深圳市亿圣邦科技有限公司

Shenzhen Yishengbang Technology Company Limited

零 件 规 格 承 认 书

Approval Specification

正式 Formal ■ / 条件 Condition □

长虹物料名称：Part Name: R-射频天线/R-RF Antenna

长虹 R3 代码：R3 Code: 850292352

长虹图号：Part Number: TX-DM200BD113Y63M

发行日期 Issued Date: 2021-5-15

文件编号 Document NO.: YSB20210515001

核准 Approval by	审核 Check by	撰写 Prepared by
林美财	黄震	陈仕联

长 虹 确 认 Changhong confirmed			
品质管理项目组 Quality Project Management Tea	广东技术研究所 Guangdong Institute of Technology		
会签 Signature	核 准 Approval by	审 查 Check by	承 认 Prepared by

地址:东莞市塘厦镇蛟乙塘银园街 13 号 2 楼

Address: 2F, No.13 Yinyuan street, jiaoyitang, Tangxia Town, Dongguan City

电话：0769-82553115 传真：0769-82553116

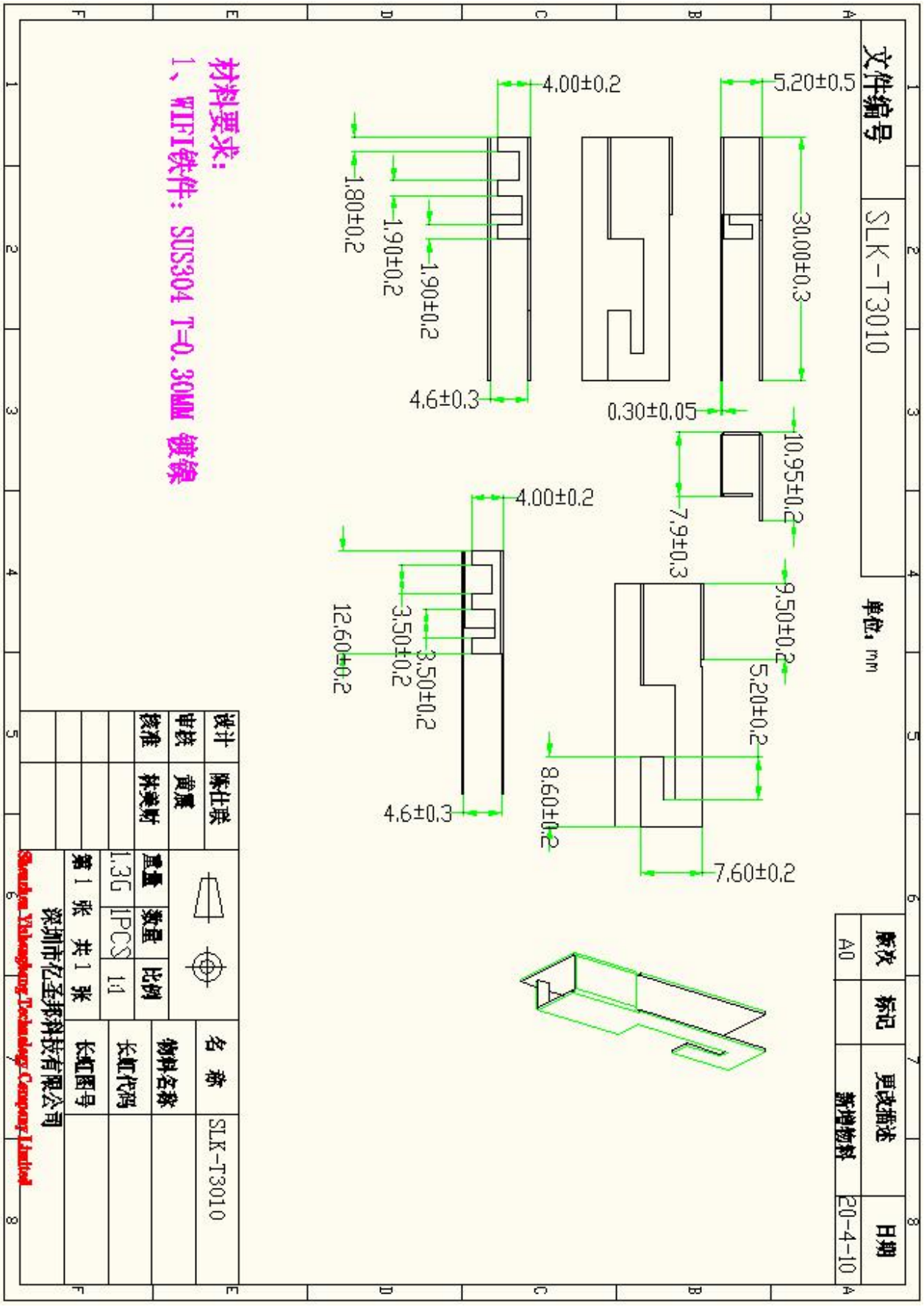
TEL：0769-82553115 FAX：0769-82553116

修订履历(Revision history)

版本 REVISION	修改项次 DESCRIPTION	修改日期 DATE
A0	首次制定For the first time	2021.05.15
A1	修正测试数据Correction of test data	2021.07.01

目录(Directory)

