

BSTMX41-0408

4-8 GHz I/Q Mixer

Data Sheet

I. Product Introduction

BSTMX41-0408 is an I/Q mixer chip with RF and LO frequencies of 4 to 8 GHz, IF frequencies of DC to 2 GHz, and a conversion loss of 9 dB.

II. Application Areas

- Radar
- Communications
- Meter

III. Key technical indicators

- RF & LO frequency: 4 ~ 8GHz
- IF frequency: DC ~ 2GHz
- Local oscillator power: 16dBm
- Conversion loss: 9dB
- LO/RF isolation: 50dB
- Image suppression: 30dB
- Input 1dB compression point: 14dBm
- Chip size: 1.96mm × 1.56mm

IV. Absolute Maximum Ratings

Table 1

PARAMETER	LIMIT VALUE
Maximum input power	+20dBm
Storage temperature	-65 °C ~ +150 °C
Operating temperature	-55 °C ~ +125 °C

V. Electrical Performance ($T_A = 25\text{ }^{\circ}\text{C}$, $P_{in} = 16\text{dBm}$)

Table 2

INDEX	MINIMUM	TYPICAL VALUES	MAXIMUM
RF & LO frequency (GHz)	4 ~ 8		
IF frequency (GHz)	DC ~ 2		
Conversion loss (dB)	—	9	—
Image suppression (dB)	—	30	—
LO~RF isolation (dB)	—	50	—
LO~IF isolation (dB)	—	30	—
RF~IF isolation (dB)	—	40	—
Input 1dB compression point (dBm)	—	14	—

VI. Typical test curves Without Indication $I_F=0.5\text{GHz}$

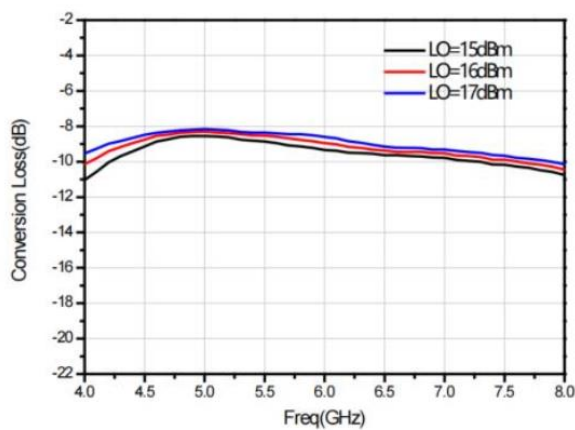


Figure 1. Conversion loss

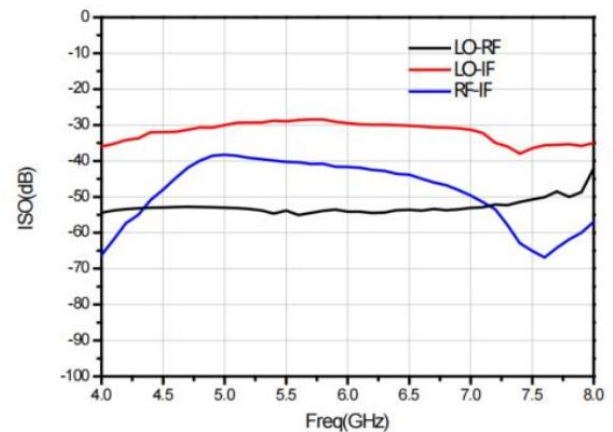


Figure 2. isolation ($P_{LO}=16\text{dBm}$)

