



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	1 OF11	Rev.	D

***** 目 錄 Content *****

項 目 Item	內 容 Description	頁 次 Page
1	文件目录 Content	1
2	变更履历 Rerised History	2
3	适用范围 Scope	3
4	参考文件 Referenced Documents	3
5	产品构成/材料 Construction And Material	3
6	额定值 Ratings	3
7	产品性能及测试要求和规 Performance,Test requirement and procedures summary	4-11

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Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	2 OF11	Rev.	D

***** Revised history *****

Edition	ECN NO.	Revised Page	Remark
A	/	None	Initial Release
B	/	11	Update Reflow Soldering
C	ECN1006061	4	Changing Isolation Specs
D	ECN1312094	4~9	Changing Low Level Contact Resistance



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	3 OF11	Rev.	D

1. 适用范围 SCOPE

本技术规范适用于 RF(料号:7.006A*-000-1R0)连接器, 其中包括产品性能, 品质要求和测试方法

The specification covers performance, tests and quality requirements for RF(P/N:7.006A*-000-1R0) CONNECTOR.

2. 参考文件 APPLICABLE DOCUMENT

以下参考文件有 MIL-STD-202, EIA-364, UL-498, JIS C0020

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.

MIL-STD-202, EIA-364, JIS C0020.

3. 产品构成/材料 CONSTRUCTION AND MATERIAL.

塑胶主体 HOUSING : 热塑性塑胶 (THERMOPLASTIC) ;

接触端子 CONTACT : 不锈钢 (STAINLESS STEEL)

磷青铜 (PHOSPHOR BRONZE)

外 壳 SHELL : 黄铜 (BRASS BRONZE)

4. 额定值 Ratings

A. 额定电压 Voltage Rating: 250VAC

B. 公称特性 Nominal characteristic impedance: 50Ω

C. 周波数 Frequency: DC0.1~6GHz

D. VSWR: 1.2Max.(0.1~3GHz), 1.3Max.(3~6GHz)

E. 使用温度范围 Service Temperature: 233~363K(-40℃ to 90℃)

F. 存储温度范围 Storage Temperature: 263~313K(-10℃ to 40℃)

5. 产品性能及测试要求和规范 PERFORMANCE, TEST REQUIREMENT AND PROCEDURES SUMMARY

5-1 试验条件 Test condition

温度 Temperature: 288~308K(15℃ to 35℃)

湿度 Humidity: 45~75%RH

5-2. 产品性能及测试要求和规范 PERFORMANCE, TEST REQUIREMENT AND PROCEDURES SUMMARY



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	4 OF11	Rev.	D

项目 ITEM	规格 STANDARD	测试规范 PROCEDURES
电性能 ELECTRICAL		
低功率接触阻抗 Low Level Contact Resistance	接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,	公母端连接器配合后使用最大 20 mV 电压, 开路最大 10mA 电流进行测试. 参考 MIL-STD-202,Method 307 Mated connector, 20 mV Max. Open circuit at 10 mA Max. MIL-STD-202,Method 307
绝缘阻抗 Insulation Resistance	初期最小 500 MΩ 500 MΩ Min Initial 终期最小 100 MΩ 100 MΩ Min Final	使用直流电 250V, 保持 1 分钟, 测试端子与外壳间. 参考 MIL-STD-202,Method 302 250V DC for 1 minute. Test between shell and contact. MIL-STD-202,Method 302
耐电压 Dielectric Voltage	不能有电火花产生, 绝缘不能破坏, 漏电流不能超过 0.5mA No creeping discharge or flash over shall occur, Current leakage: 0.5mA Max.	使用交流 300V, 保持 1 分钟, 测试端子与外壳间. 参考 MIL-STD-202 Method 301 300V AC 1 minute. Test between shell and contact. MIL-STD-202 Method 301
驻波比 VSWR	0.1~3GHz: 1.2 最大 3~6GHz : 1.3 最大 1.2Max.at 0.1~3GHz, 1.3Max.at 3~6GHz	周波数:0.1GHz~6GHz 见图 1 Analyzer.Frequency: 0.1GHz ~6GHz See fig.1
插入损耗 Insertion Loss	0.1~3GHz: 0.1dB 最大 3~6GHz : 0.2dB 最大 0.1dB Max. at 0.1~3GHz 0.2dB Max. at3~6GHz	周波数:0.1GHz~6GHz 见图 2 Analyzer.Frequency: 0.1GHz ~6GHz See fig.2
隔离度 Isolation	0.1~3GHz: 20dB 最小, 3~6GHz : 15dB 最小, 20dB Min. at 0.1~3GHz, 15dB Min. at 3~6GHz	周波数:0.1GHz~6GHz 见图 3 Analyzer.Frequency: 0.1GHz ~6GHz See fig.3