4.产品图档The product image file



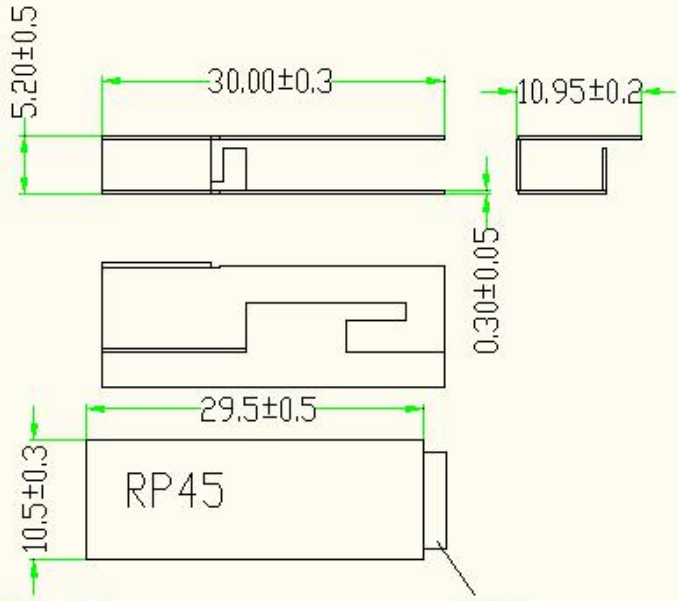
文件编号	SLK-CH-T3010-L-200I-B

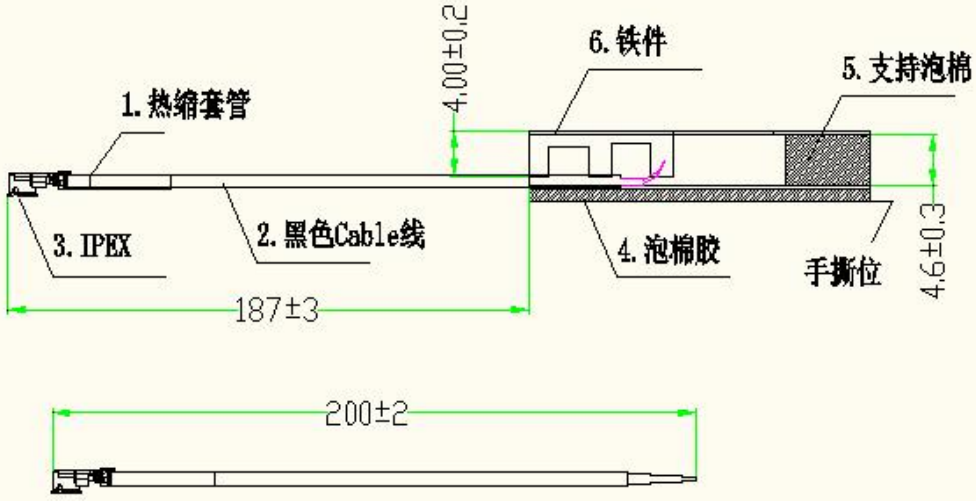
单位：mm

版次	标记	更改描述	日期
A0		新增物料	20-9-22

线端与板端扣合后拔去力：

初次5N以上；30次插拔后3N以上；





LENGTH:200±2.0MM
DIAMETER:φ1.1.3
COLOR:BALCK

材料要求：

1、套管：热缩套管L=10MM 无卤无红磷

2、Cable:φ1.13mm Coaxial Cable,50Ω Black

3、Connector:MHF Plug for φ1.13 Cable 镀金≥1μ

4、泡棉胶：29.5*10.5*1.1MM RP45

5、支撑泡棉：7.5*7.5*4.6MM 3M300

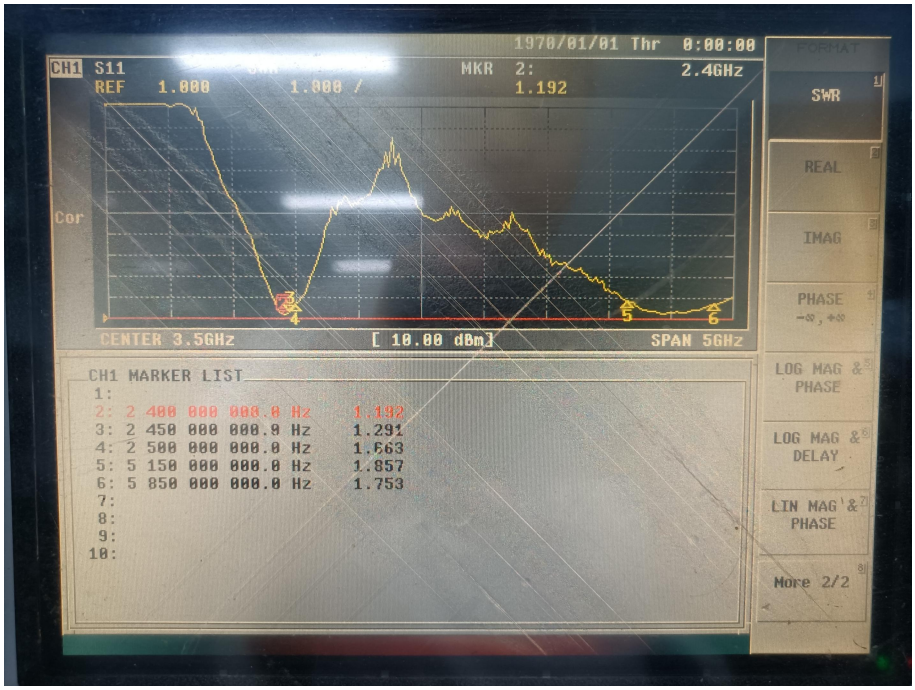
6、WIFI铁件：SUS304 T=0.30MM 镀镍

设计	黄震				名 称	SLK-T3010
审核					物料名称	R-射频天线
批准		重量	数量	比例	长虹代码	850292352
				1:1	长虹图号	TX-DM200BD113Y63M
		第 1 张 共 1 张				
		深圳市亿圣邦科技有限公司				

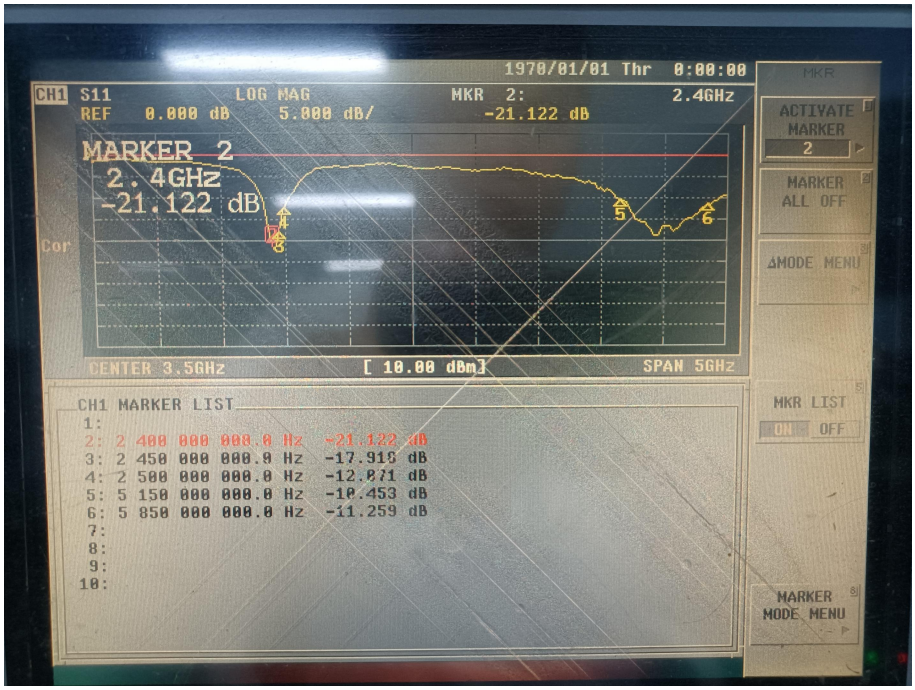
5.性能参数Performance parameters

特性 Characteristic	规格 Specifications	单位 Company
外形尺寸 Dimensions	30X10.95X5.2 T=0.3	mm
频率范围Frequency Range(MHZ)	2.4-2.5/5.15-5.85	GHz
驻波比VSWR	3max	
输入阻抗Impedance(Ω)	50	Ω
天线类型Antenna type	PIFA Antenna	
线损Line loss	0.5	dB
匹配参数Matching parameter	N/A	
线长Line length	200±2	MM
同轴电缆Coaxial cable	黑色 Black 1.13	MM
维持力Sustainability	1Kg	Kg
工作温度Working temperature	-30℃~65℃	℃
存储温度Storage temperature	-30℃~65℃	℃

VSWR



S11

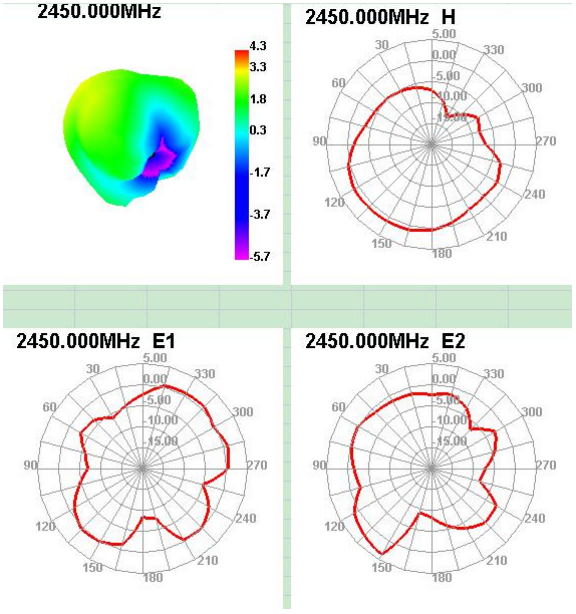


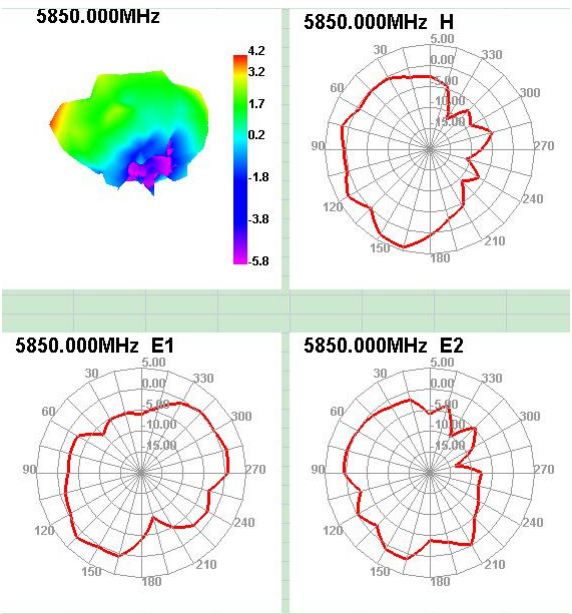
线损

线长（MM）	线损（dB）	屏蔽层覆盖率
200	0.5	＞90%

WIFI Antenna Gain/Efficiency/3D

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	67.04	-1.74	3.97
2450	75.71	-1.21	4.29
2500	72.37	-1.4	3.49
5150	48.57	-3.14	2.99
5250	50.25	-2.99	3.44
5750	65.45	-1.84	4.55
5850	68.74	-1.63	4.24





6.可靠性报告Reliability test report

6.1 样品重点尺寸检查 Sample key size inspection
日期 Date：2020-9-22

客户名称 Customer name	广东长虹电子有限公司 Guangdong Institute of Technology				
产品型号 Product model	TX-DM200BD113Y63M				
序号 Serial number	外观 appearance	尺寸 size			
		铁件长度 Antenna length	铁件宽度 Antenna width	铁件高度 Antenna height	Line length
1	OK	30.04	10.95	5.22	200
2	OK	30.03	10.97	5.24	200
3	OK	30.04	10.94	5.22	200
4	OK	30.02	10.98	5.22	200
5	OK	30.02	10.97	5.21	200
备注：尺寸公差按图纸规范。The dimensional tolerance shall be in accordance with the drawing specification					

