS			
Par.	Test Items	Requirements	Procedures
7.1.0	Electrical Stress Test	<p>At the end of the whole test, the total contact resistance shall be:</p> <ul style="list-style-type: none"> - $\leq 6 \text{ m}\Omega$ for tin plated terminals, - $\leq 4.5 \text{ m}\Omega$ for gold plated terminals, 	<p>Condition and sequence of the test: see Table 2.</p> <p>Temperature: -40°C to 80°C per 6 hours, as per Diagram 1.</p> <p>Current during the warm phase, see derating curve at 80°C ambient temperature (see Diagram 3)</p>
7.1.1	Environmental simulation	<p>At the end of the whole test, the total contact resistance shall be:</p> <ul style="list-style-type: none"> - $\leq 6 \text{ m}\Omega$ for tin plated terminals, - $\leq 4.5 \text{ m}\Omega$ for gold plated terminals, 	<p>Condition and sequence of the test: see Table 2.</p> <p>Samples installed in complete housing. Measure in mated state with housings snapped in.</p>

VIBRATIONAL REQUIREMENTS			
Par.	Test Items	Requirements	Procedures
8.1.0	Thermo-Vibration Test	<p>At the end of the whole test, the total contact resistance shall be:</p> <ul style="list-style-type: none"> - $\leq 6 \text{ m}\Omega$ for tin plated terminals, - $\leq 4.5 \text{ m}\Omega$ for gold plated terminals, <p>No electrical micro-interruption greater than $1\mu\text{sec}$ shall occur.</p>	<ul style="list-style-type: none"> - Frequency 20-1000-20 Hz with a variation rate of 2 Hz/sec (cycle duration 16.3 min). - Acceleration increasing from 10g to 30g between 20 and 100 Hz, constant 30g from 100 Hz to 1000 Hz (see Diagram 4). - Temperature variation as per Diagram 5, one cycle duration 10 hours. - Test duration 50 hours for each X, Y, Z axis.

Wire section (mm ²)	Crimping retention force (N)
0.35	> 60
0.5	> 80
0.75	> 120
1.0	> 160
1.5	> 200
2.5	> 250

Table 1

Test or examination	Test sequence	
	Test Group - Electrical stress -	Test Group - Environmental simulation -
Visual inspection	1, 5	1, 9
Contact resistance to IEC 512-2	2, 4	2, 4, 6, 8
Thermal shock to IEC 68 Part 2-14 Na Duration: 10 cycles / temperature: -40 to 120°C, per 15 min.		3
Temperature cycling to IEC 68 Part 2-14 Nb Duration: 20 cycles / temperature: -40 to 100°C, per 3h		5
Humidity temperature cycling to IEC 68 Part 2-30 Duration 10 cycles / max. temperature 55°C		7
Temperature / current changing test 60 cycles (1 cycle: -40 to 80°C per 6h; see diagram 1)	3	

