



# Test Report Comparative Test

Braganca-Paulista Electrical Components Test Laboratory  
RUA AMPERE 304 Dist. Indl I BRAGANCA PAULISTA SAO PAULO BRAZIL 12929-570

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Report Title: HSG 2 WAYS MICRO TIMER TAB  
Report Number: RL140504  
Revision: O  
Date Issued: 21/08/2014

Execution: Diogo Rojas  
Phone: 11 3404-6278

Requestor: Natanel dos Santos  
Phone: 11 3404-6225  
Address: nmsantos@te.com

Disposition of Samples: Dispose

List of Part Numbers: 493224-1  
PRJ: 13-000005899

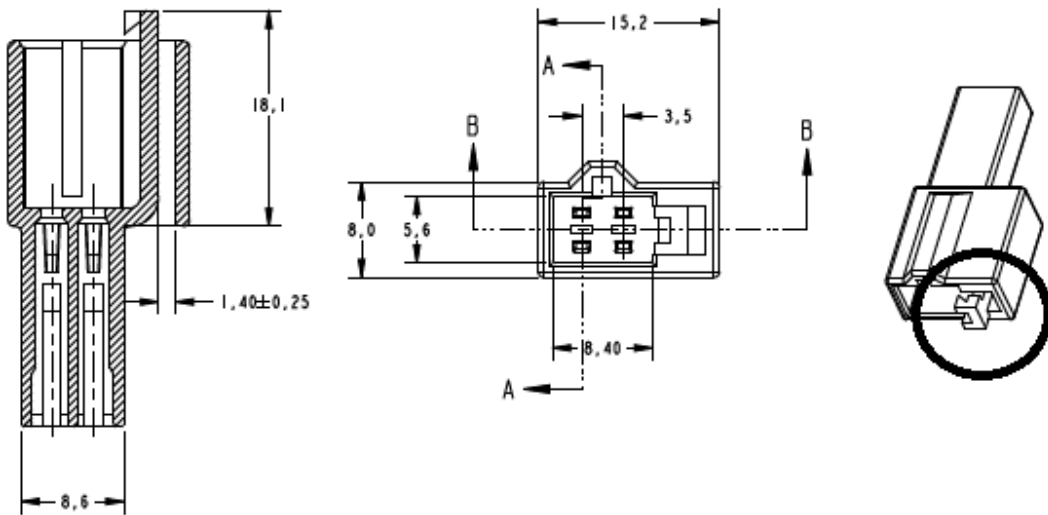
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## Scope/Abstract and Conclusions