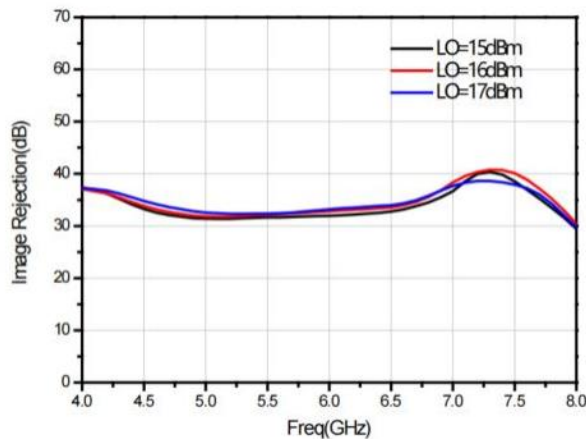


Figure 3. Image rejection

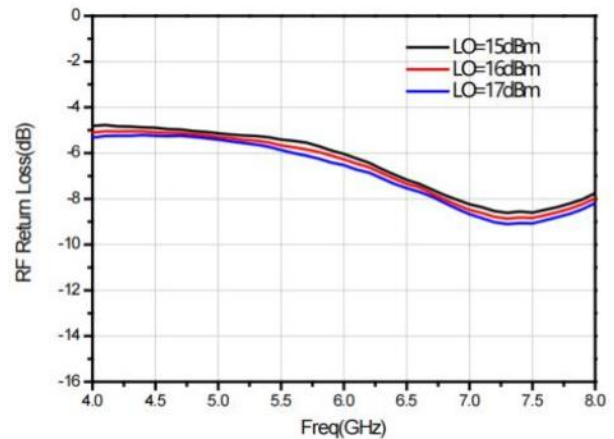


Figure 4. RF return loss

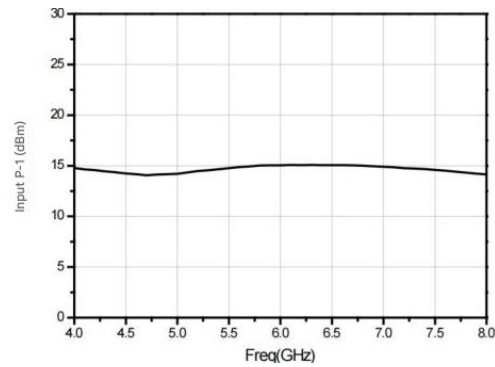


Figure 5. Input 1dB compression point

VII. Overall and Port Dimensions (mm)

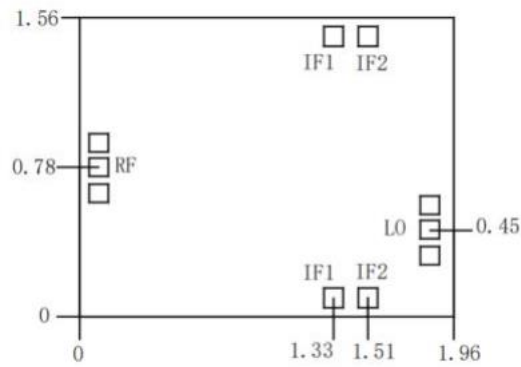


Figure 6

VIII. Recommended Assembly Drawing

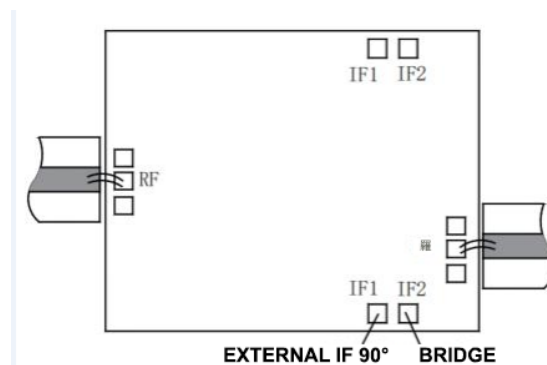


Figure 7

IX. Schematic

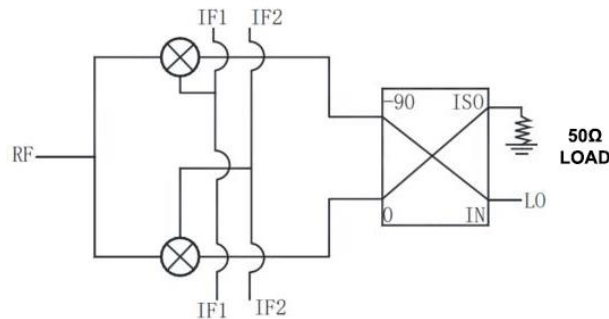


Figure 8

X. Precautions

- The chip should be stored in a dry, nitrogen-filled environment and used in an ultra-clean environment;
- GaAs material is brittle and the chip surface cannot be touched. Be careful when using it;
- Sinter the chip with conductive glue or alloy (the alloy temperature cannot exceed 300 °C and the time cannot exceed 30 seconds) to ensure that it is fully grounded;
- The gap between the chip microwave port and the substrate should not exceed 0.05mm. Use 25μm double gold wire bonding. The recommended gold wire length is 250 to 400μm;
- There are no DC blocking capacitors at the chip input and output terminals;
- The chip is sensitive to static electricity. Please pay attention to anti-static measures during storage and use.