Table 2

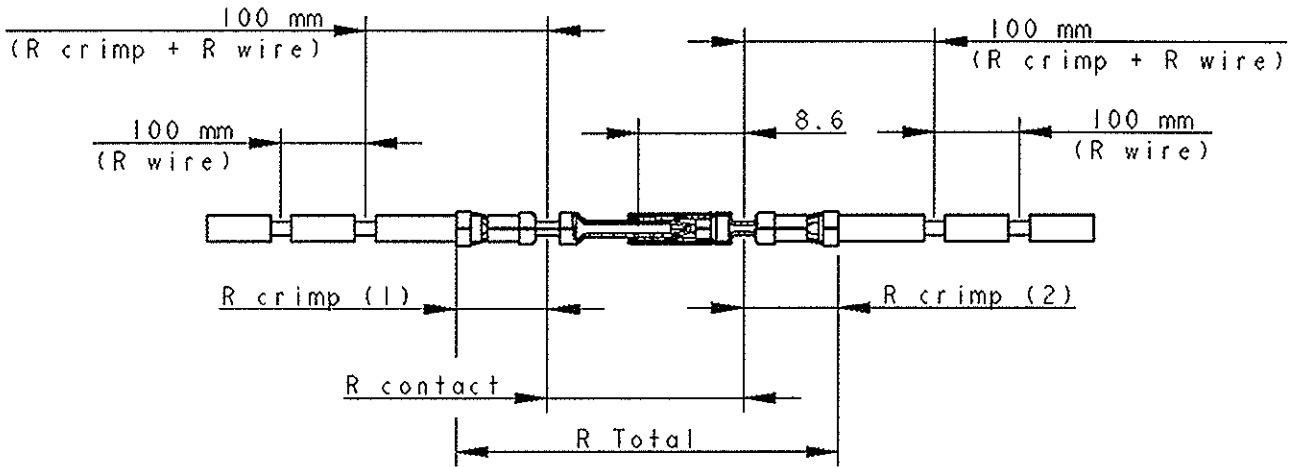


FIG. 1
TEST EQUIPMENT FOR RESISTANCE
MEASUREMENT

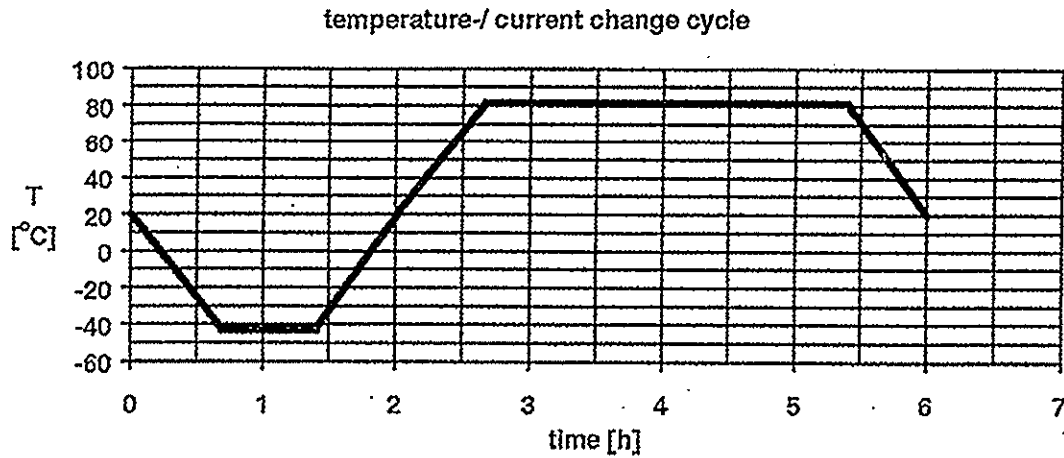