测试员 Tester：黄秀琴　　审核 Examine：黄震

6.2 盐雾测试 Salt spray test

测试项目 Test items	盐雾测试 salt spray test	
产品规格型号 Product specification	TX-DM200BD113Y63M	检测数量 Test quantity：5PCS
检测时间 Detection time：2020-9-22		完成时间 Completion time:2020-9-24

试验/检验设备 Test / inspection equipment：

1. HY-60D 盐雾测试仪 Hy-60d salt spray tester
2. HP-8753ES 网络分析仪 Hp-8753es network analyzer

试验/检验条件Test / inspection conditions：

1.盐雾箱内温度为35±2℃；试验室温度22-30℃ The temperature in the salt spray box is 35 ± 2 ℃; the temperature in the laboratory is 22-30 ℃

2.盐雾沉降速度经48H喷雾后每80cm 面积上为1-2ML/h氯化钠浓度为50±10g/L，PH值为6.5/7.2 The sedimentation rate of salt spray was 48H 80cm, and the concentration of NaCl was 50 1-2ML/h 10g/L, pH.6.5 / 7.2

判定标准 Criteria：

1.电气测试符合标准要求：电压驻波比测试合格 Electrical test meets the standard requirements: voltage standing wave ratio test is qualified；

2.金属表面镀层无氧化、剥落、裂痕、分离等不良；非金属部分无变色、变形、脱胶、开裂等不良 There is no oxidation, peeling, crack, separation and other defects on the metal surface; no discoloration, deformation, degumming, cracking and other defects on the non-metallic part;

样品编号 Sample number	评价等级 Evaluation grade	不良描述 Bad description
1	Qualified	无 None
2	Qualified	无 None
3	Qualified	无 None
4	Qualified	无 None
5	Qualified	无 None

试验/检验判定 Test / inspection judgment： ■ 合格 Qualified □ 不合格 Unqualified □ 不作判定 No judgment

测试员 Tester：黄秀琴 审核 Examine：黄震

6.3 恒温恒湿测试 Constant temperature and humidity test

测试项目 Test items	恒温恒湿测试 Constant temperature and humidity test	
产品规格型号 Product specification	TX-DM200BD113Y63M	检测数量 Test quantity：5PCS
检测时间 Detection time：2020-9-22		完成时间 Completion time:2020-9-23

试验/检验设备 Test / inspection equipment：

1. 可程式恒温恒湿试验箱 Programmable constant temperature and humidity test chamber
2. HP-8753ES 网络分析仪 Hp-8753es network analyzer

试验/检验条件Test / inspection conditions：

1.常温25℃，湿度65%环境下测试Test at room temperature 25 ℃ and humidity 65%

2.+80 ± 2 ℃ 85-90%RH /-30 ± 2 ℃ 0%RH 2 小时一个循环 时间 24H + 80 ± 2 ℃ 85-90% RH / - 30 ± 2 ℃ 0% RH for 2 hours, one cycle time is 24h

判定标准 Criteria：

1.电气测试符合标准要求：电压驻波比测试合格；Electrical test meets the standard requirements: voltage standing wave ratio test is qualified

2.金属表面镀层无氧化、剥落、裂痕、分离等不良；非金属部分无变色、变形、脱胶、开裂等不良 There is no oxidation, peeling, crack, separation and other defects on the metal surface; no discoloration, deformation, degumming, cracking and other defects on the non-metallic part

样品编号 Sample number	评价等级 Evaluation grade	不良描述 Bad description
1	Qualified	无 None
2	Qualified	无 None
3	Qualified	无 None
4	Qualified	无 None
5	Qualified	无 None

试验/检验判定 Test / inspection judgment：■合格 Qualified □ 不合格 Unqualified □ 不作判定 No judgment

测试员 Tester：黄秀琴 审核 Examine：黄震

6.4 拉力测试 Tensile test

测试项目 Test items	拉力测试 Tensile test	
产品规格型号 Product specification	TX-DM200BD113Y63M	检测数量 Test quantity：5PCS
检测时间 Detection time：2020-9-22		完成时间 Completion time:2020-9-22

试验/检验设备 Test / inspection equipment：

1.拉力测试计 Tensile tester

试验/检验条件Test / inspection conditions：

1.温度：18-25℃ Temperature: 18-25 ℃

2.湿度≤70%RH Humidity ≤ 70% RH

测试结果 Test results：合格 Qualified

项目 / 条件	端子与射频线缆之间的维持力 Maintenance force between terminal and RF cable≥1kgf				
测试次数 Number of tests	1	2	3	4	5
测试结果 Test result	1.13	1.22	1.07	1.11	1.14

试验/检验判定 Test / inspection judgment：■合格 Qualified □ 不合格 Unqualified □ 不作判定 No judgment

测试员 Tester：黄秀琴 审核 Examine：黄震

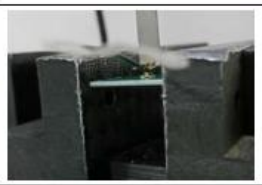
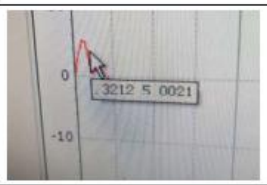
6.5 拔去力测试 Un-mating force test

Test Summary

Un-mating force test （单位：N）

Project Matching mode	Result		PASS FAIL
Pullout force Initial 4N Min	DATA	Pullout force	PASS
	1	13.68	PASS
	2	13.53	PASS
	3	14.70	PASS
	4	12.59	PASS
	5	10.22	PASS
Pullout force 30 Cycles 2N Min	1	4.06	PASS
	2	3.92	PASS
	3	5.00	PASS
	4	4.46	PASS
	5	5.41	PASS

Test Photo

Initial Pullout force		Initial Result	
30 Cycles Pullout force		30 Cycles Result	

Testing equipment

Serial number	Name	Specification Model	Control Number	Term of validity
1	Plug-and-pull machine	1220S	CCT-NJ-006	2020/8/25

7. 材料成分及有害物质表
Material composition and harmful substances table

编号 No.	材料名称 Material name	描述 Describe	检测机构 Testing organization	认证编码 Authentication code	报告测试日期 Report test date	状态 State
1	SUS304	SUS304	BV	NGBML2000286708	2021-1-12	有效 Effective
2	EVA 泡棉 Foam	EVA 泡棉 硬度 38 度 EVA foam hardness 38 degrees	SGS	CANEC1926211117	2021-1-4	有效 Effective
3	3M300 背胶 Glue	3M300 背胶 Glue	SGS	ETR20C05996	2020-12-29	有效 Effective
4	RP45 背胶 Glue	RP45Glue	SGS	SHAEC2009638102	2020-6-8	有效 Effective
5	锡线 Tin wire	锡线 Tin wire	SGS	SZXML2100203202	2021-1-27	有效 Effective
6	1.37 射频线 RF line	线损=0.6dB 屏蔽层覆盖率＞90% Line loss = 0.6dB Shielding layer coverage > 90%	SGS	CANEC2102460402	2021-3-2	有效 Effective
7	RF1 代端子 RF1 generation terminal	镀镍层 Nickel coating	CTI	A2190318223101001E	2020-10-31	有效 Effective
		金镀层（厚度≥1um） Gold plating (thickness ≥ 1um)	CTI	A2190318585101001E	2020-10-31	有效 Effective
8	热缩管 Heat shrinkable tube	热缩管 Heat shrinkable tube	SGS	CANEC2022442501	2020-12-24	有效 Effective

8. 原材料构成与说明 Raw material and specification

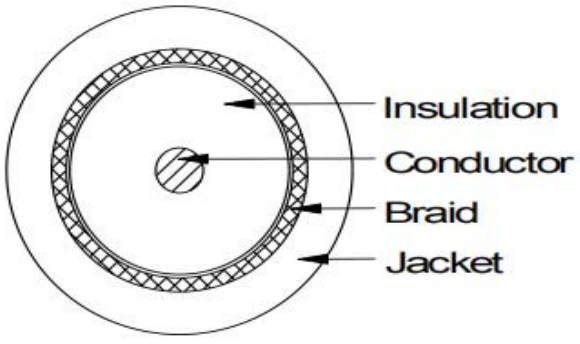
物料代码 Material code	TX-DM200BD113Y63M		产品名称 Product name	WIFI 天线 Wifi antenna
序号 No.	材料名称 material name	规格型号 specification	合格供应商 qualified supplier	备注 remarks
1	射频线 RF cable	1.13 黑色 Black	金信诺 KINGSIGNAL	
2	端子 Terminal	一代端子 first generation terminal	科信成 kexincheng	
3	EVA 泡棉胶 foam/RP45	EVA 泡棉胶 foam/RP45	宸维 Chen Wei	
4	SUS304	SUS304	宇桐 Yu Tong	
5	热缩管 Heat shrinkable tube	热缩管 Heat shrinkable tube	东莞三联 DongGuan SanLian	

