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# PRODUCT SPECIFICATION

NO.SPEC-ANB-4001

RF IV I-TYPE BOARD END CONNECTOR  
( Product NO. ANB0150\*-411 )

|             |                 |                |                 |                    |
|-------------|-----------------|----------------|-----------------|--------------------|
|             | <b>APPROVED</b> | <b>CHECKED</b> | <b>PREPARED</b> | <b>ISSUED BY :</b> |
| <b>By</b>   | Ivan.wang       | Eli.duan       | Jackzhang       |                    |
| <b>Date</b> | 2013-01-05      | 2013-01-05     | 2013-01-05      |                    |

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\*\*\*\*\* REVISION HISTORY \*\*\*\*\*

| Rev. | Date      | Revision Page No. | Notes |
|------|-----------|-------------------|-------|
| A    | 2013-01-5 | New Reversion     | 初次发行  |
| B    |           |                   |       |
| C    |           |                   |       |
| D    |           |                   |       |
| E    |           |                   |       |
| F    |           |                   |       |
| G    |           |                   |       |
| H    |           |                   |       |
| J    |           |                   |       |
| K    |           |                   |       |
| L    |           |                   |       |
| M    |           |                   |       |
| N    |           |                   |       |
| P    |           |                   |       |
| Q    |           |                   |       |
| R    |           |                   |       |
| S    |           |                   |       |
| T    |           |                   |       |
| U    |           |                   |       |
| V    |           |                   |       |
| W    |           |                   |       |
| Y    |           |                   |       |
| Z    |           |                   |       |

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## 1. SCOPE

This product described in this paper is a SMT Type Micro Coaxial RF Receptacle, whose part name in our comply is USS RF REC. It is special for micro strip-to -Coaxial adapter in RF circuit, such as Mobile Phone, Wireless Net, Mini PCI, Bluetooth, PDA, GPS, Electric Measurement Instruments and so on.

## 2. REQUIREMENT

### 2.1. PRODUCT DIMENSION

Product shall be intermateable with industry standard product of opposite gender. This connector shall have the dimensions as shown in Drawing .

### 2.2. PCB/PANEL LAYOUT

The recommended PCB layout are shown in Drawing .

### 2.3. BILL OF MATERIAL

The bill of material and product number of Connectors are described in Drawing .

### 2.4. MECHANICAL & ELECTRICAL CHARACTERISTIC

The connector shall have the mechanical and electrical performance as described in **Table I**.

### 2.5. PACKAGING

Parts shall be packaged according to requirements specified in purchase order for safe delivery. Connector container and the packing specification are shown in Drawing .

### 2.6. HARMFUL MATERIAL CONTROL

Harmful material controls please follow the **Doc. No. QW-QA-10**.

## 3. PERFORMANCE AND TEST DESCRIPTION

### 3.1. REQUIREMENT

Product is designed to meet electrical, mechanical, and environmental performance requirements specified in **Table I**.

### 3.2. TEST CONDITION

Unless otherwise specified, all tests shall be performed at ambient environmental conditions:

3.2.1 Temperature: **15°C~35°C**

3.2.2 Humidity: **50±2% R**.

3.2.3 Atmospheric Pressure: **650 mmHg to 800 mmHg**.

### 3.3. SAMPLE SELECTION

Test samples shall be selected at random from current production. No test samples shall be reused. Each group shall be containing **10** test samples.

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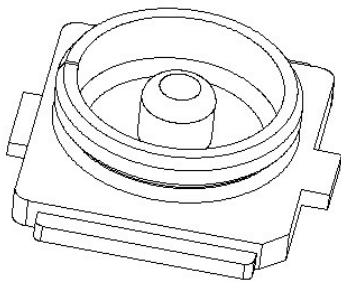
### 3.4 TEST SEQUENCE

Products qualification test sequence as shown in **Table II**.

## 4. QUALITY ASSURANCE PROVISIONS

CCT is responsible for the quality of the part as it is delivered to customer. The failing lots will be return or other supplier action.