Diagram 1

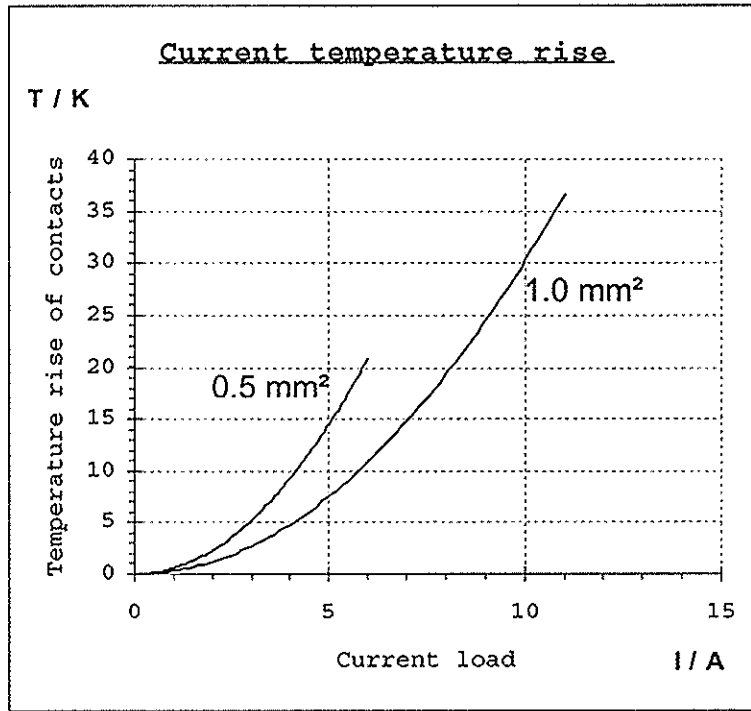


Diagram 2

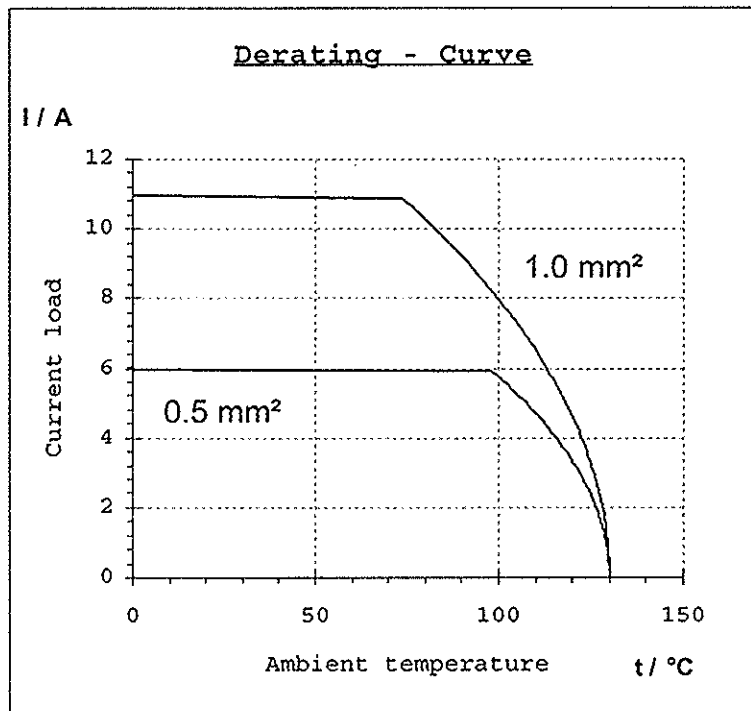


