

# OKI Semiconductor

**FEDW9046BC-01**  
Issue Date: July. 2. 2002

## MBF9046BC

**SAW Antenna Duplexer (700 to 1000 MHz)**

### GENERAL DESCRIPTION

The MBF9046BC is the SAW antenna duplexer for the frequency range of 700 to 1000 MHz.

This SAW Duplexer integrates RF filters at Tx and Rx side, and matching circuit into PKG. This helps to save the space and weight greatly in the target application such as mobile telephone.

This SAW Duplexer has very low insertion loss by using high quality package.

Due to high harmonics characteristics, total number of components at RF circuit can be minimized.

Thanks to high isolation performance, high sensitivity can be expected. Low insertion loss at Tx saves the power consumption of mobile telephone which prolong the battery life.

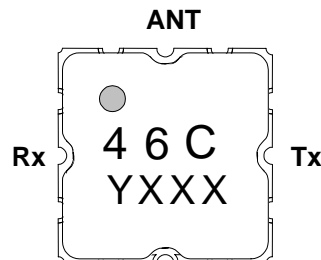
### FEATURES

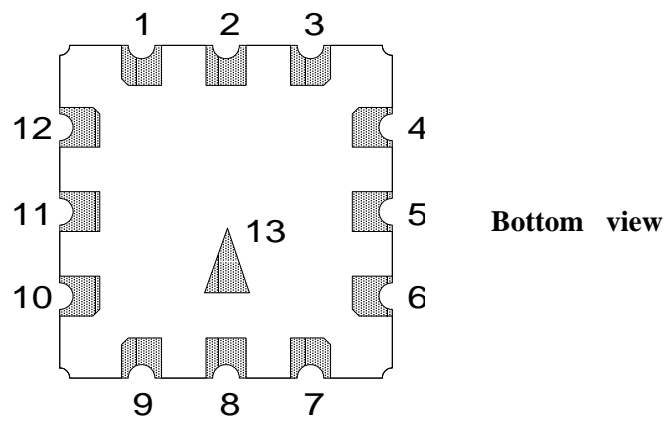
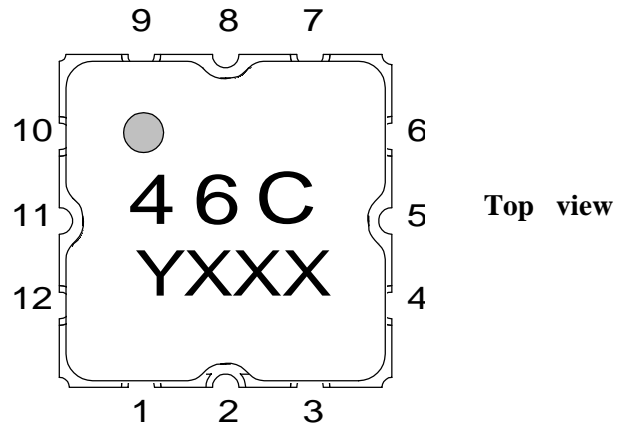
- Complying Standard AMPS, IS-95, IS-136
- Small package: 5mm x 5mm & less than 1.85 mm in height
- PKG I/O Impedance: 50  $\Omega$

### PRODUCT DESCRIPTION

#### Package Type

#### MBF9046BC



**PIN ASSIGNMENT & DESCRIPTION****CONNECTION**

- 5: Tx (Transmitting Terminal Pin)
- 8: ANT (Antenna Pin)
- 11: Rx (Receiving Terminal Pin)
- 13: INDEX Mark (should not be soldered )
- Others: GND (Ground Pin)

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Rating		Unit
		Min.	Max.	
Operating Temperature	T <sub>a</sub>	-30	+85	°C
Storage Temperature	T <sub>STG</sub>	-40	+85	°C
Maximum Input Power	P <sub>IN</sub>	—	1.2	W

**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Rating		Unit
		Min.	Max.	
Operating Temperature	T <sub>a</sub>	-30	+85	°C

