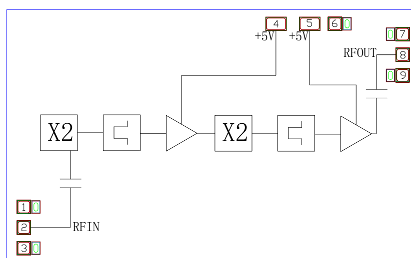
Features

- Input Freq: 8.0-10.0 GHz
- Output Freq: 32-40.0 GHz
- Output Power: 10dBm
- f0 Pout: -55dBm
- 2f0 Pout: -25dBm
- 3f0 Pout: -50dBm
- 4f0 Pout: 15dBm
- 5f0 Pout: -45dBm
- Single power supply: +5V/104mA
- 50Ω Input/ Output
- Die Size: 3.0×1.84×0.1mm^3

Functional Diagram



General Description

The MC16701 is a X4 Frequency Multiplier with 8.0-10GHz input frequency and 32.0-40.0 GHz output frequency. The conversion gain is 5.0dB with 10dBm input power and the output power is 15dBm at +5V/104mA.

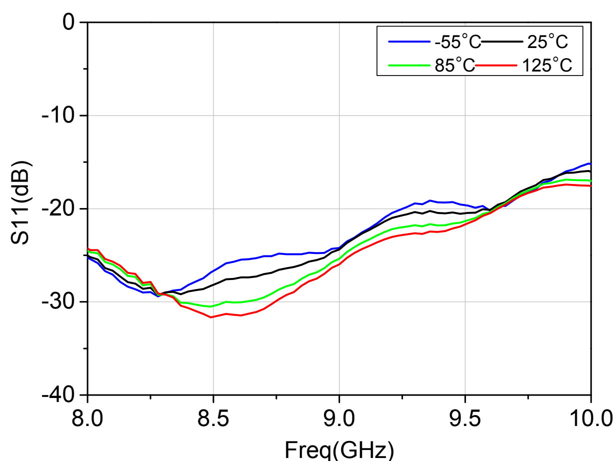
The Chip applies the on-chip metallization through-hole technology thus no need for additional grounding measures which makes it easy and convenient to use. The backside of the chip is metallized, suitable for conductive adhesive bonding or eutectic mounting process.

Electrical Specifications (TA=+25℃, 50Ω system, RF=10dBm, VD=+5V, Idd=104mA)

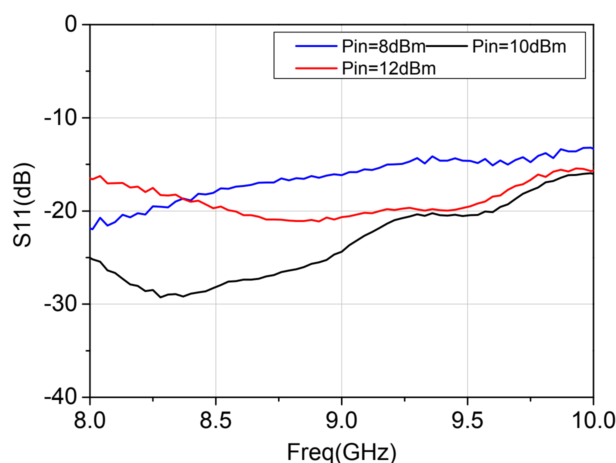
Parameter		Min.	Typ.	Max.	Unit
Input Frequency	Freq	8.0	-	10.0	Freq
Output Frequency	Freq	32	-	40.0	Freq
Gain	Gain	-	5.0	-	Gain
f0 Pout	Pout_f0	-	-55	-	Pout_f0
2f0 Pout	Pout_2f0	-	-25	-	Pout_2f0
3f0 Pout	Pout_3f0	-	-50	-	Pout_3f0
4f0 Pout	Pout_4f0	-	15	-	Pout_4f0
5f0 Pout	Pout_5f0	-	-45	-	Pout_5f0
Quiescent Current	Idd	-	104	-	Idd

[1] The chips are 100% DC and RF tested.