8.1 射频线 RF CABLE

东莞金信诺电子有限公司
DONGGUAN KINGSIGNAL ELECTRONICS CO., LTD
CABLE SPECIFICATION(线材规格书)

Customer			Sample No.	
Description	RF CABLE 50Ω OD:1.13 32AWG		Rev.	
Item (项目)		Unit	Specification(规格值)	
Awg(线规)		Awg	#32	
No.of conductor(芯线数)		pc	1C	
Conductor 导体	Material(材质)	---	Tinned Copper Wire (镀锡铜线)	
	Filler(填充)	---	------	
	Construction(结构)	No/mm	7/0.08+0.003-0.001	
Insulation 绝缘	Material(材质)	---	FEP	
	Nom. Thickness(厚度)	mm	0.22	
	Diameter(线径)	mm	0.71±0.04	
	Color(颜色)	---	Nature(本色)	
Braid Shield 编织	Material(材质)	---	Tinned Copper Wire(镀锡铜线) 16/4/0.05+0.003-0.001mm	
	Coverage(遮蔽率)	%	90↑	
Jacket 外被	Material(材质)	---	FEP	
	Min. Thickness(厚度)	mm	0.13	
	O.D(外径)	mm	1.13±0.05	
	Color(颜色)	---	黑/白/灰	

(结构图)



DONGGUAN KINGSIGNAL ELECTRONICS CO., LTD
2018.06.27
CABLE ENGINEERING
技术部

东莞金信诺电子有限公司
DONGGUAN KINGSIGNAL ELECTRONICS CO., LTD
CABLE SPECIFICATION(线材规格书)

Customer		Sample No.	
Description	RF CABLE 50Ω OD:1.13 32AWG	Rev.	

Electric Characters:

电容(pF/m) Capacitance(pF/m)	98	
速率(%) Velocity(%)	70	
阻抗(Ω) Impedance(Ω)	50±2	
驻波比 Standing wave ratio	≤1.3@0~6GHz	
最大工作电压(V) Max.operating voltage(V)	1000	
最大工作频率(GHz) Max.operating frequency(GHz)	6	
Attenuation(衰减)	频率 Frequency	标准值 Standard value 单位 Unit:dB/m
	1.0	≤2.32
	2.0	≤3.27
	3.0	≤4.01
	4.0	≤4.64
	5.0	≤5.17
	6.0	≤5.69

Dependability:

项目 Item	单位 Unit	标准值 Standard value
最小弯曲半径(一次) Min.bending radius static	mm	4
最小弯曲半径(重复) Min.bending radius repeated	mm	-
工作温度范围 Operating temperature	℃	-55~+200

Use tips:

存储环境 Storage environment	温度：30℃以下；湿度：20%~65%
最佳保存周期 The best save cycle	2个月；2个月以上作业性下降，如上锡效果变差,但电性能不受影响。夏季高温高湿环境开剥后需尽快流转
加工温度 Processing temperature	260℃的极限情况下，可短时间承受；300℃以上分子通常带有的等端基会分解；400℃以上发生显著的热分解
铁氟龙收缩 Teflon Shrink	固有材料特性。绝缘：0.2mm以下；护套：0.3mm以下
护套窜动 Jacket traverse	加工长度（护套残留长度）低于5cm易发生
包装（Packing mode）	单位 Unit
每盘长度 Packing mode	1000米
每盘接头数 The length of each plate	≤4
每盘最短长度 The shortest length of each root	≥50米

DONGGUAN KINGSIGNAL ELECTRONICS CO., LTD 东莞金信诺电子有限公司
2018.06.27
CABLE ENGINEERING 技术部

Approved by	Reviewed by	Prepared by
于国庆	陈福彬	陈月红

8.2 一代端子（1.13）

DOCUMENT NAME: PRODUCT SPECIFICATION	SUBJECT: RF I PLUG Φ 1.13 CONNECTOR	DOCUMENT NO: SPEC-ANC-1001			
		PAGE	3 OF 12	REV	A

1. Scope

Micro series micro coaxial connector is a wire to board connector for RF I 1.13. coaxial cable.

2. Objectives

This specification covers the requirements for product performance and test methods of MHF series micro coaxial connector.

3. Part No.，construction，material and finish

（1）Part No. Plug: ANC*113*-***，Receptacle: ANB0200*-12*

（2）Construction，material and finish of the connector are covered as each drawing.

4. Applicable cable

4-1 Part No. ANC*113*-***

（1）Description

Inner conductor ： AWG#32（7/0.08）

Silver plating annealed copper wire or silver plating tin-copper alloy

Dielectric core: Fluoro-plastics，diameter 0.68（+0.04，-0.02）mm，nominal thickness 0.22mm

Outer conductor: 8/5/0.05，nominal diameter 0.93mm，silver plating annealed copper wire

Jacket: Fluoro-plastics，diameter 1.13（+0.04，-0.02）mm，nominal thickness 0.1mm

（2）Requirements

Characteristic impedance: 50（+2，-2）ohm by TDR method

Nominal capacitance（Reference value）: 97 pF/m

Conductor resistance of inner conductor at 293K（20℃）（Reference value）: 520 ohm/km

Insulation resistance: 1500 mega-ohm.km MIN.

Dielectric withstand voltage: no breakdown at AC 500V for 1 minutes.

5.Ratings

Rated voltage	AC60Vrms
Nominal characteristic Impedance	50 ohm
Frequency	DC~6GHz
VSWR	Plug: 0.1~3GHZ 1.3Max 3~6GHZ 1.5Max Receptacle: 0.1~3GHZ 1.3Max 3~6GHZ 1.4Max
Service Temperature	233K~363K(-40℃~90℃)

6. Test and Performance

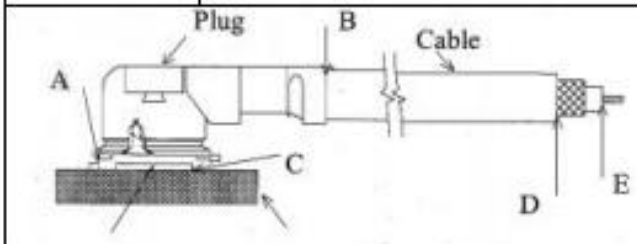
Test Condition

Unless otherwise specified, all tests and measurements shall be performed under the following condition in accordance with MIL-STD-202G.

Temperature ----288K~308K(15℃~35℃)

Humidity -----45~75%R.H.

6-1 Electrical Performance

NO	Item	Test conditions	Specifications
1	Contact resistance	Subject the receptacle connector to the test board and mate the plug connector together, then measure the contact resistance as shown in Fig.1 by the four terminal method. Apply the low level condition in accordance with MIL-STD-202G, Method307. Open circuit voltage: 20mV MAX Circuit current voltage : 10mA MAX (DC or AC1kHz) Contact resistance of inner contact < resistance of A-E >-< resistance of B-E > Contact resistance of inner contact < resistance of C-D>-< resistance of B-D >	Contact resistance of inner contact Initial: 20 mΩ Max. After testing: 25 mΩ Max. Contact resistance of inner contact Initial: 10 mΩ Max. After testing: 15 mΩ Max.
	 Fig1		
2.	Insulation Resistance	Mate the receptacle and plug connector together, and then apply DC 100V between the inner contact and the ground contact in accordance with MIL-STD-202G, Method 302.	Initial :500MΩ MIN After testing :100 MΩ MIN

NO	Item	Test conditions	Specifications
3	Dielectric Withstanding Voltage	Mate the receptacle and plug connector together, and then apply AC 200V rms between the inner contact and the ground contact for a minute in accordance with MIL-STD-202G, Method 301.	No creeping discharge, flashover, no insulator breakdown shall occur.
4.	VSWR	Measure the VSWR as shown in Fig2 by the network analyzer. Frequency: 100M~6GHz	1.3MAX. at 0.1~3GHz 1.5MAX .at 3~6GHz