**ELECTRICAL CHARACTERISTICS**

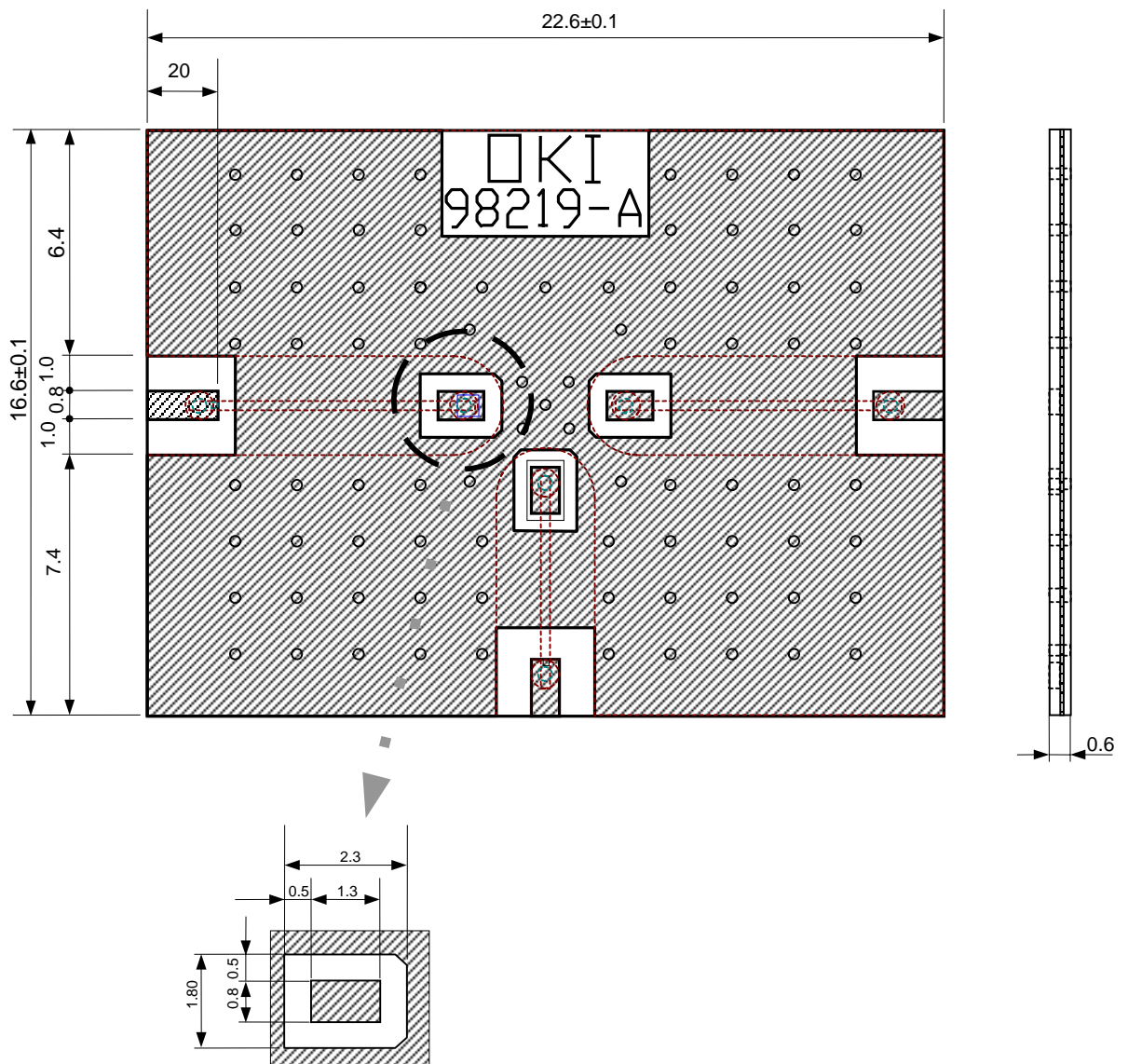
(Ta = -30 to +85°C)