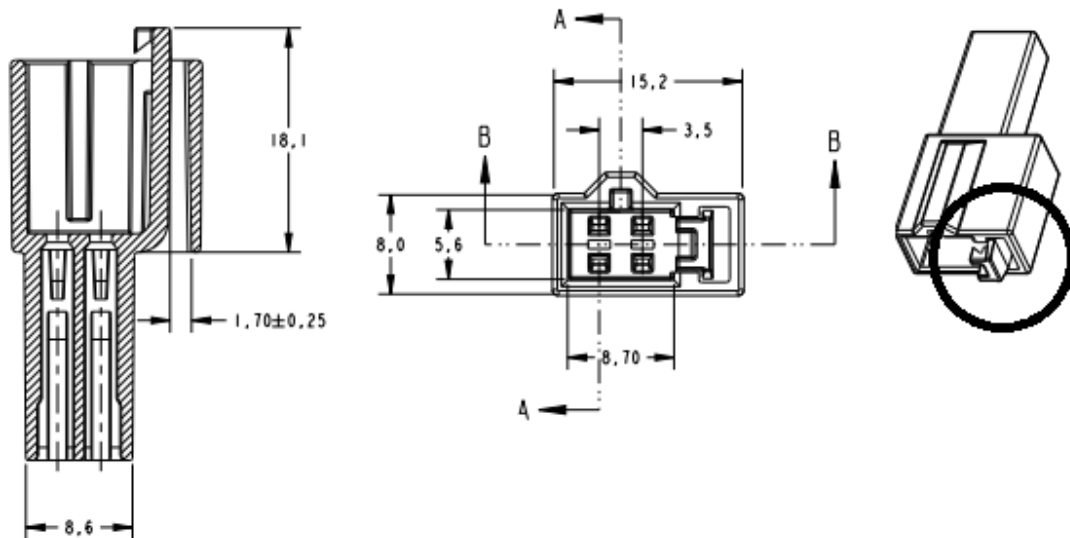
### Purpose

Comparative tests from connector version "C" and "D". Please see sketch at next page.

**REVISION "C"**



**REVISION "D"**



**Summary**

Comparative tests only for requestor information.

1. RESULTS

Test Sequence/Environment	Requirements	Results														
<b>Group 1</b>																
TERMINAL TO CONNECTOR INSERTION FORCE.	N/A (Comparative tests)	<table border="1"> <thead> <tr> <th rowspan="2">Rev. C</th> <th colspan="2">Insertion force [N]</th> </tr> <tr> <th>Way 1</th> <th>Way 2</th> </tr> </thead> <tbody> <tr> <td>Min.</td> <td>3,15</td> <td>4,05</td> </tr> <tr> <td>Average</td> <td>4,16</td> <td>4,61</td> </tr> <tr> <td>Max.</td> <td>4,85</td> <td>5,28</td> </tr> </tbody> </table>	Rev. C	Insertion force [N]		Way 1	Way 2	Min.	3,15	4,05	Average	4,16	4,61	Max.	4,85	5,28
		Rev. C		Insertion force [N]												
			Way 1	Way 2												
		Min.	3,15	4,05												
		Average	4,16	4,61												
		Max.	4,85	5,28												
		<table border="1"> <thead> <tr> <th rowspan="2">Rev. D</th> <th colspan="2">Insertion force [N]</th> </tr> <tr> <th>Way 1</th> <th>Way 2</th> </tr> </thead> <tbody> <tr> <td>Min.</td> <td>3,83</td> <td>3,71</td> </tr> <tr> <td>Average</td> <td>4,37</td> <td>4,61</td> </tr> <tr> <td>Max.</td> <td>5,63</td> <td>5,40</td> </tr> </tbody> </table>	Rev. D	Insertion force [N]		Way 1	Way 2	Min.	3,83	3,71	Average	4,37	4,61	Max.	5,63	5,40
		Rev. D		Insertion force [N]												
			Way 1	Way 2												
		Min.	3,83	3,71												
Average	4,37	4,61														
Max.	5,63	5,40														
TERMINAL TO CONNECTOR EXTRACTION FORCE.	N/A (Comparative tests)	<table border="1"> <thead> <tr> <th rowspan="2">Rev. C</th> <th colspan="2">Extraction force [N]</th> </tr> <tr> <th>Way 1</th> <th>Way 2</th> </tr> </thead> <tbody> <tr> <td>Min.</td> <td>111,0</td> <td>123,0</td> </tr> <tr> <td>Average</td> <td>171,4</td> <td>176,8</td> </tr> <tr> <td>Max.</td> <td>218,0</td> <td>213,5</td> </tr> </tbody> </table>	Rev. C	Extraction force [N]		Way 1	Way 2	Min.	111,0	123,0	Average	171,4	176,8	Max.	218,0	213,5
		Rev. C		Extraction force [N]												
			Way 1	Way 2												
		Min.	111,0	123,0												
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		Rev. D		Extraction force [N]												
			Way 1	Way 2												
		Min.	114,0	129,5												
Average	193,8	192,9														
Max.	233,0	244,5														