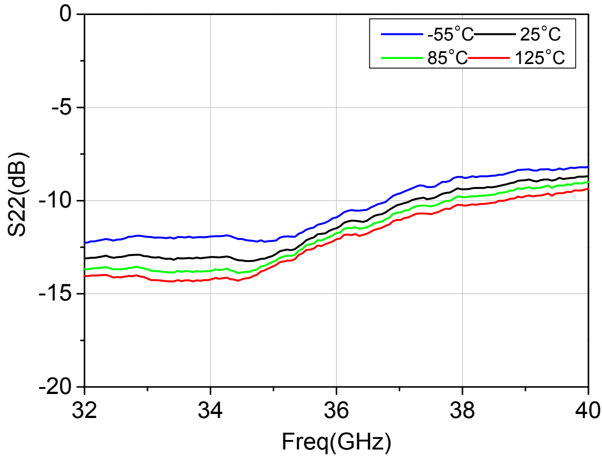
Typical Testing Characteristics



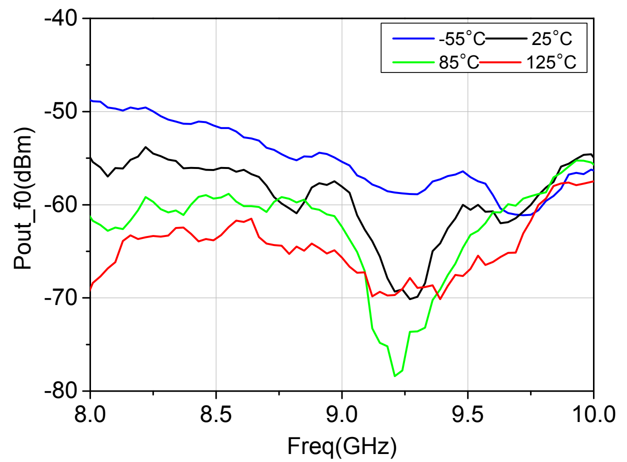
Input Return Loss vs Frequency



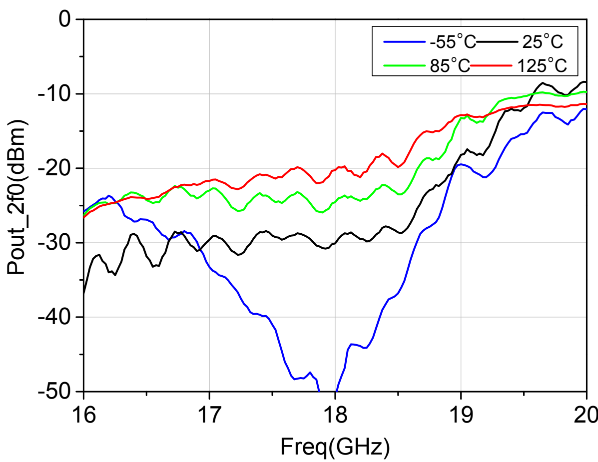
Input Return Loss vs Frequency



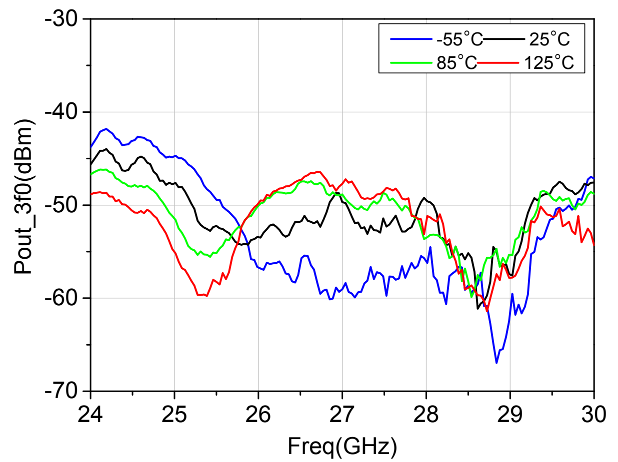
Output Return Loss vs Frequency



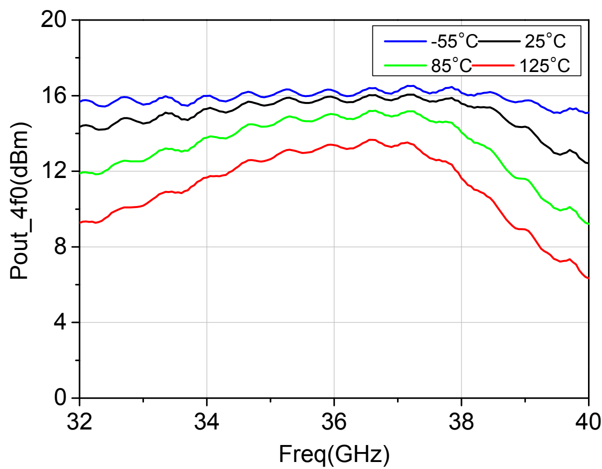
f0 Output Power vs Frequency



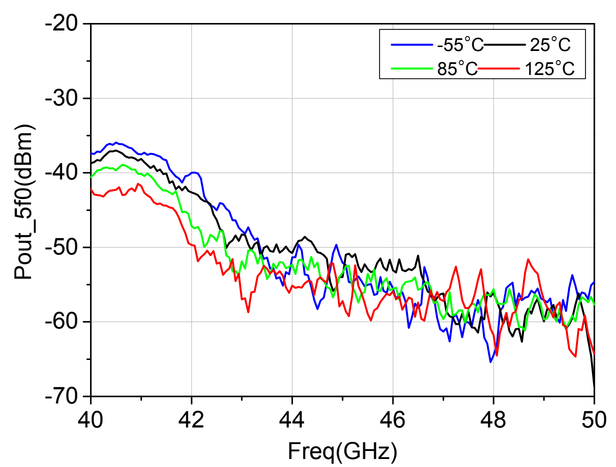
2f0 Output Power vs Frequency



3f0 Output Power vs Frequency



4f0 Output Power vs Frequency



5f0 Output Power vs Frequency

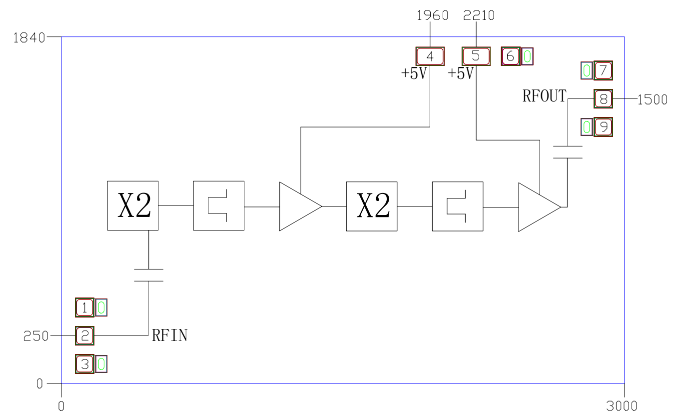
Absolute Maximum Ratings

Parameter Limits	Value
Input Power,50Ω	15dBm
Drain Bias Voltage VD	+6V
Storage Temperature	-65~+150℃
Operating Temperature	-55~+125℃
Mounting Temperature (30s, N_2 Protection)	300℃
Exceeding the above conditions may cause permanent damage to the chip	

This product is ESD(Electrostatic discharge) sensitive. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

- Assembling in a clean environment.
- Avoiding rapid temperature changes during the mounting process.
- Do not touch the surface or use dry/wet chemical methods to clean the surface
- 2 bonding wires for input and output (in figure 八), the bonding wires should be as short as possible.
- Storing in a dry, N_2 protection environment.

Outline Drawing



Notes:

1. Unit:μm
2. Back Side Metallization:Gold
3. Back side metal is ground
4. Bonding pad size: 100μm
5. Outline Dimensional Tolerance:±50 μm

Pad Descriptions

Pad No.	Function	Description	Interface Schematic
2	RFIN	RF signal input, 50Ω matched, with blocking capacitor inside	RFIN
8	RFOUT	RF signal output, 50Ω matched, with blocking capacitor inside	RFOUT
4, 5	VD	Bias supplying voltage for the amplifier. External 100pF filter capacitor required	VD
1, 3, 6, 7,9	GND	Grounding pad for probe test	GND
Die Bottom	GND	Die bottom must be connected to RF/DC ground	GND

Assembly Diagram