



PRODUCT SPECIFICATION

TITLE

2.4GHz SMD On-ground Antenna

TABLE OF CONTENTS

- 1.0 SCOPE
- 2.0 PRODUCT DESCRIPTION
- 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS
- 4.0 RATINGS
- 5.0 PERFORMANCE
- 6.0 TEST GROUPINGS
- 7.0 RECOMMENDED REFLOW CONDITION
- 8.0 PACKING

<u>REVISION:</u> B	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> ABU2011-0104 <u>DATE:</u> 2011-05-16	<u>TITLE:</u> 2.4GHz SMD on ground antenna	<u>SHEET No.</u> 1 of 5
<u>DOCUMENT NUMBER:</u> PS-47948-001	<u>CREATED / REVISED BY:</u> Travis Zeng 2011-05-05	<u>CHECKED BY:</u> Amos Cheah 2011-05-05	<u>APPROVED BY:</u> Welson Tan 2011-05-05



PRODUCT SPECIFICATION

2.4GHz SMD On Ground Antenna

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for 2.4GHz SMD on ground antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER

2.4GHz SMD on ground antenna 47948-****

2.2 Design and Construction

Antenna shall be of the design, construction and physical dimensions specified on the applicable sales drawing.

2.3 Materials

- a) Housing: Refer to respective Molex sales or engineering drawings
- b) Plating: Refer to respective Molex sales or engineering drawings

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See drawings and other sections of this specification for the relevant reference documents. In cases where the specification differs from the drawings, the drawings take precedence.

4.0 RATINGS

4.1 RF POWER

2 Watts

4.2 TEMPERATURE

Operating: - 30°C to + 85°C
Storage : - 40°C to + 85°C

4.3 HUMIDITY

Storage : +15~70% RH
Test : +80~95% RH

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
B	EC No: ABU2011-0104 DATE: 2011-05-16	2.4GHz SMD on ground antenna	2 of 5
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-47948-001	Travis Zeng 2011-05-05	Amos Cheah 2011-05-05	Welson Tan 2011-05-05



PRODUCT SPECIFICATION

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Frequency Range	Measure antenna on recommended PCB through VNA E5071C	2400MHz-2483.5MHz
5.1.2	Return Loss	Measure antenna on recommended PCB through VNA E5071C	< -9 dB
5.1.3	Peak Gain	Measure antenna on recommended PCB through OTA chamber	3.0dBi
5.1.4	Avg. Total Efficiency	Measure antenna on recommended PCB through OTA chamber	>70%
5.1.5	Polarization	Measure antenna through the OTA chamber	Liner
5.1.6	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Plating thickness measure	Use X-ray measure the thickness of plating	The plating thickness SPEC:Cu 12~16uM;Mid-P Ni 2~4uM;Au 0.1 ~0.2uM.
5.2.2	Cross cut Test	Cross cut adhesion test Testing is performed in accordance with ASTM D-3359-93	acceptance criteria > 2B as acceptance, <35% peeling off.

5.3 RELIABILITY REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	Peeling Force	Apply six axial peeling force on parts soldered on the PCB at the speed rate of 25±3 mm/minute	8 N Min
5.3.2	Solderability testing	Dip solder tails into the molten solder (held at 245+-5°C for 5s)	Solder coverage: 95% Min.

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
B	EC No: ABU2011-0104 DATE: 2011-05-16	2.4GHz SMD on ground antenna	3 of 5
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-47948-001	Travis Zeng 2011-05-05	Amos Cheah 2011-05-05	Welson Tan 2011-05-05