Test Sequence/Environment	Requirements	Results	
<b>Group 2</b>			
CONNECTOR TO CONNECTOR MATING FORCE.	N/A (Comparative tests)	Rev. C	Conn. Mating force [N]
		Min.	8,38
		Average	9,88
		Max.	10,89
		Rev. D	Conn. Mating force [N]
		Min.	9,06
		Average	10,20
		Max.	11,67

Test Sequence/Environment	Requirements	Results	
<b>Group 3</b>			
CONNECTOR TO CONNECTOR UNMATING FORCE.	N/A (Comparative tests)	Rev. C	Conn. Unmating force [N]
		Min.	4,69
		Average	4,978
		Max.	5,42
		Rev. D	Conn. Unmating force [N]
		Min.	4,58
		Average	5,8
		Max.	7,32

Test Sequence/Environment	Requirements	Results	
<b>Group 3</b>			
CONNECTOR TO CONNECTOR UNMATING FORCE WITH LOCK DISABLED	N/A (Comparative tests)	Rev. C	Conn. Unmating force lock disabled [N]
		Min.	35,5
		Average	47,0
		Max.	59,5
		Rev. D	Conn. Unmating force lock disabled [N]
		Min.	44,5
		Average	55,3
		Max.	70,5

## 2. SAMPLE & WIRE DESCRIPTION

The Certification of Conformance (C of C), submitted with the test request, lacked the necessary information to verify the samples tested. Therefore, the Test Lab cannot verify that the samples have been produced, inspected, and accepted as conforming to product drawing requirements, and made using the same core manufacturing processes and technologies as production or parts.

### 2.1. Group / Samples

Group	Part Number	Rev.	Date Code	Sample Description	Quantity Tested
All Groups	493224-1	C	N/A	HSG 2 WAYS MICRO TIMER TAB	10
All groups	493224-1	D	N/A	HSG 2 WAYS MICRO TIMER TAB	10
All Groups	493223-1	A	N/A	HSG 2 POSN. MICRO TIMER REC	20
All Groups	964263-2	C1	N/A	MICRO TIMER 2 CONTACT TYPE A	40
All Groups	964267-2	B2	N/A	TAB MICRO TIMER 2	40

\* Information either unavailable or not provided by requestor.

**2.2. Wire Information**

Group Number	Wire Gage	Overall Diameter	Strand Diameter	Number of Strands	Wire Length
All groups	1,00mm <sup>2</sup>	2,0mm	0,18mm	32	200mm

**3. TEST PROCEDURE**

**3.1. TERMINAL TO CONNECTOR INSERTION FORCE**

Measure the terminal insertion force to the housing with a speed of 50mm/min.

**3.2. TERMINAL TO CONNECTOR EXTRACTION FORCE**

Measure the terminal extraction force to the housing with a speed of 50mm/min.

**3.3. CONNECTOR TO CONNECTOR MATING FORCE**

Measure the connector to connector mating force with a speed of 50mm/min.

**3.4. CONNECTOR TO CONNECTOR UNMATING FORCE**

Measure the connector to connector unmating force (locked) with a speed of 50mm/min.

**3.5. CONNECTOR TO CONNECTOR UNMATING FORCE WITH LOCK DISABLED**

Measure the connector to connector unmating force (locked) with a speed of 50mm/min.

**4. TEST EQUIPMENT**

All equipment containing a calibration number is calibrated and traceable through TE to the National Institute of Standards and Technology (NIST).

Instrument Description	Manufacturer	Model Number	Calibration Number	Purpose
Digital Dynamometer	IMADA	DPS-11R	92-339017-076	Tests 3.1 and 3.3
Digital Dynamometer	Mecmesin	AFG2500N	92-339017-032	Tests 3.2, 3.4 and 3.5

**5. APPROVALS**

Approvals are secured electronically through the corporate document repository routing and approval system.

Testing & Report By: Diogo Rojas, Laboratory Engineer

Reviewed & Approved By: Paulo Almeida, Laboratory Coordinator