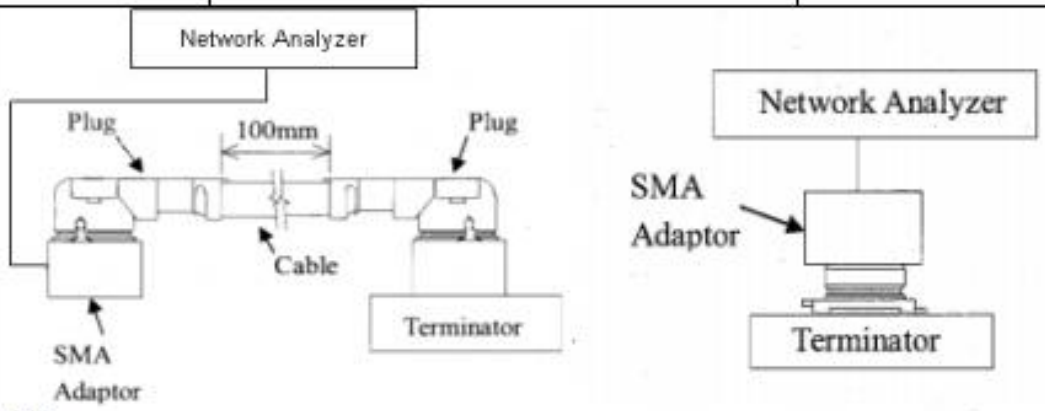
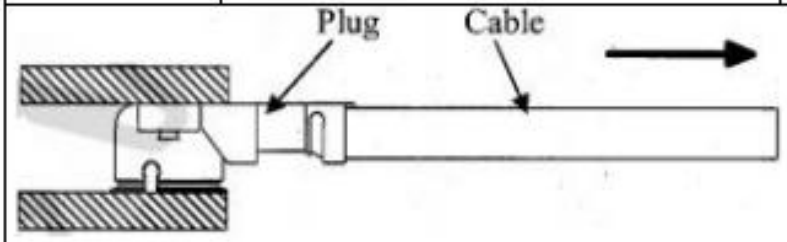
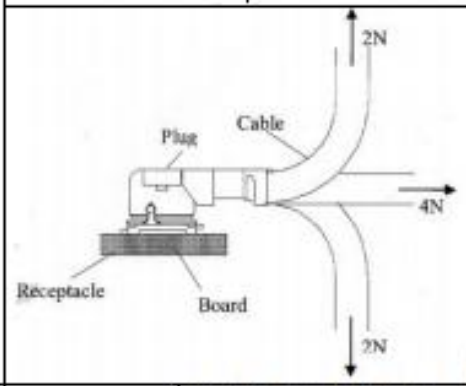


Fig2

6-2 Mechanical Performance

NO	Item	Test conditions	Specifications
1	Un-mating force	Un-mate the receptacle connector (solder to the test board) and plug at a speed 25±3mm/minutes along the mating by the push-on / pull–off machine.	Total un-mating force Initial :4N MIN After 30 cycles:2N MIN Un-mating force of inner contact Initial :0.15N MIN After 30 cycles:0.10N MIN
2	Crimp strength	Pull the cable as shown in Fig3 at speed 25±3mm/minutes by tensile strength machine.	10N MIN
	 Fig.3		
3	Durability	Mate and un-mate the receptacle connector(soldered to the test board) and plug connector 30 cycles at speed 25±3 mm/minutes along the mating by the push-on / pull–off machine.	[Appearance] No abnormality [Contact Resistance] Shall meet 6.1.1

N	Item	Test conditions	Specifications

O			
4	Contact resistance with force on the cable	Apply force on the cable as shown in Fig4 During the testing, run 100mA DC to check electrical discontinuity.	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Electrical discontinuity] No electrical discontinuity grater than 1μs shall occur. [Contact Resistance] Shall meet 6.1.1
	 Fig.4		
5	Vibration	Apply the following vibration to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. Frequency: 10Hz →100 Hz →10Hz/approx 20 minutes. Half amplitude, Peak value of acceleration : 1.5mm or 59m/s²(6G) Directions, cycle: 3 mutually perpendicular direction,3 cycles about each direction.	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Electrical discontinuity] No electrical discontinuity grater than 1μs shall occur. [Contact Resistance] Shall meet 6-1-1
6	Shock	Apply the following vibration to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. Peak value of acceleration: 735 m/s²(75G) Duration :11msec Wave Form :half sinusoidal Direction, cycle :6 mutually perpendicular direction, 3cycle about each direction.	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Electrical discontinuity] No electrical discontinuity grater than 1μs shall occur. [Contact Resistance] Shall meet 6-1-1

6-3 Environmental Performance

NO	Item	Test conditions	Specifications
1	Thermal Shock	Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 107G, Condition A. Temperature : 218K (-55℃) →358K(85℃): 30min Transition time : 5min. MAX No. of cycles : 5 cycles	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Contact Resistance] Shall meet 6-1-1 [Insulation Resistance] Shall meet 6-1-2
2	Humidity (Steady State)	Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 103, Condition B. Temperature : 313±2K (40±2℃) Humidity : 90 ~ 95%RH Duration : 96 hours	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Contact Resistance] Shall meet 6-1-1 [Insulation Resistance] Shall meet 6-1-2.
3	Salt Water Spray	Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 101E, Condition B. Temperature : 308±2K (35±2℃) Salt water density : 5±1%(by weight) Duration : 48 hours	[Appearance] No abnormality Adversely affecting the performance shall occur.
4	High Temperature Life	Apply the following environment to the mating connector Temperature : 363±2K (90±2℃) Duration : 96 hours	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Contact Resistance] Shall meet 6-1-1

6-4 Soldering

NO	Item	Test conditions	Specifications
1	Solder ability	Dip the solder tine of the contacts in the solder bath at 518±5K(245±5℃) for 5±0.5seconds after immersing the tine in the flux of RMA type for 5 to 10 seconds in accordance with MIL-STD-202,Method 208.	More than 95%of the dipped surface shall be evenly wet .
2	Soldering Heat Resistance	Put on the receptacle connector to PCB，apply the heat 2 cycles as shown in Fig.5	[Appearance] No abnormality Adversely affecting the performance shall occur.

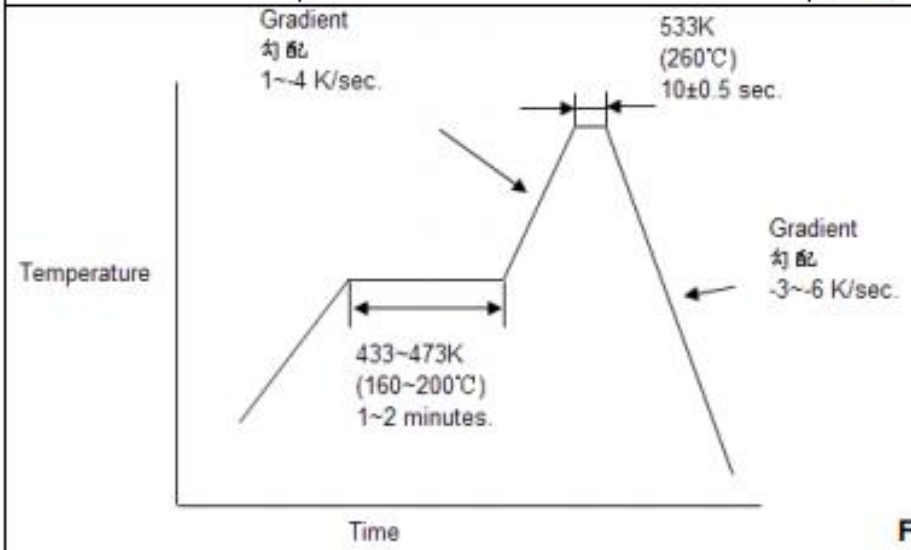
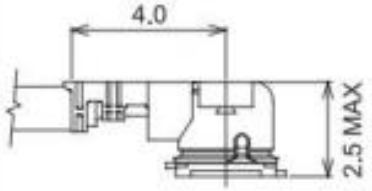
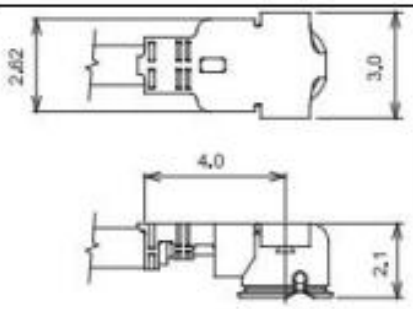
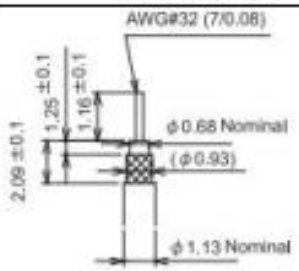