Parameter	Condition	Mini.	Typ.	Max.	Unit/Notes	
<b>Tx → Antenna</b>						
a)	Insertion loss	824 to 849 MHz	—	2.0	2.5	dB
b)	Passband ripple		—	0.7	1.5	
c)	VSWR ANT Port		—		2.2	
	VSWR Tx Port		—		2.5	
d)	Absolute attenuation	500 to 800 MHz	12			dB
		869 to 894 MHz	40	45	—	
		900 to 1600MHz	13	—	—	
		1648 to 1698 MHz	10	16	—	
		2472 to 2547 MHz	2	—	—	
<b>Antenna → Rx</b>						
a)	Insertion loss	869 to 894 MHz	—	—	4.0	dB
b)	Passband ripple		—	1.0	2.0	
c)	VSWR ANT Port		—	—	2.5	
	VSWR Rx Port		—	—	2.1	
d)	Absolute attenuation	824 to 849 MHz	50	56	—	dB
		960 to 990 MHz	35	—	—	
		1050 to 1080 MHz	35	—	—	
		1140 to 1170 MHz	35	—	—	
		1230 to 1270 MHz	35	—	—	
<b>Isolation TX → RX</b>						
a)	Absolute attenuation	824 to 849 MHz	55	60	—	dB
		869 to 894 MHz	45	49	—	dB
<b>Input Power</b>						
a)	Maximum power	—	—	—	1.2	W

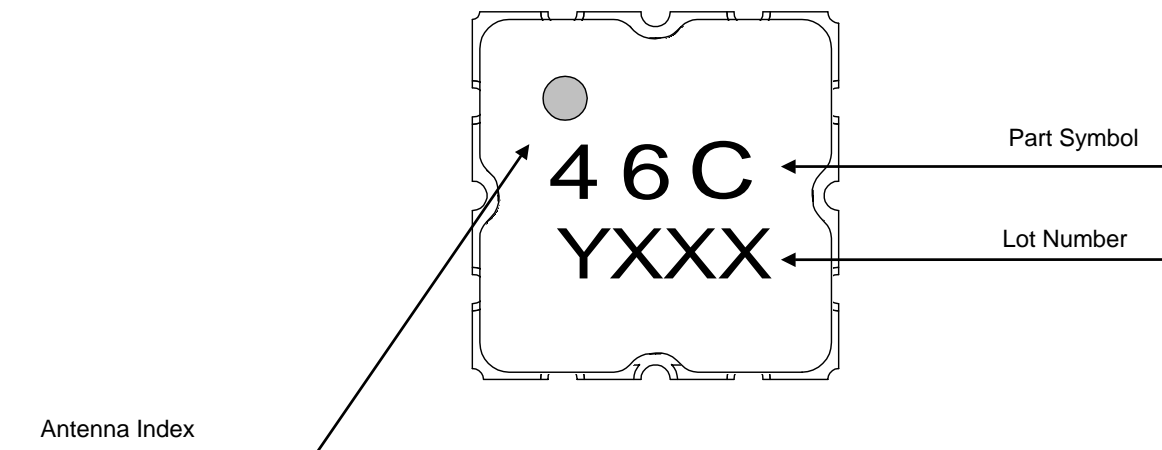
Note: Electrical characteristics described above is guaranteed by the following measurement and equipment condition.