## 5. PRODUCT PICTURE



## 6. Technical Parameters

|     |                     |               |
|-----|---------------------|---------------|
| 6.1 | Rated Voltage       | 60VAC (R.M.S) |
| 6.2 | Frequency Range     | 0~6GHz        |
| 6.3 | Character Impedance | 50Ω           |
| 6.4 | Operate Temperature | -40℃~90℃      |
| 6.5 | Operate Humidity    | 90% MAX       |

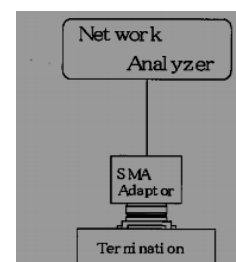
## 7. Electric Performance

|     |                              |                   |
|-----|------------------------------|-------------------|
| 7.1 | Dielectric Resistance        | 500MΩ             |
| 7.2 | Dielectric Withstand Voltage | 200VAC 1Min       |
| 7.3 | Contact Resistance           |                   |
|     | 7.3.1 Signal Contact         | Initial: 20mΩ max |
|     | 7.3.2 Ground Contact         | Initial: 20mΩ max |

### 7.4 VSWR

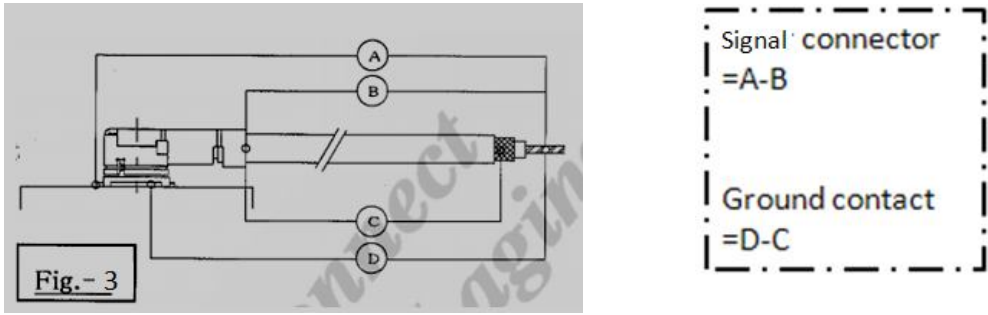
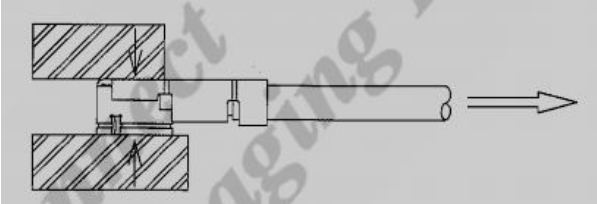
|        |        |
|--------|--------|
| ≦ 3GHz | 3~6GHz |
| 1.3max | 1.4max |

7.4.1 Test Method(Refer to the FIG2):

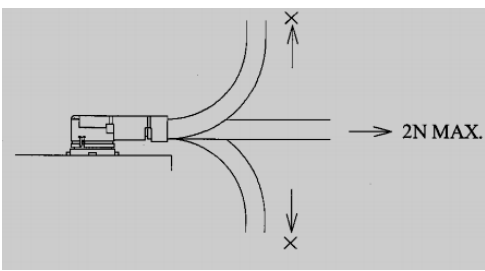


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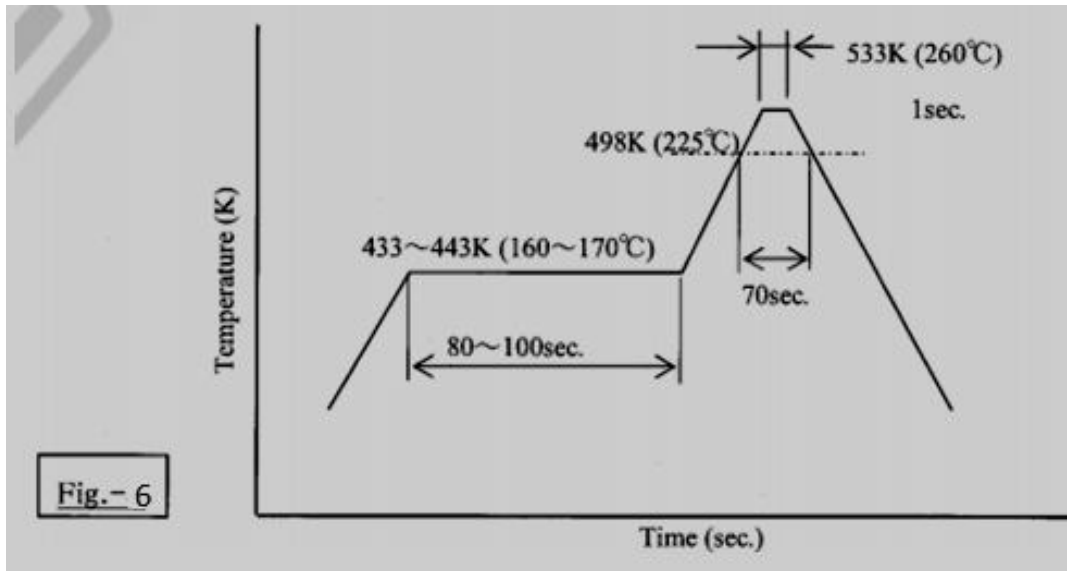
**Table I: Performance Requirements**

