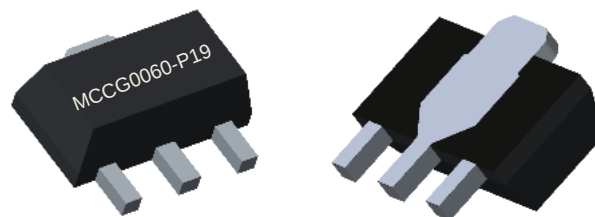


Product Overview

The MCCG0060-P19 is HBT wideband amplifier for wireless application. It covers DC-6GHz with flat gain. This PA can deliver 5dBm linear output power with LTE signal, ACPR below -50dBc and 20dB power gain 2.6GHz.

ROHS compliant

Evaluation boards are available upon request.



MCCG0060-P19
Figure1.SOT89 Package

Functional Block Diagram

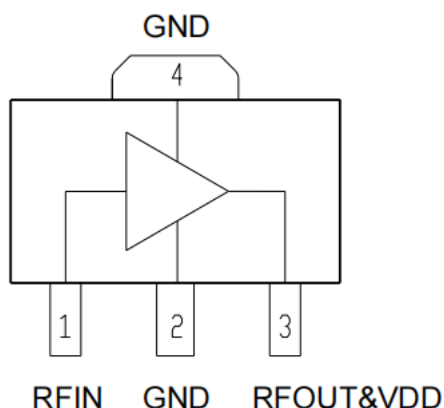


Figure 2

Key Features

- Frequency Range: DC-6GHz
- 20dB Gain
- 19dBm Peak Power
- 75mA IcQ
- Below -50dBc ACPR at 5dBm output power
- Integrated temperature compensation circuits
- Standard SOT-89 Package (MSL3,260 per JEDEC J-STD-020)

Applications

- 3GPP 4G LTE/5G NR massive MIMO basestation
- FDD and TDD 2G/3G/4G LTE/5G NR systems
- Driver amplifier for micro-base and macro-base and macro-base Stations
- Active antenna array and massive MIMO
- Customer Premises Equipment
- Test Instrumentation
- Wideband wireless amplifiers

Pin Description

Pin	Symbol	Description
1	RFIN	RF input
2,4	GND	RF/DC ground
3	RFOUT/VDD	RF output /VDD

Ordering info

Part No.	Description
MCCG0060-P19	DC-6GHz HBT Wideband PA, Tape and Reel with 2500pcs

Absolute Maximum Ratings¹

Parameter	Rating	Unit
Operating Temp,Tc	-55 to +125	
Operating Junction Temp,Tj	175	
Storage Temp,TSTG	-55 to+125	
Thermal Resistance,Rθjc	76.2	/W
Operating Voltage,VC1,VC2,VBIAS	5.5	V
Inuput Power,PIN	+10	dBm

Notes¹: Exceeding any one or a combination of the Absolute Maxium Rating conditions may cause permanent damage to the device. Extended application of the Absolute Maximum Rating conditions to the device mayreduce device reliability.

Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Frequency,F	100		6000	MHz
Operating Temp,Tc	-40	25	85	
Operating Voltage,Vc		5	5.5	V

Electrical Specifications¹

Parameter	Conditions	Min	Typ	Max	Unit
Operational Frequency Range		100		6000	MHz
Gain,Small Signal	880MHz		21		dB
	2600MHz		20.9		dB
	3500MHz		20.7		dB
	4900MHz		20.2		dB
	5800MHz		18.8		dB
Input Return Loss	2600MHz		-15		dB
Output Return Loss	2600MHz		-10		dB
Output P1dB	880MHz		19.5		dBm
	2600MHz		19		dBm
	3500MHz		19		dBm
	4900MHz		18		dBm
Instantaneous Bandwidth			100	200	MHz
Reverse Isolation	100-6000MHz		-20		dB
Device Operating Current			75		mA
ACPR@ + 5dBm	20MHz LTE E-TM1.1,8.5dB PAR 2600MHz		-50		dBc
	100MHz 5G NR,10.5dB PAR 2600MHz		-48		dBc

Notes¹:Test conditions unless otherwise noted:Vc=5V,Ic=75mA,F=3500MHz,50Ω test system