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	5 OF11	Rev.	D

机械性能 MECHANICAL		
可焊性 Solderability.	焊锡表面浸渍超过 95%. Wet solder coverage: 95%Min	焊锡温度: 260°C±5°C 焊锡时间: 3 秒 参考 MIL-STD-202 方法 208H Solderability temperature: 260°C±5°C. Immersion duration: 3 seconds. MIL-STD-202 Method 208H
耐回焊炉焊锡热 Resistance to Reflow Solder Heat	产品无外观及其它异常 No physical abnormalities shall be Present after test	回流焊接曲线 见图 4 Reflow soldering by fig4
插拔力 Mating/Unmating Force	插入力: 初回插入力最大 20N; 30 次插拔后插入力最大 25N 拔出力: 初回拔出力最小 3N, 最大 25N; 30 次插拔后拔出力最小 2.5N, 最大 25N。 Mating force; Initial 20N Max. after 30 cycles 25N Max. Un-mate force: Initial 3N Min.,25N Max.;after 30 cycles 2.5N Min. 25N Max.	插拔试验机以每分 25±3mm 的速度进行插拔 Un-mate the receptacle connector (soldered to the test board) and plug at a speed 25±3mm/minutes along the mating by the push-on/pull-off machine
耐久性 Durability	接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,	将连接器焊接在板上以每分钟 25±3mm 的速度插拔 500 次 Mate and un-mate the receptacle connector (soldered to the test board) and plug 500 cycles at a speed 25±3mm/minutes along the mating by the push-on/pull-off machine.



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	6 OF11	Rev.	D

<p>振动 Vibration</p>	<p>外观无异常</p> <p>Apply the following vibration to the mating connector.</p> <p>试验中不得有超过 1 微秒的瞬断产生</p> <p>Electrical discontinuity: No electrical discontinuity grater than 1 micro-sec. shall occur.</p> <p>接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,</p>	<p>嵌合状态下振动, 试验中 DC100mA 电流的瞬断确认。</p> <p>Apply the following vibration to the mating connector.</p> <p>周波数:10Hz-100Hz-10Hz 约 15 分</p> <p>Frequency:10Hz-100Hz-10Hz/approx 15 minutes.</p> <p>片振幅,加速度: 1.5mm or 59m/s²(6G)</p> <p>Half amplitude, peak value of acceleration:1.5mm or 59m/s²(6G)</p> <p>方向:三个互相垂直的方向 5 次(约 75 分)实施。</p> <p>Directions,cycle:3 mutually perpendicular direction,5cycles (approx 75min)about each direction.</p>
<p>物理冲击 Physical shock</p>	<p>外观无异常</p> <p>Appearanec: Looseness between the parts, chipping, breakage or other abnormality shall not occur.</p> <p>试验中不得有超过 1 微秒的瞬断产生</p> <p>Electrical discontinuity: No electrical discontinuity grater than 1 micro-sec. shall occur.</p> <p>接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,</p>	<p>嵌合状态在冲击试验机下冲击, 试验中 DC100mA 电流的瞬断确认。MIL-STD-202 试验法 203,试验条件 B</p> <p>Apply the following vibration to the mating connector in accordance with MIL-STD-202,Method213, Condition B.During the testing, run 100mA DC to check electrical</p> <p>最大加速度:735m/s²(75G)</p> <p>Peak value of acceleration:735m/s²(75G).</p> <p>时间: 6 毫秒</p> <p>Duration:6 msec</p> <p>波形: 半正弦冲击波</p> <p>Wave Form: half sinusoidal</p> <p>冲击次数/方向:以 fig5 图示方向正反冲击各 3 次,共 6 次.</p> <p>Diretions, cycle:pcrpcndicular,3 cycles each to normaland reversed directions of fig5 direction. totally 6 drops</p>