- 1) Test board: See next page
- 2) Measurement machine : Network analyzer

Test Board



**MARKING**

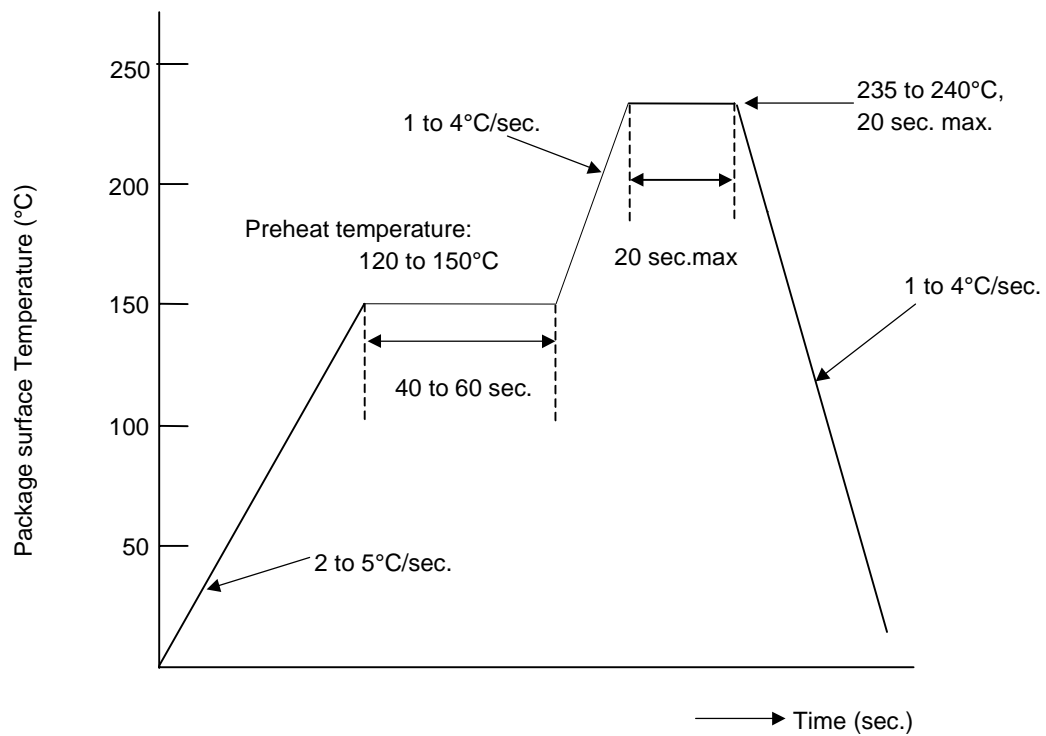


Note)  
Lot Number  
Y: Last number of year  
XXX: Serial number

## REFLOW TEMPERATURE PROFILE

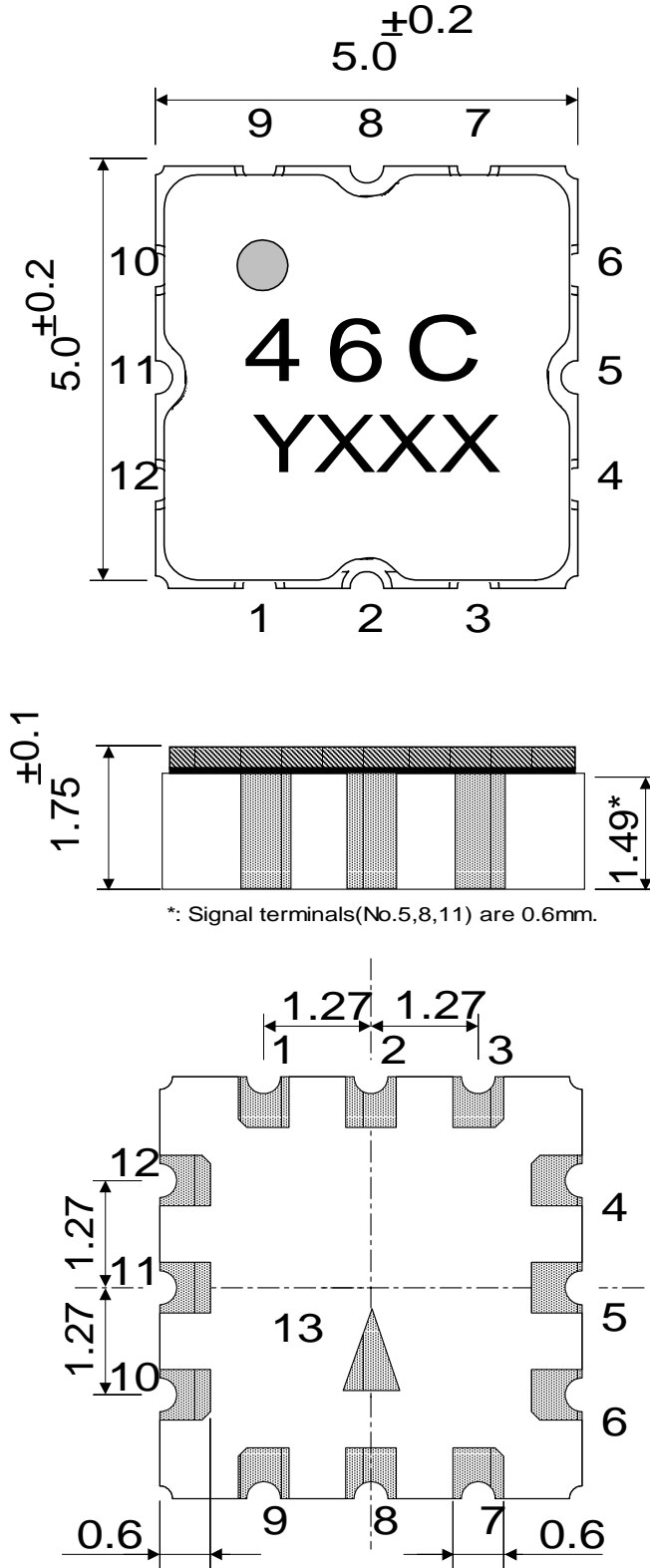
The figure below shows recommended temperature profile of infrared reflow and air reflow. Other type of reflow is not recommended.

