PRODUCT SPECIFICATION

1. SCOPE

1.1 Content

This specification covers the performance, tests and quality requirements for the AMP 4 position VDA tab housing and secondary lock as per drawings 699296 and 699295.

1.2 Qualification

When tests are performed on the subject product line, the procedures specified in AMP 109 series specifications shall be used unless otherwise stated. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form 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 preference.

2.1 Drawings

2.1.1 AMP Drawings

Tab:	962915
Tab housing:	699296
Secondary lock:	699295
Assembly:	699297
Customer Drg:	C-699297

2.1.2 Other Drawings

Receptacle housing: Costal drg. no. 09 4414 90

2.2 AMP Documents

2.2.1 109-1
General requirements for test specifications.

REV	REVISION RECORD	APP	DATE
O	EBOO 0586 98	M.W	2.11.98

DR J. MARSH
CHK C.CHRYSOS
APP R.SIMMONS

AMP

AMP of Great Britain Ltd,
Terminal House
Stanmore
Middlesex, HA7 4RS

LOC E | NO 108-3395 | REV O

SHEET 1 OF 5

TITLE
PRODUCT SPECIFICATION
4 POSITION VDA

11-2-98

2.2 114-18051

Application specification for 1-962915-2 tab.

2.3 Other Documents

2.3.1 VDA Specification

3. DEFINITION OF TERMS

For the purpose of this specification, the following shall apply:

3.1 Contact

An electrically conductive member, ased as a component of a connector assembly to form a circuit connection.

3.2 Housing

A dielectric component member of a connector, made of insulating material that encapsulates contacts in its cavities.

3.3 Secondary Lock

A dielectric component member of a connector which when actuated provides additional retention for the connector contacts.

3.4 Connector

A connector is an assembly comprising of a tab housing containing four formed contacts and a secondary locking device.

4. MATERIALS

4.1 Tab Housing - Moulded in 20% G.F PBT

4.2 Secondary Lock - Moulded in 10% G.F. PBT

5. RATINGS

5.1 Voltage: 6-18 v

5.2 Temperature: -40 to +130 degC

Storage Temp: -40 to +90 degC (+100degC, 1h)

5.3 Relative Humidity: Up to 95%

6. TEST DESCRIPTIONS

TEST	REQUIREMENT	METHOD
6.1 Visual inspection	The test specimens are to be inspected for defects or changes before and after the tests.	In accordance with DIN IEC 512 P.2
6.2 Dimensions	Maeasured values to be in accordance with released drawings.	In accordance with DIN IEC 512 P.2
6.3 Material testing	Injection marks and parting flash shall not impair handling and function. Flash is not permitted on sealing surfaces.	The surface roughness is to be measured and visuallly inspected for pores, cracks and defects.
6.4 Connector mating force	80N maximum	Samples to be mated at a speed rising to 25mm/min and the axial force measured.
6.5 Disengagement force	65N maximum	Samples to be unmated at a speed rising to 25mm/min with latch rendered inoperative and the axial force measured.
6.6 Unintentional disengagement force	100N minimum	As 6.5 but with latch not operated
6.7 Pull out strength of contact from housing, primary interlock only.	80N minimum	In accordance with DIN IEC 512 P.8
6.8 Pull out strength of contact from housing, secondary interlock only.	60N minimum	In accordance with DIN IEC 512 P.8
6.9 Misalignment test.	There shall be no damage to housings or terminals that will adversely affect performance.	In accordance with RES.62.21.758 section 6.27
6.10 Impact test	There shall be no damage that impairs function.	Sample is to be dropped from a height of 1.2M on an uncoated concrete floor at room temperature.
6.11 Insulation resistance	Insulation resistance >100 MOhms at test Voltage of 500V and reading time of 60sec.	In accordance with DIN IEC 512 P.2
6.12 Resistance to media	Samples shall not indicate any functionally significant dimensional or structural changes	Immerse for 5mins in media as specified in VDA test sheet 621 allow to drain and store in a temperature chamber for 48h at 50degC. Upon conclusion of the test the samples are to be rinsed with water and dried.
6.13 Steam jet test	No medium shall penetrate into the connector.	In accordance with DIN 40 050 Sheet 9, with the exception of the nozzle which is as specified below: All 3 sides of the sample are to be subjected to the steam jet with special attention given to the sealing elements. Test duration per side: 15 sec Distance between nozzle & sample: 10-15cm Pressure: 80 bar Temperature: 80 degC The test is to be carried out 3 times.