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	7 OF11	Rev.	D

环境性能 ENVIRONMENTAL		
盐水喷雾(外壳镀金) Salt water spray	外观无异常,性能良好 Appearance no abnormality adversely affecting the performance shall occur 接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,	嵌合状态的连接器放置于以下条件: Apply the following environment to the mating connector in accordance with MIL-STD-202, Method 101,Condition B 温度: 308+/-2K(35+/-2°) Temperature:308+/-2K(35+/-2°) 盐水浓度:5+/-1%(重量比) Salt water density by weight:5+/-1% 时间:48 小时 Duration:48 hours
*硫化测试(外壳镀银) *KS Test	外观无异常,性能良好 Appearance no abnormality adversely affecting the performance shall occur 接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,	嵌合状态的连接器放置于以下条件: Apply the following environment to the mating connector in accordance 硫化钾浓度:2+/-1%(重量比) KS density by weight:2+/-1% 时间:100 秒 Duration:100 SEC.
热冲击 Thermal shock	部品无外观及其它异常 Appearance: Looseness between the parts, chipping, breakage or other abnormality shall not occur. 接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max, 绝缘阻抗:初期 500MΩ 以上,试验后 100MΩ 以上. Insulation resistance: initial 500 mega-ohm MIN. after testing 100 mega-ohm MIN.	嵌合状态的连接器在以下环境 Apply the following environment to the mating connector. 温度, 持续时间: Temperature, duration: 1). 233K(-40°)/30 分钟 2). 278~308K(5~35°)/5 分钟以下 3). 363K(90°)/30 分钟 4). 278~308K(5~35°)/5 分钟以下 1). 233K(-40°)/30minutes 2). 278~308K(5~35°) /5minutes MAX. 3). 363K(90°)/30minutes 4). 278~308K(5~35°)/5minutes MAX 实施 5 个循环 No. of cycles: 5 cycles



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	8 OF11	Rev.	D

<p>高温寿命 Temperature Life</p>	<p>部品无外观及其它异常</p> <p>Appearance: Looseness between the parts, chipping breakage or other abnormality shall not occur</p> <p>接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,</p> <p>绝缘阻抗:初期 500MΩ 以上,试验后 100MΩ 以上.</p> <p>Insulation resistance: initial 500 mega-ohm MIN. after testing 100 mega-ohm MIN.</p>	<p>嵌合状态的连接器放置以下环境</p> <p>Apply the following environment to the mating connector in accordance</p> <p>温度 363+/-2K(90+/-2°)</p> <p>Temperature:363+/-2K(90+/-2°)</p> <p>时间:96 小时</p> <p>Duration:96 hours</p>
<p>耐湿性 Humidity</p>	<p>部品无外观及其它异常</p> <p>Appearance: Looseness between the parts, chipping, breakage or other abnormality shall not occur.</p> <p>接触阻抗: 最大 120mΩ, Contact resistance :120 mΩ Max,</p> <p>绝缘阻抗:初期 500MΩ 以上,试验后 100MΩ 以上.</p> <p>Insulation resistance: initial 500 mega-ohm MIN. after testing 100 mega-ohm MIN.</p> <p>耐电压:无发生沿面放电,空中放电,绝缘破坏等异常.</p> <p>D. W. Voltage: No creeping Discharge, flashover, nor insulator breakdown shall occur</p>	<p>嵌合状态的连接器在以下环境放置.MIL-STD-202.试验法 103,条件 B</p> <p>Apply the following environment to the mating connector in accordance with MIL-STD-202,Method 103,Condition B.</p> <p>温度:333+/-2K(60+/-2°)</p> <p>Temperature:333+/-2K(60+/-2°)</p> <p>湿度:90~95%RH</p> <p>Humidity:90~95%RH</p> <p>时间:96 小时</p> <p>Duration:96 hours</p>