The maximum reflow count is 2 times. Washing of this device after reflow process is prohibited.



**PACKAGE DIMENTION**

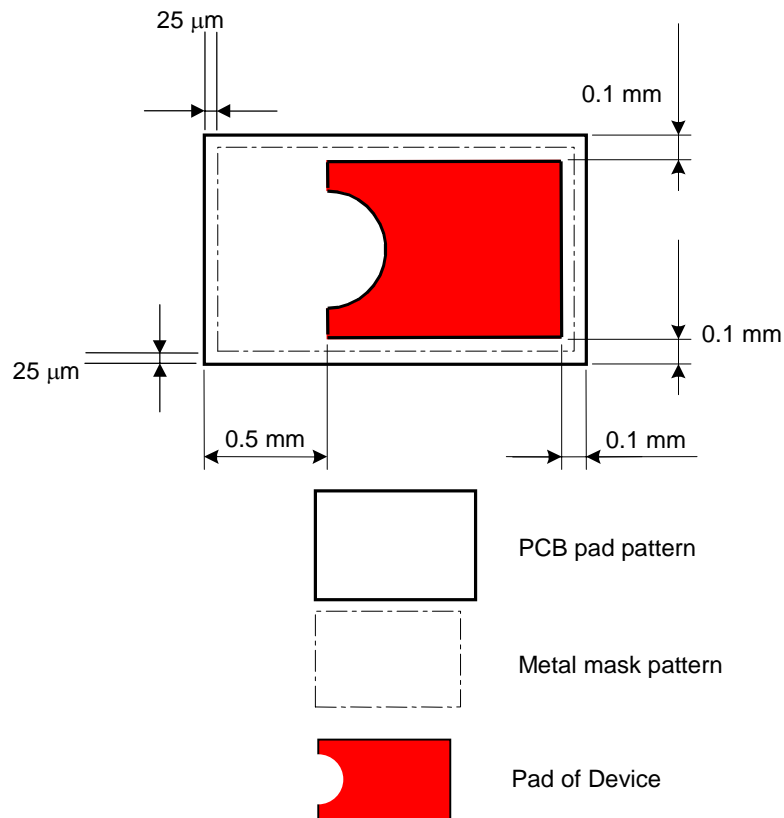
Unit: mm  
General tolerance:  $\pm 0.15$





## RECOMMENDATION FOR SOLDER PAD PATTERN

The solder pad pattern should be designed by customers because it depends on the electrical performance of the customers' system. Following is an example of solder pad pattern which is used in OKI's package evaluation board. Please be noted that this is for reference purpose only.



Please pay attention to the following items to maintain electrical performance.

- (1) Metal mask pattern for cream solder should be 25  $\mu\text{m}$  smaller on each side. Metal mask is 0.15 mm in thickness.
- (2) As the impedance of Tx, Rx, ANT is designed for 50 $\Omega$ , please consider this for the design of mother board.

**REVISION HISTORY**

Document No.	Date	Page		Description
		Previous Edition	Current Edition	
FEDW9046BC-01	July. 2002	-	-	Final edition 1

**NOTICE**

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
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