Fig.5

Table Ⅱ: Test Sequence and Sample Quantity

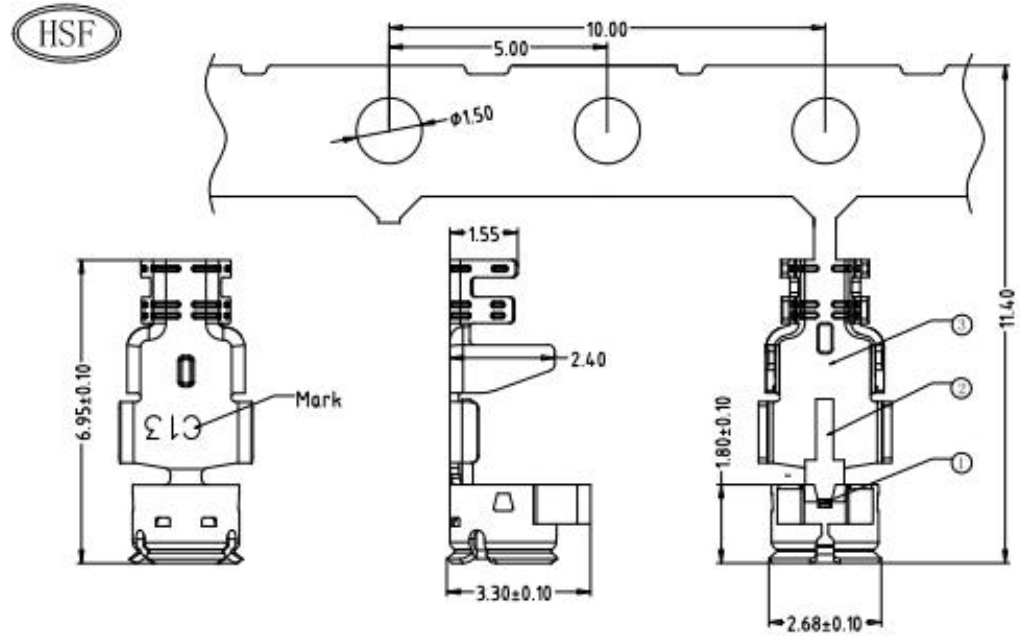
Test: Measurement or Examination	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1.Contact Resistance				1,3	1,3	1,3	1,3	1,5	1,5	1,3	1,3	1,3		
2.Insulation Resistance								2,6	2,6					
3.Dielectric Withstanding Voltage								3,7	3,7					
4.VSWR	1													
5.Un-mating force		1												
6.Crimp strength			1											
7.Durability				2										
8.Contact resistance with force on the cable					2									
9.Vibration						2								
10.Shock							2							
11. Thermal Shock								4						
12. Humidity									4					
13. Salt Water Spray										2				
14. High Temperature Life											2			
15. Solder ability												2		
16.Soldering Heat Resistance													1	
Sample QTY.	10	10	10	10	10	10	10	10	10	10	10	10	10	10

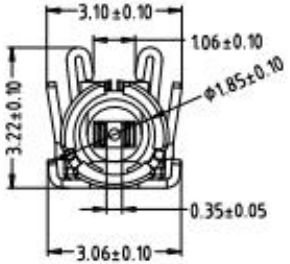
Table III: Relevant Data

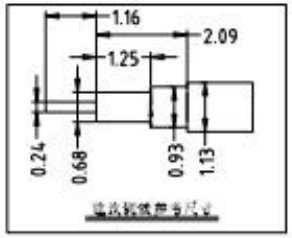
型号	Mating height 合高	Dimensional drawing 尺寸图	Applicable cable size 剥线尺寸
RF I 代 1.13	2.5mmMAX 		

CUSTOMER DRAWING

Rev.	DATE	DESCRIPTION
K	2018.05.08	CHANGE







PRODUCT NUMBER ORDER

ANC ① * ② 113 ③ * ④ - 1 ⑤ * ⑥ 1 ⑦

① Production Code :
ANC: ANTENNA PLUG for cable

② Height after mated broad end :
0 : Common SPEC.
Z : Special SPEC. CCT PATENTED

③ Mitch Cable Φ :
113: Cable Φ 1.13mm

④ Plating Thickness :
1: Shell Plating Au 1u" min. over Ni 50u",
Contact Plating Au 1u" Min Over Ni 50u"
2: Shell Plating Ni 50u" min.
Contact Plating Au 1u" Min Over Ni 50u"
3 Shell Plating Gold 2u" min. over Ni 50u",
Contact Plating Au 4u" Min Over Ni 50u"
L: Shell Plating Au 0.5u" min. over Ni 50u",
Contact Plating Au 1u" Min Over Ni 50u"

⑤ Product design generation:
1: First generation.

⑥ Customer identification code:
1: CUS is ***
2: CUS is Another
3: No Mark

⑦ Color of Housing:
2: White

NOTES:
1. IMPEDANCE: 50 OHM NOMINAL
2. FREQUENCY RATING: DC TO 6 GHZ
3. VSWR: DC -- 3GHz 1.3max.
3 GHz -- 6GHz 1.5max.
4. Cable与端子铆接后拉伸强力大于10N
5. 产品生产过程需符合ROHS环境指令要求.

NO.	名称	材质	电镀
3	SHELL	COPPER ALLOY	Plating see ④
2	HOUSING	THERMOPLASTIC	——
1	CONTACT	COPPER ALLOY	Plating see ④

TOLERANCES UNLESS OTHERWISE SPECIFIED			
X.	/	.XXX	/
.X	±0.20	X.°	±1°
.XX	±0.15	.X°	±0.5°

昆山科信成电子有限公司
KUNSHAN COCENTRA ELECTRONICS Co.LTD

SERIES: RF CABLE PLUG CONN.	TITLE: RF1代 PLUG 1.13 C TYPE
APPD: David Tan 2018/05/05	PART No.: ANC×113×-1×1
CKD:	DWG No.: 307-0000-0060
DR: Kaise Qin 2018/05/05	

UNITS	MAT'L	FINISH	SCALE	SHEET	REV.
MM	⚠1	⚠2	1:1	1/1	K

8.3 3M 胶

3M

High Strength Double Coated Tapes with Adhesive 300LSE

9495LE • 9474LE • 9490LE

Technical Data **September, 2004**

Product Description

3M™ Double Coated Tapes 9495LE, 9474LE and 9490LE with 3M™ Adhesive 300LSE provides high bond strength to most surfaces, including many low surface energy plastics such as polypropylene and powder coated paints. The acrylic adhesive also provides excellent adhesion to surfaces contaminated lightly with oil typically used with machine parts. 3M tape 9490LE offers the added feature of 3M™ Adhesive 300MP on one side to provide excellent bond strength to a variety of foam and fabric materials.

Construction

Product Number	Faceside[1] Adhesive Type/ Thickness	Carrier Type/ Thickness	Backside[2] Adhesive Type/ Thickness	Liner Color, Type, Print	Liner Caliper	Total Tape Thickness (w/o liner)
3M™ Double Coated Tape 9495LE[4]	300LSE/ 0.0028" (0.071mm)	Clear PET[3] 0.0005" (0.013mm)	300LSE/ 0.0034" (0.086mm)	Tan, 58#, Polycoated Kraft, "3M 300LSE"	0.0042" (0.11mm)	0.0067" (0.17mm)
3M™ Double Coated Tape 9474LE	300LSE/ 0.0028" (0.071mm)	Clear PET 0.0005" (0.013mm)	300LSE/ 0.0034" (0.086mm)	[5]Faceside Liner/ Tan, 58# Polycoated Kraft, no print Backside liner/ Tan, 58#, Polycoated Kraft, "3M 300LSE"	0.0042" (0.11mm)/ 0.0042" (0.11mm)	0.0067" (0.17mm)
3M™ Double Coated Tape 9490LE[4]	300MP/ 0.0028" (0.071mm)	Clear PET 0.0005" (0.013mm)	300LSE/ 0.0034" (0.086mm)	Tan, 58#, Polycoated Kraft, "3M 300LSE"	0.0042" (0.11mm)	0.0067" (0.17mm)

Note 1: Faceside (FS) adhesive is on the interior of the roll, exposed when unwound.

Note 2: Backside (BS) adhesive is on the exterior of the roll, exposed when liner is removed.

Note 3: PET (Polyester).

Note 4: The caliper listed is based on a calculation from manufacturing controlled adhesive coat weights using a density of 1.012 g/cc. While past data pages have listed a nominal caliper of 6.0 mils for these tapes, the coat weight has not changed.

Note 5: Backside liner is primary (stays with die cut part); Faceside is secondary (removed first).

3M™ High Strength Double Coated Tapes with Adhesive 300LSE

9495LE • 9474LE • 9490LE

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Product Number	3M™ Double Coated Tapes 9495LE, 9474LE	3M™ Double Coated Tape 9490LE
Adhesion to stainless steel ASTM D3330 - 90 degree	Oz/in (N/100 mm)	Oz/in (N/100 mm)
- 15 minutes RT (FS/BS)	34/68 (37/74)	26/61 (28/66)
- 72 hour RT (FS/BS)	128/142 (139/154)	124/142 (135/154)
- 72 hour 158°F (FS/BS)	67/75 (73/82)	127/60 (138/66)
3) Adhesion to other surfaces* ASTM D3330 - 90 degree, 2 mil al foil, 72 hour RT		
ABS (FS/BS)	60/80 (66/88)	40/60 (44/66)
Polypropylene (FS/BS)	35/50 (38/55)	25/60 (27/66)
Polycarbonate (FS/BS)	117/75 (127/82)	
Shear Strength - ASTM D3654 modified - (.5 inch^2 sample size)		
1000 grams at 72°F	>10,000 min	>10,000 min
500 grams at 158°F	>10,000 min	>10,000 min
Relative High Temperature Operating Ranges:		
Long Term (days, weeks)	200°F	200°F
Short Term (minutes, hours)	300°F	300°F
Relative Solvent Resistance	Very Good	Very Good

Available Sizes

Roll length, width, slitting tolerance, core size.