Diagram 3

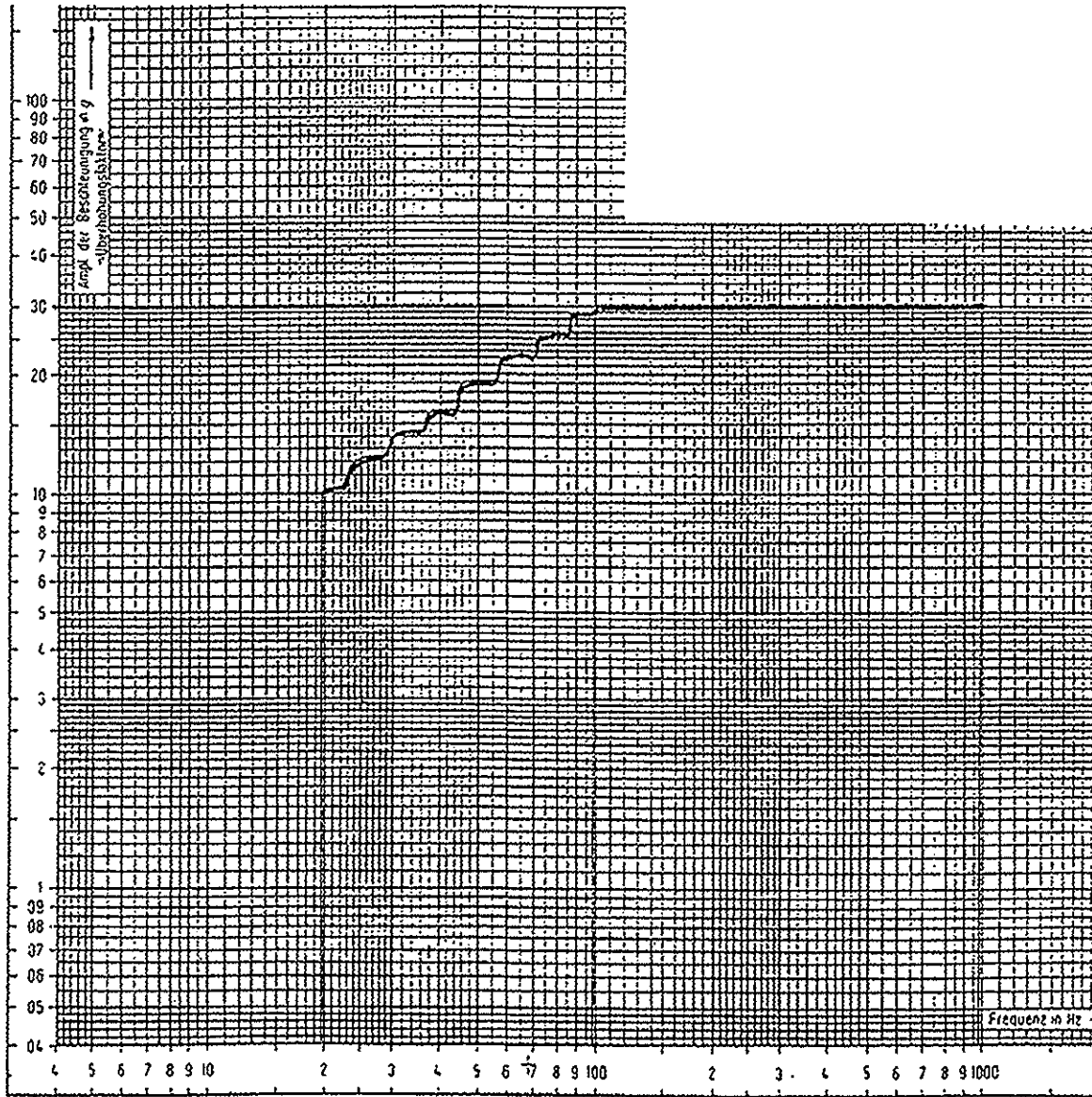


Diagram 4

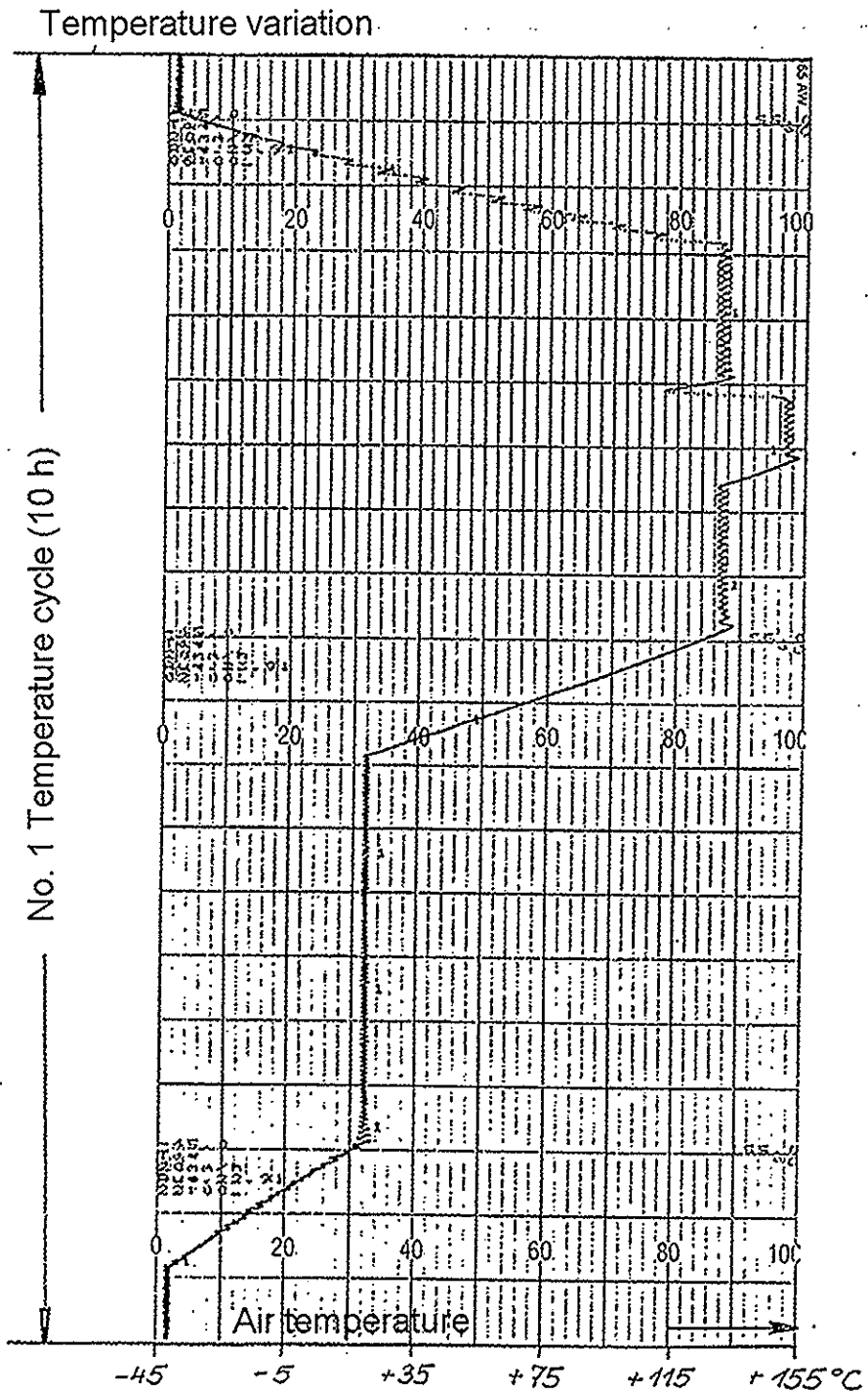


Diagram 5