Kunshan Jiahua Electronics Co., Ltd.

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	9 OF11	Rev.	D

6. 产品认定和测试群组 PRPDUCT QUALIFICATION AND TEST SEQUENCE

Test of Examination	测试群组 Test Group												
	A	B	C	D	E	F	G	H	I	J	K	*L	
	测试序列 Test Sequence												
接触阻抗(低功率) Termination resistance (Low Level)		2, 4			2, 4	2, 4	2, 5	2, 6	2, 5	2, 5			
绝缘阻抗 Insulation resistance							3, 6	3, 7		3, 6			
耐电压 Dielectric withstanding voltage								4, 8					
驻波比 V.S.W.R											2		
插入损耗 Insertion Loss											3		
绝缘屏蔽 Isolation											4		
插拔力 Mate/Unmating force	2												
可焊性 Solderability.			2										
耐回焊炉焊锡热 Resistance to Reflow Solder Heat				2									
耐久性 Durability		3											
振动 Vibration					3								
物理冲击 Physical shock						3							
盐水喷雾 Salt spray									3				
*硫化测试 *KS Test												2	
温度寿命 Temperature life										4			
热冲击 Thermal Shock							4						
耐湿性 Humidity								5					

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	10 OF11	Rev.	D

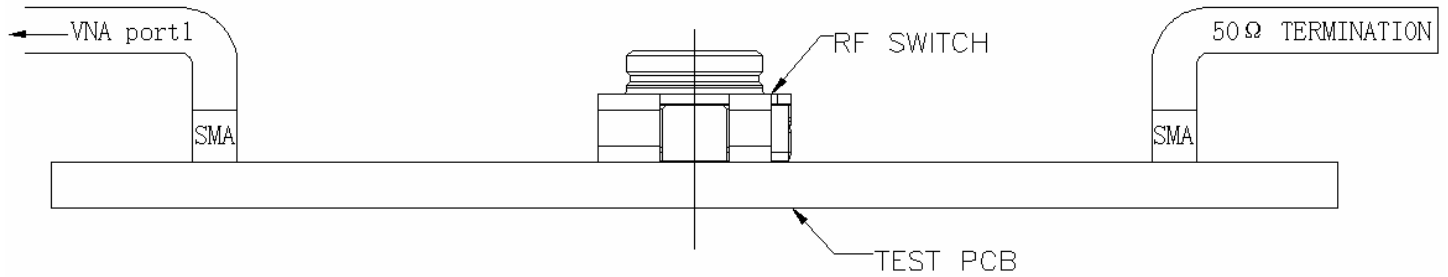


Fig. 1 VSWR TEST

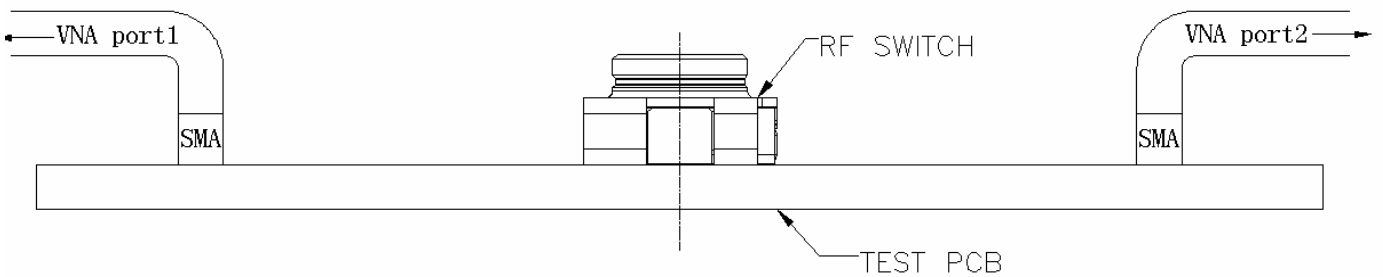


Fig. 2 INSERTION LOSS TEST

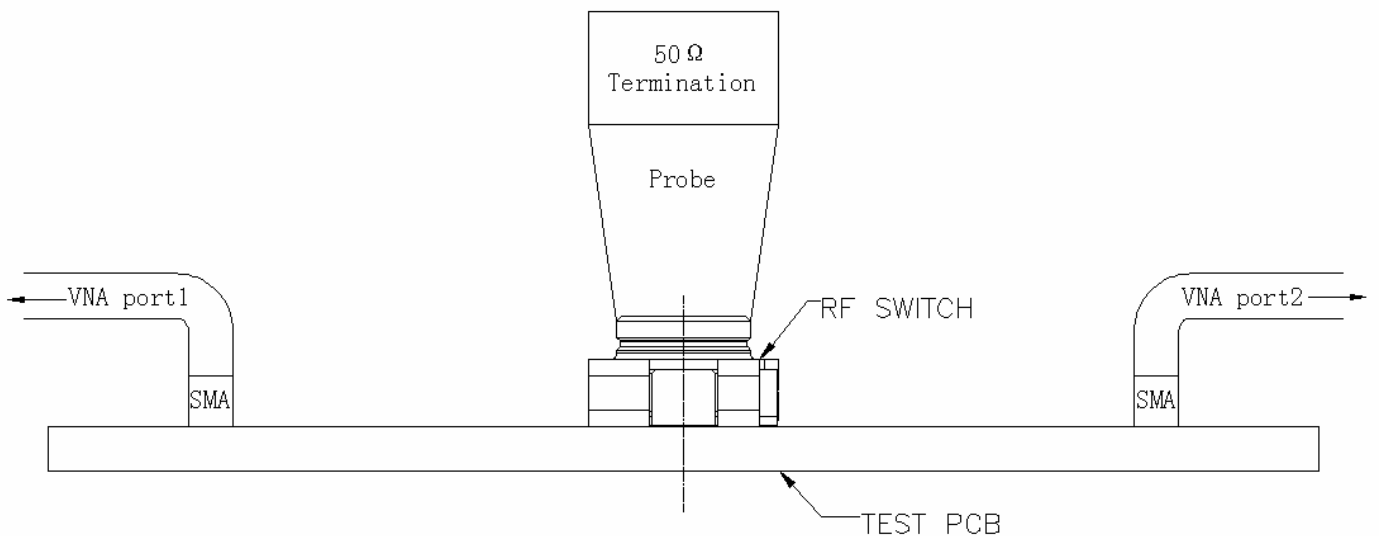


Fig. 3 ISOLATION TEST

文件名称 System Name:	产品品名 Description:	文件编号 Document No.:			
Product specification	RF SWITCH 3*3 CONNECTOR	PS-0027			
		Page	11 OF11	Rev.	D