TEST	REQUIREMENT	METHOD
6.14 Water bath test	No medium shall penetrate into the connector and the funtionality should not be impaired.	5 immersion cycles in a low-surface tension medium (5% NaCl solution); one cycle consists of immersion in hot water at 65+5 degC and cold water at -3 to 3 degC, duration per temp. 1hr. Transfer time to be kept to a minimum. When complete samples to be rinsed and dried.
6.15 Immersion at low air pressure	No medium shall penetrate into the connector and the funtionality should not be impaired.	In accordance with DIN 41 640 P.38 and DIN IEC 68 P.2-13. Air pressure in chamber: 60kPa Stress duration: 30min Gradient low air pressure to normal pressure: 100hPa/min Storage at normal pressure: 30min
6.16 Thermal shock test	No medium shall penetrate into the connector and the funtionality should not be impaired.	Air temp: 120 degC Duration: 15min Water temp: 0 degC Duration: 2 min Number of cycles: 10 Medium: Low surface tension, 5% NaCl solution.
6.17 Salt spray test	No medium shall penetrate into the connector and the funtionality should not be impaired.	In accordance with DIN 50 021 Duration: 6 cycles; 1 cycle consists of 8h spraying time and 16h dwell.
6.18 Sinusoidal oscillation, wide band random vibration and bumping.	Contact resistance during oscillation shall not exceed 3x initialvalue. No mechanical damage shall occur. During the test the permissible current interuption <200ns. Circuit considered broken when contact resistance >150ohms. Test to be completed with operating voltage U=10V and max. current I=100mA.	In accordance with ; DIN IEC 512 P.2; DIN IEC 68 P.2-6; DIN IEC 50A (sec) 248; DIN EN 60 068 P.2-27

7. TEST SAMPLES

Tabs are to be terminated in accordance with application specification 114-18051 to 0.5mm sq. thin wall pvc insulated cable 150cm long.
N.B. Test results for group 11 are to be supplied by engineering.

TABLE 1 - SAMPLE QUANTITYS

DESCRIPTION	TEST GROUP										
	1	2	3	4	5	6	7	8	9	10	11
TABS 1-962915-2	8	8	8	8	40	8	8	8	8	8	-
TAB HOUSING 699296	2	2	2	2	10	2	2	2	2	2	1 per cavity
SECONDARY LOCK 699295	2	2	-	-	10	2	2	2	2	2	1 per cavity
RECEPTACLES (TO SUIT COSTAL HOUSING)	8	8	-	-	-	8	8	8	8	8	-
RECEPTACLE HOUSING COSTAL REF. 09 4414 90	2	2	-	-	10	2	2	2	2	2	-

8. TEST SEQUENCE

All tests should be performed with the sequence as specified in table 2:

N.B. Results for test group 11 will be supplied by engineering.

TEST MATRIX												
DESCRIPTION		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
6.1	Visual inspection	1	1,3	1	1	1,4	1,6	1,5	1,5	1,5 8	1,5	1
6.2	Dimensions						2,7					2
6.3	Material testing											3
6.4	Connector mating force	2	4									
6.5	Disengagement force	3										
6.6	Unintentional disengagement force		5									
6.7	Pull out strength of contact from housing, primary interlock only			2								
6.8	Pull out strength of contact from housing, secondary lock only				2							
6.9	Misalignment test		2									
6.1	Impact test					3						
6.11	Insulation resistance						3,5	2,4	2,4	2,4 7	2,4	
6.12	Resistance to media						4					
6.13	Steam jet test							3				
6.14	Water bath test								3			
6.15	Immersion at low air pressure									3		
6.16	Thermal shock test									6		
6.17	Salt spray test										3	
6.18	Sinusoidal oscillation, wide band random vibration and bumping.					2						

TABLE 2