| Items                                       | Test Conditions   | Specifications  |
|---|---|---|
| 1.<br>Contact<br>Resistance                 | <p>Solder the receptacle connector to the test board and mate the plug connector together, then measure the contact resistance as shown in Fig3 by the four terminal methods. Apply the low level conditions in accordance with MIL-STD-202G, Method 307.</p> <p>Open circuit voltage : 20 mV MAX<br/>Circuit current : 10 mA MAX</p> | <p>{ Signal contact }</p> <p>Initial : 20mΩ MAX<br/>After testing : ΔR20 mΩ max</p> <p>{ Ground contact }</p> <p>Initial : 20mΩ MAX<br/>After testing : ΔR20 mΩ MAX</p> |
|   |    |   |
| 2.<br>Insulation<br>Resistance              | Mate the receptacle and plug connector together, and then apply DC 100V between the signal contact and the ground contact in accordance with MIL-STD-202G, Method 302.  | Initial :500MΩ MIN<br>After testing :100 MΩ MIN   |
| 3.<br>Dielectric<br>Withstanding<br>Voltage | Mate the receptacle and plug connector together, and then apply AC 200V rms between the signal 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.<br>VSWR                                  | Measure the VSWR as shown in FIG2 by the network analyzer.<br>Frequency: 100M~6GHz  | 1.3MAX. at 0.1~3GHz<br>1.4MAX .at 3~6GHz  |
| 5.<br>Un-mating force                       | Solder the receptacle connector to the test board and mate the plug connector, then measure the un-mating force at speed 25 ± 3mm/minutes along by the push-pull machine.   | { Total un-mating force }<br>Initial :4N MIN<br>After 30 :2N MIN  |
| 6.<br>Crimp strength                        | Pull the cable as shown in Fig4 at speed 25 ± 3mm/minutes by tensile strength machine.  | 7N MIN  |
|   |   |   |

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| 7.<br>Durability                                 | Mate and un-mate the receptacle connector(soldered to the test board) and plug connector 30 cycles at speed $25 \pm 3$ mm/minutes along the mating by the push-pull machine.  | [Appearance] No abnormality<br>[Contact Resistance]<br>Shall meet Table I.1  |
| 8.<br>Contact resistance with force on the cable | Apply force on the cable as shown in Fig5<br>During the testing, run 100mA DC to check electrical discontinuity.<br><br>Fig5   | [Appearance] No abnormality<br>[Electrical discontinuity]<br>No electrical discontinuity grater than $1 \mu s$ shall occur.<br>[Contact Resistance]<br>Shall meet Table I.1                  |
| 9.<br>Vibration                                  | Apply the following vibration to the mating connector.<br>During the testing, run 100mA DC to check electrical discontinuity.<br>Frequency: 10Hz → 100 Hz → 10Hz/approx 20 minutes.<br>Half amplitude, Peak value of acceleration : $1.5\text{mm}$ or $59\text{m/s}^2$ (6G)<br>Directions, cycle: 3 mutually perpendicular direction,3 cycles about each direction. | [Appearance] No abnormality<br>[Contact Resistance]<br>Shall meet Table I.1<br>[Electrical discontinuity]<br>No electrical discontinuity grater than $1 \mu s$ shall occur.                  |
| 10.<br>Shock                                     | Apply the following vibration to the mating connector.<br>During the testing, run 100mA DC to check electrical discontinuity.<br>Peak value of acceleration: $735 \text{m/s}^2$ (75G)<br>Duration :11msec<br>Wave Form :half sinusoidal<br>Direction, cycle :6 mutually perpendicular direction,<br>3cycle about each direction.                                    | [Appearance] No abnormality<br>[Contact Resistance]<br>Shall meet Table I.1<br>[Electrical discontinuity]<br>No electrical discontinuity grater than $1 \mu s$ shall occur.                  |
| 11.<br>Humidity<br>(Steady State)                | Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 103, Condition B.<br>Temperature : $313 \pm 2\text{K}$ ( $40 \pm 2^\circ\text{C}$ )<br>Humidity : 90~95%RH<br>Duration : 96 hours  | [Appearance] No abnormality<br>[Contact Resistance]<br>Shall meet Table I.1<br>[Insulation Resistance]<br>Shall meet Table I.2<br>[Dielectric Withstanding Voltage]<br>Shall meet Table I.3. |
| 12.<br>Thermal Shock                             | Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 107G, Condition A.<br>Temperature : $218\text{K}$ ( $-55^\circ\text{C}$ ) → $358\text{K}$ ( $85^\circ\text{C}$ ): 30min<br>Transition time : 5min. MAX<br>No. of cycles : 5 cycles   | [Appearance] No abnormality<br>[Contact Resistance]<br>Shall meet Table I.1<br>[Insulation Resistance]<br>Shall meet Table I.2<br>[Dielectric Withstanding Voltage]<br>Shall meet Table I.3. |