PRODUCT SPECIFICATION

5.4 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.4.1	Humidity Test	1. Test condition: The device under test is kept for 12 hours in an environment with a temperature of 55 degrees and a relative humidity of 95%. Thereafter for 12 Hours in an environment with a temperature of 25 degrees and a relative humidity of 95%. The cycle is repeated until a total of 6 cycles have been completed. Hereafter the conditions are stabilized at room temperature.	1) Parts should meet RF spec before and after test. 2) No cosmetic problem
5.4.2	Temperature cycling test	1. Test condition: The product temperature is decreased from room temperature to -40 degrees during 2 Hours and kept there for 2 hours. Then temperature is increased to 85 degree during 2 hours and kept for 2 hours. The temperature is then again decreased to -40 degrees during a 2-hours period. The cycle is repeated until a total of 6 cycles have been completed. Hereafter the conditions are stabilized at room temperature.	1) Parts should meet RF spec before and after test. 2) No cosmetic problem
5.4.3	Salt mist test	1. Test condition: The device under test is exposed to a spray of a 5% (by volume) resolution of NaCl in water for 2 hours. Thereafter the device under test is left for 1 week in room temperature at a relative humidity of 95%. The cycle is repeated until a total of 2 cycles have been completed. Here after the conditions are stabilized at room temperature.	1) Parts should meet RF spec before and after test. 2) No visible corrosion. Discoloration accept.
5.4.4	HNO3 Test	General test condition	1) No corrosion.

The meaning of text “**No mechanical damage**” in the table above is:

- a. no soldering problem
- b. no adhesion problem of glue
- c. no peel off of plating

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
B	EC No: ABU2011-0104 DATE: 2011-05-16	2.4GHz SMD on ground antenna	4 of 5
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-47948-001	Travis Zeng 2011-05-05	Amos Cheah 2011-05-05	Welson Tan 2011-05-05



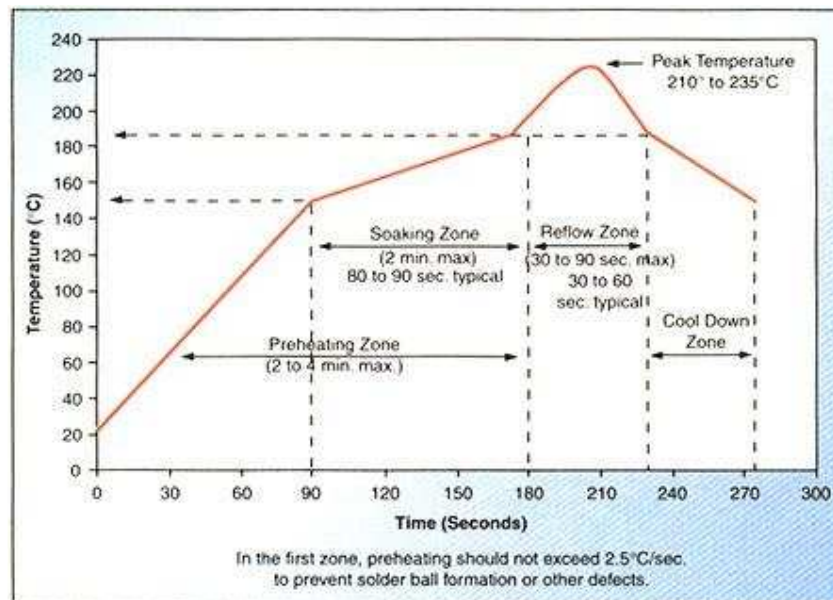
PRODUCT SPECIFICATION

6.0 TEST GROUPINGS

Note: All test specimens (except group 5) shall pass the reflow process for 3 times.

Test Item	Description	Group1	Group2	Group3	Group4	Group5	Group6
5.3.1	Peeling Force	X					
5.3.2	Solderability testing		X				
5.4.1	Humidity Test			X			
5.4.2	Temperature cycling test				X		
5.4.3	Salt mist test					X	
5.4.4	HNO3 Test						X
	Sample Quantity	5	5	5	5	5	5

7.0 RECOMMENDED REFLOW CONDITION



8.0 PACKAGING

Refer to the Molex related packaging drawings.

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
B	EC No: ABU2011-0104 DATE: 2011-05-16	2.4GHz SMD on ground antenna	5 of 5
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-47948-001	Travis Zeng 2011-05-05	Amos Cheah 2011-05-05	Welson Tan 2011-05-05