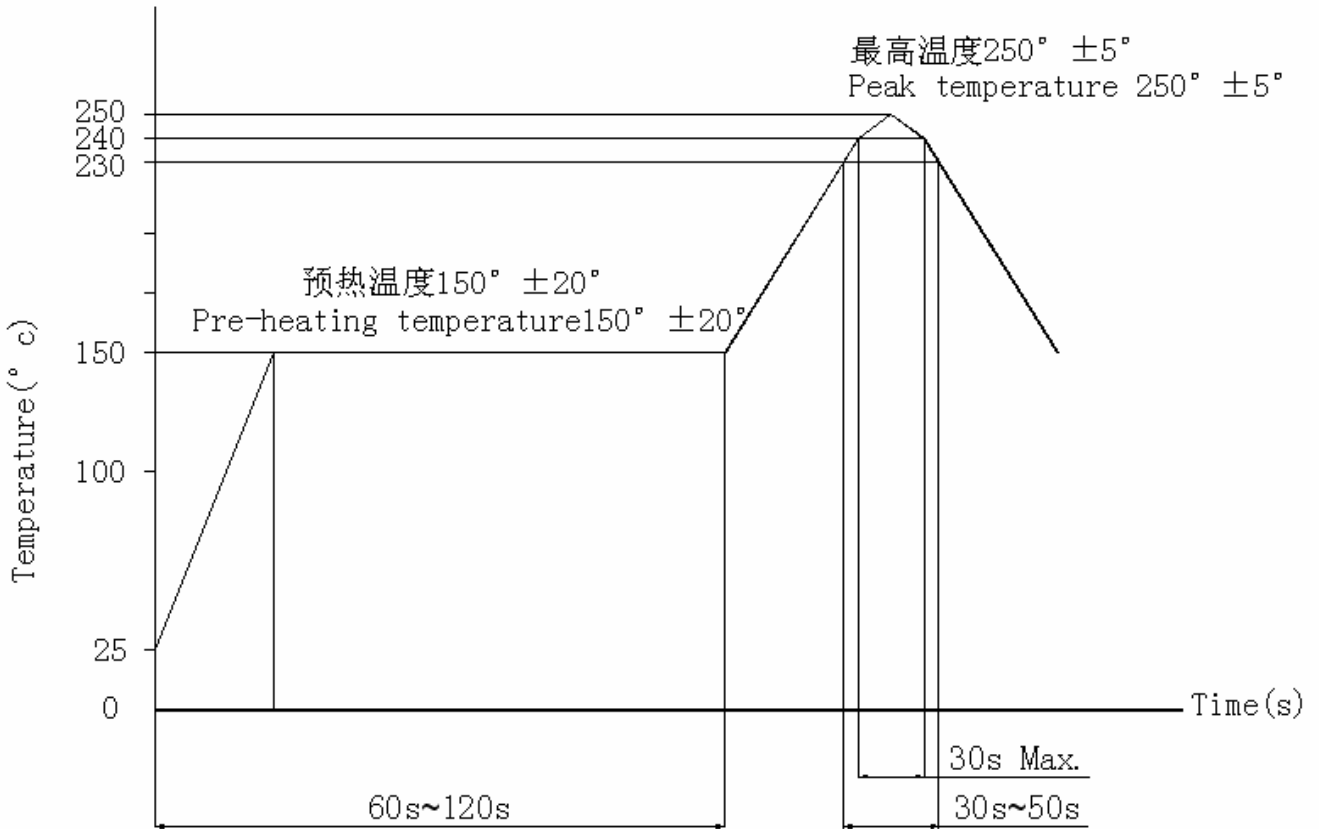


Fig. 4

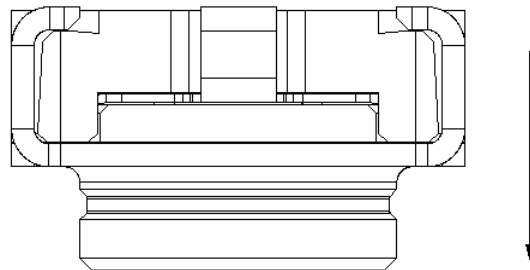


Fig. 5 VIBRATION TEST DIRECTION