	3M tapes 9495LE, 9490LE	3M tape 9474LE
Maximum Length in:		
1/2" to 63/64"	180 yds. (164 m)	—
1" to 3"	360 yds. (329 m)	—
3" to 48"	360 yds. (329 m)	—
48" to 54"	360 yds. (329 m)	—
Tolerance	± 1/32 in. (0.08 mm)	
Core ID	3.0 in. (76.2 mm)	—
Sheet Size	Not Available	24" x 36"

3M™ High Strength Double Coated Tapes with Adhesive 300LSE

9495LE • 9474LE • 9490LE

Features

- These tapes have a moisture resistant polycoated kraft liner which can withstand high humidity conditions with minimal cockling or wrinkling.
- These tapes have a film carrier which can add dimensional stability to foams and other substrates and also makes it easier to handle the tape during slitting and die-cutting.
- 3M™ Double Coated Tape 9474LE features a dual liner for ease in selective die cutting.
- The bond strength of 3M™ Adhesive 300LSE increases as a function of time and temperature, and has very high initial adhesion.

Application Techniques

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure and moderate heat, from 100°F (38°C) to 130°F (54°C), will assist the adhesive in developing initmate contact with the bonding surface.

To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane.*

Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

***Note:** Carefully read and follow the manufacturer's precautions and directions for use when working with solvents. These cleaning recommendations may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

Environmental Performance

Humidity Resistance: High humidity has minimal effect on adhesive performance. No significant reduction in bond strength is observed after exposure for 7 days at 90°F (32°C) and 90% relative humidity.

UV Resistance: When properly applied, nameplates and decorative trim parts are not adversely affected by exposure.

Water Resistance: Immersion in water has no appreciable effect on the bond strength. After 100 hours at room temperature, the high bond strength is maintained.

Temperature Cycling Resistance: High bond strength is maintained after cycling four times through:

4 hours at 158°F (70°C)
4 hours at -20°F (-29°C)
4 hours at 73°F (22°C)

Chemical Resistance: When properly applied, nameplate and decorative trim parts will hold securely after exposure to numerous chemicals including oil, mild acids and alkalis.

Liner Configuration Guide

General purpose steel rule die-cutting	58# PCK
Steel rule cutting many nameplates on common sheet	83# PCK
Kiss cutting, steel rule	83# PCK
Rotary die-cutting	PET
Selective die-cutting (cut adhesive before laminate)	Double-linered
Thermoforming	HDPE
Part inspection	HDPE, PET
Embossed metal parts	White PP, HDPE
Metal parts (punch press)	PET

3M™ High Strength Double Coated Tapes with Adhesive 300LSE

9495LE • 9474LE • 9490LE

Adding Liners for 3M™ Double Coated Tapes with Adhesive 300LSE	1. Rotary processing, tape only, on a densified (outside of #4994) kraft liner. In this process, the tape waste will stay with the 58# PCK liner, leaving adhesive die-cuts dispensable from the #4994 (densified kraft) liner. 2. Rotary processing for finished parts. If a densified kraft (DK) liner is necessary, the adhesive should be first laminated to the substrate with pressure. After lamination, remove the 58# PCK liner and laminate the outside of the #4994 (DK) liner.
Application Ideas	• Foam to powder coated painted surfaces. • Low surface energy plastic adhesion.
Application Equipment	To apply adhesives in a wide web format, lamination equipment is required to ensure acceptable quality. To learn more about working with pressure-sensitive adhesives please refer to technical bulletin, Lamination Techniques for Converters of Laminating Adhesives (70-0704-1430-8). For additional dispenser information, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.
Storage	Store in original cartons at 70°F (21°C) and 50% relative humidity.
Shelf Life	If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.
Product Use	All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.
Warranty and Limited Remedy	Unless stated otherwise in 3M's product literature, packaging inserts or product packaging for individual products, 3M warrants that each 3M product meets the applicable specifications at the time 3M ships the product. Individual products may have additional or different warranties as stated on product literature, package inserts or product packages. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's application. If the 3M product is defective within the warranty period, your exclusive remedy and 3M's and seller's sole obligation will be, at 3M's option, to replace the product or refund the purchase price.
Limitation of Liability	Except where prohibited by law, 3M and seller will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

3M

ISO 9001:2000

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.

Industrial Business
Converters Markets
Industrial Adhesives and Tapes Division
3M Center, Building 21-1W-10, 900 Bush Avenue
St. Paul, MN 55144-1000
800-223-7427 • 651-778-4244 (fax)
www.3M.com/converter

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40% pre-consumer
10% post-consumer

Printed in U.S.A.
 70-0709-3902-3 (9/04)

产 品 质 量 证 明 书

INSPECTION CERTIFICATE

品名：Product 不锈钢冷轧卷　　客户名称：Customer

钢种：Type SUS304　　合同号：Contract No. DD19A000450001

执行标准：Specificatio JIS G4313-2011　　证明书号：Certificate No. YJPZ20191000869

序号 No.	炉号 Heat No.	表面 Surface.	钢卷编号 Coil No.	规格尺寸 Size(mm)	重量 Weight(kg)	等级 Grade	拉伸试验Tensile			硬度试验 Hardness()	交货状态 State
							抗拉强度 T.S(N/mm²)	屈服强度 Y.S(N/mm²)	伸长率 Elong(%)		
							--	--	--	1/2H	硬态
1	G190926D141-2	2D	JS1910010042-01-005	0.3*628*C	2512	一级品	865	586	35	273/273/275	硬态
2	G190926D141-2	2D	JS1910010042-01-006	0.3*591*C	2364	一级品	865	586	35	273/273/275	硬态
			合计 total		4876						

序号 No.	化学成分（熔炼分析）Chemical composition（Heat analysis）%														附记 Remarks
	C	Si	Mn	P	S	Ni	Cr	Mo	N	Ti	Cu	Nb	Al	Co	
	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	MIN.	
	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	MAX.	
1	0.059	0.422	1.054	0.0347	0.0031	8.015	18.097	0.005	0.049	0.007	0.044	--	--	0.239	
2	0.059	0.422	1.054	0.0347	0.0031	8.015	18.097	0.005	0.049	0.007	0.044	--	--	0.239	

品质部门印章

JIANGSU YONGJIN METAL TECHNOLOGY CO.,LTD. 江苏永金金属科技有限公司 Quality Assurance Department 品质证明专用章

*拉伸试验：沿用GB/T 228-2002 标准　　*Tensile Test : According to Standard GB/T 228-2002

*硬度试验：沿用GB/T4340.1-2009标准　　*Hardness Test : According to Standard GB/T4340. 1 - 2009

8.4 SUS304

8.5 热缩管 Heat shrinkable tube

SALIPT® TUBING 的执行标准为：UL224&CSA22.2

特 性

阻燃、柔软、绝缘、低温收缩
收缩比率：2：1
纵向收缩率：≤±5%
起始收缩温度：90℃
连续使用温度：-55℃~125℃
电压等级：300V

性能 Properties

性能 Properties	测试条件 Condition	指标 Value
物理性能：抗张强度 Physical: Tensile strength	UL224	≥10.4Mpa/UL224
断裂伸长/Elongation	158±1℃,168hr /UL224	≥200%
老化后抗张强度 Tensile strength after aging	158±1℃,168hr /UL224	≥7.3Mpa/UL224(不小于老化前的70%)
老化后断裂伸长率 Elongation after aging	158±1℃,168hr /UL224	伸长率≥100%
热冲击/Heat shock	250℃,4hr/UL224	无裂纹
冷弯曲 /Cold bend	-30℃,4hr/UL224	无裂纹
电性能：绝缘耐压 Electrical:DielectricVoltage withstand	2500V,60sec/UL224	无击穿
体积电阻率/Volume resistivity	UL224	$\geq 10^{14}$ Ω·cm
化学性能：铜稳定性（铜腐蚀性） Chemical: Copper stability	158±1℃,168hr /UL224	通过
阻燃性/ Flammability	VW-1/UL224(点火15S,60S内自熄)	通过

①超薄型印字内容：

SALIPT S-901-300 E209436 c UL us 125℃ 300V VW-1 PF (ΦA/B)