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| 13.<br>High Temperature<br>Life     | Apply the following environment to the mating connector<br>Temperature : $363 \pm 2K$ ( $90 \pm 2^\circ C$ )<br>Duration : 96 hours  | [Appearance] No abnormality<br>[Contact Resistance] Shall meet Table I.1<br>[Insulation Resistance] Shall meet Table I.2<br>[Dielectric Withstanding Voltage] |
| 14.<br>H <sub>2</sub> S Gas         | Apply the following environment to the mating connector<br>Temperature : $313 \pm 2K$ ( $40 \pm 2^\circ C$ )<br>Relative Humidity : $80 \pm 5\%RH$<br>Duration : 96 hours  | [Appearance] No abnormality<br>[Contact Resistance] Shall meet Table I.1<br>[Insulation Resistance] Shall meet Table I.2<br>[Dielectric Withstanding Voltage] |
| 15.<br>Salt Water Spray             | Apply the following environment to the mating connector in accordance with MIL-STD-202G, Method 101E, Condition B.<br>Temperature : $308 \pm 2K$ ( $35 \pm 2^\circ C$ )<br>Relative Humidity : $95 \sim 98\%RH$<br>Salt water density : $5 \pm 1\%$ (by weight)<br>Duration : 96 hours | [Appearance] No abnormality<br>[Contact Resistance] Shall meet Table I.1  |
| 16.<br>Solder ability               | Dip the solder tine of the contacts in the solder bath at $518 \pm 5K$ ( $245 \pm 5^\circ C$ ) for $5 \pm 0.5$ seconds after immersing the tine in the flux of RMA type for 5 to 10 seconds.   | More than 95% of the dipped surface shall be wet and less than 5% of the pinhole than shall not gather at a point.  |
| 17.<br>Soldering Heat<br>Resistance | (1) Reflow part : $533 \pm 0/-5K$ ( $260 \pm 0/-5^\circ C$ ) Peak 498K MIN. ( $225^\circ C$ MIN) 70sec. MIN<br>(2) Pre-heat part: $433 \sim 443K$ ( $160 \sim 170^\circ C$ ) 80 ~ 100sec<br>* Refer to reflow temperature profile. (Fig6)<br>* The number of reflow is within 2 times. | No abnormality adversely affecting the performance shall not occur.   |
|                                     |  <p>Fig. - 6</p>   |   |

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**Table II: Test Sequence and Sample Quantity**

| Test:<br>Measurement<br>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.Humidity (Steady State)                   |    |    |    |     |     |     |     | 4   |     |     |     |     |    |    |
| 12. Thermal Shock                            |    |    |    |     |     |     |     |     | 4   |     |     |     |    |    |
| 13. High Temperature Life                    |    |    |    |     |     |     |     |     |     | 2   |     |     |    |    |
| 14.H <sub>2</sub> S Gas                      |    |    |    |     |     |     |     |     |     |     | 2   |     |    |    |
| 15. Salt Water Spray                         |    |    |    |     |     |     |     |     |     |     |     | 2   |    |    |
| 16. Solder ability                           |    |    |    |     |     |     |     |     |     |     |     |     | 1  |    |
| 17.Soldering Heat Resistance                 |    |    |    |     |     |     |     |     |     |     |     |     |    | 1  |
| Sample QTY.                                  | 10 | 10 | 10 | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10 | 10 |