三联薄壁型 SALIPT S-901-300(PF)热缩套管尺寸检验标准

SALIPT®
三联热缩

产品规格	收缩前尺寸(mm)		完全收缩后尺寸(mm)		包装长度 M	适用范围（mm）
	内径(D)	平均壁厚(T)	内径(D)	壁厚(T)		
Φ0.6	0.9±0.2	0.13±0.03	≤0.40	0.20±0.10	200±2	0.6—0.7
Φ0.7	0.9±0.2	0.13±0.03	≤0.45	0.20±0.10	200±2	0.6—0.7
Φ0.8	1.1±0.2	0.13±0.03	≤0.5	0.20±0.10	200±2	0.6—0.8
Φ1.0	1.5±0.2	0.13±0.03	≤0.60	0.20±0.10	200±2	0.7—1.0
Φ1.5	2.0±0.2	0.13±0.03	≤0.85	0.20±0.10	200±2	0.9—1.4
Φ2.0	2.5±0.2	0.15±0.03	≤1.00	0.22±0.10	200±2	1.1—1.8
Φ2.5	3.0±0.2	0.15±0.03	≤1.25	0.25±0.10	200±2	1.4—2.3
Φ3.0	3.5±0.3	0.15±0.03	≤1.5	0.28±0.10	200±2	1.6—2.7
Φ3.5	4.0±0.3	0.15±0.03	≤1.75	0.28±0.10	200±2	1.9—3.2
Φ4.0	4.5±0.3	0.15±0.03	≤2.0	0.30±0.10	200±2	2.1—3.6
Φ4.5	5.0±0.3	0.15±0.03	≤2.25	0.30±0.10	100±1	2.4—4.0
Φ5.0	5.5±0.4	0.15±0.03	≤2.5	0.32±0.10	100±1	2.6—4.5
Φ6.0	6.5±0.4	0.15±0.03	≤3.0	0.32±0.10	100±1	3.1—5.4
Φ7.0	7.5±0.4	0.15±0.03	≤3.5	0.32±0.10	100±1	3.7—6.3
Φ8.0	8.5±0.5	0.15±0.03	≤4.0	0.32±0.10	100±1	4.2—7.2
Φ9.0	9.5±0.5	0.15±0.03	≤4.5	0.35±0.10	100±1	4.7—8.0
Φ10	10.5±0.5	0.15±0.03	≤5.0	0.35±0.10	100±1	5.2—9.0
Φ11	11.5±0.5	0.18±0.04	≤5.5	0.40±0.10	100±1	5.7—10.0
Φ12	12.5±0.5	0.20±0.05	≤6.0	0.40±0.10	100±1	6.2—11.0
Φ13	13.5±0.5	0.20±0.05	≤6.5	0.40±0.10	100±1	6.7—12.0
Φ14	14.5±0.5	0.20±0.05	≤7.0	0.40±0.10	100±1	7.3—13.0
Φ15	15.5±0.5	0.20±0.05	≤7.5	0.40±0.10	100±1	7.8—14.8

附产品图示:

材 质 说 明

我司三联环保热缩套管是一种阻燃型的热收缩套管，组成材料为聚烯烃材料附加适量助剂，具体组成如下。产品铅、镉、汞、六价铬、PBB、PBDE 等环境管理物质含量符合 SONY-000259 及欧盟 RoHS 法令环保要求。

原料名称			使用目的	含量	CAS 编号
中文	ENGLISH	分子式			
乙烯醋酸乙烯酯	EVA	$(CH_2\text{-}CH_2)$ $m\text{-}(CH_2\text{-}CH\text{-}COOCH_3)n$	主剂	46%	24937-78-8
氢氧化镁	ATH	$Mg(OH)_2$	阻燃剂	35%	1309-42-8
氮系阻燃剂	MCA	C6H9N9O3	阻燃剂	15%	37640-57-6
色种	Color		着色剂	4%	

3M

VHB™ Acrylic Foam Tapes

RP16 • RP25 • RP32 • RP45 • RP62

Technical Data **June, 2010**

Product Description

3M™ VHB™ Acrylic Foam Tapes RP16, RP25, RP32, RP45 and RP62 are double-sided pressure sensitive adhesive tapes for bonding a variety of substrates including many metal, plastic and painted materials.

Product Construction

Adhesive:		Multi-Purpose Acrylic
Adhesive Carrier:		Conformable Acrylic Foam (closed cell)
Thickness:	**3M™ VHB™ Tape RP16**	0.016 in. (0.4 mm)
	3M™ VHB™ Tape RP25	0.025 in. (0.6 mm)
	3M™ VHB™ Tape RP32	0.032 in. (0.8 mm)
	3M™ VHB™ Tape RP45	0.045 in. (1.1 mm)
	3M™ VHB™ Tape RP62	0.062 in. (1.55 mm)
Density:		45 lb./ft.^{3} (720 kg/m^3)
Liner:		White DK paper (black 3M™ VHB™ print)
Tape Color:		Gray

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Peel Adhesion: (stainless steel)	**3M™ VHB™ Tape RP16**	12 lb./in. width (210 N/100 mm)
	3M™ VHB™ Tape RP25	16 lb./in. width (280 N/100 mm)
	3M™ VHB™ Tape RP32	18 lb./in. width (315 N/100 mm)
	3M™ VHB™ Tape RP45	20 lb./in. width (350 N/100 mm)
	3M™ VHB™ Tape RP62	20 lb./in. width (350 N/100 mm)
Normal Tensile: (alum T-block)	**3M™ VHB™ Tape RP16**	95 lb./in.^{2} (655 kPa)
	3M™ VHB™ Tape RP25	90 lb./in.^{2} (620 kPa)
	3M™ VHB™ Tape RP32	85 lb./in.^{2} (585 kPa)
	3M™ VHB™ Tape RP45	85 lb./in.^{2} (585 kPa)
	3M™ VHB™ Tape RP62	80 lb./in.^{2} (550 kPa)
Dynamic Shear: (stainless steel)	**3M™ VHB™ Tape RP16**	90 lb./in.^{2} (620 kPa)
	3M™ VHB™ Tape RP25	80 lb./in.^{2} (550 kPa)
	3M™ VHB™ Tape RP32	75 lb./in.^{2} (515 kPa)
	3M™ VHB™ Tape RP45	70 lb./in.^{2} (480 kPa)
	3M™ VHB™ Tape RP62	70 lb./in.^{2} (480 kPa)
Static Shear: (stainless steel)	72°F (22°C)	1000 g/0.5 sq. in. (holds 10,000 min.)
	158°F (70°C)	500 g/0.5 sq. in. (holds 10,000 min.)
	200°F (93°C)	500 g/0.5 sq. in. (holds 10,000 min.)
Solvent Resistance:		High
Temperature Resistance:		
Short Term (minutes, hours):		250°F (121°C)
Long Term (days, weeks):		200°F (93°C)

Available Sizes

Standard Length:	**3M™ VHB™ Tapes RP16, RP25, RP32**	72 yds. (65.8 m)
	3M™ VHB™ Tapes RP45, RP62	36 yds. (32.9 m)
Minimum Width:		1/4 in. (6.4 mm)
Slitting Tolerance:		± 1/32 in. (0.8 mm)
Core Diameter (ID):		3.0 in. (76.2 mm)

3M™ VHB™ Acrylic Foam Tapes

RP16 • RP25 • RP32 • RP45 • RP62

Application Guidelines

For maximum bond strength the surfaces should be thoroughly cleaned with a 50:50 mixture of isopropyl alcohol* and water. Ideal tape application is accomplished when temperature is between 70°F and 100°F (21°C and 38°C) and the bond is allowed to dwell 72 hours. Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended.

*Consult manufacturer's directions for use and precautions when using cleaning solvents. This cleaning recommendation may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

Storage

Store in original cartons at 70°F (21°C) and 50% relative humidity.

Shelf Life

When stored under proper conditions, product retains its performance and properties for 24 months from date of manufacture.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Limited Warranty

3M warrants for 24 months from the date of manufacture that 3M™ VHB™ Tape will be free of defects in material and manufacture. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This limited warranty does not cover damage resulting from the use or inability to use 3M™ VHB™ Tape due to misuse, workmanship in application, or application or storage not in accordance with 3M recommended procedures. AN APPLICATION WARRANTY EXPRESSLY APPROVED AND ISSUED BY 3M IS AN EXCEPTION. THE CUSTOMER MUST APPLY FOR A SPECIFIC APPLICATION WARRANTY AND MEET ALL WARRANTY AND PROCESS REQUIREMENTS TO OBTAIN AN APPLICATION WARRANTY. CONTACT 3M FOR MORE INFORMATION ON APPLICATION WARRANTY TERMS AND CONDITIONS.

Limitation of Remedies and Liability

If the 3M™ VHB™ Tape is proved to be defective within the warranty period stated above. THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M™ VHB™ TAPE. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.

ISO 9001:2000

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.

3M

Industrial Adhesives and Tapes Division
3M Center, Building 225-3S-06
St. Paul, MN 55144-1000
800-362-3550 • 877-369-2923 (Fax)
www.3M.com/VHB

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