S-Parameter

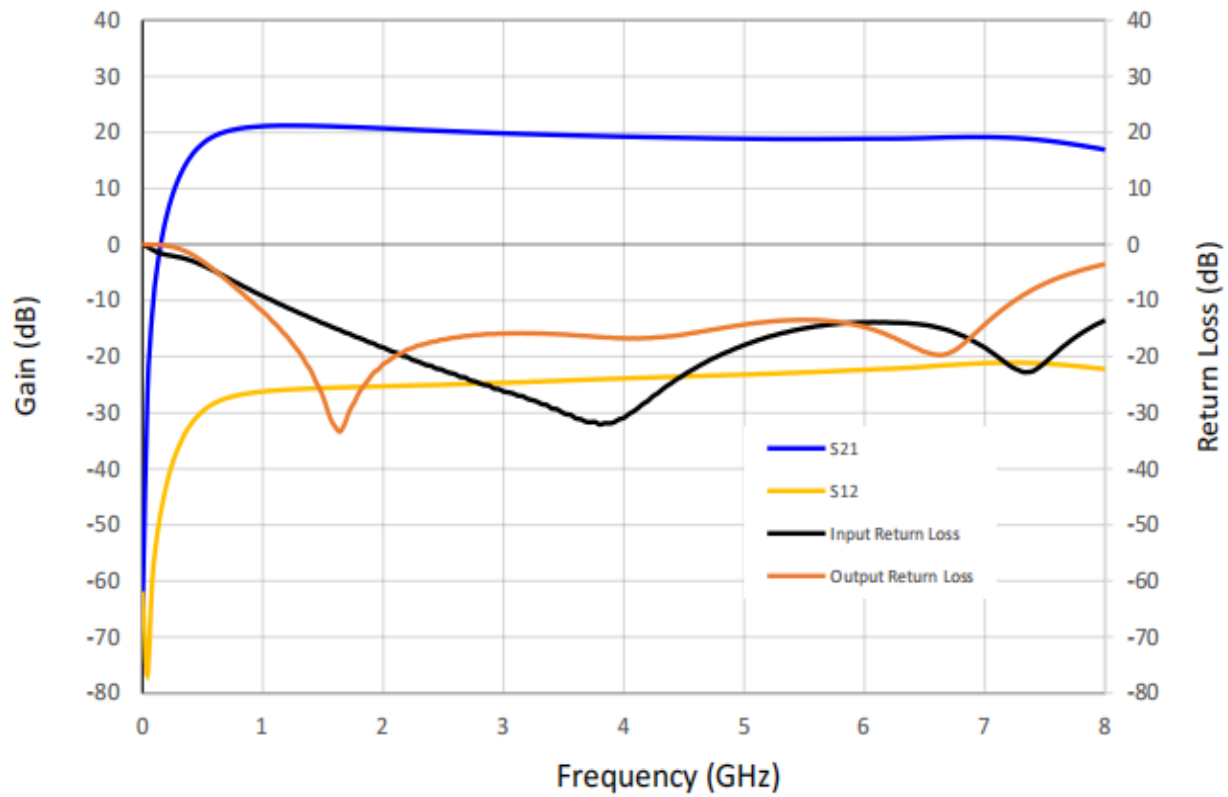


Figure 3. Small Signal Gain, Return Loss vs. Frequency
(Small Signal Sweep, Pin < -20 dBm)

Evaluation Board Schematic

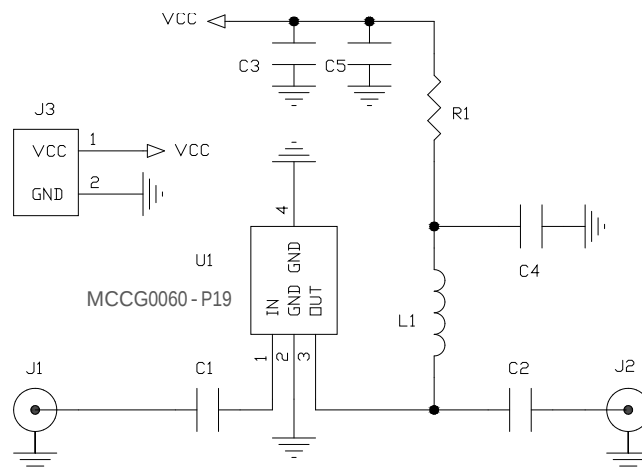


Figure 4. Evaluation Board Schematic and PCB Layout

Evaluation Board Bill of Materials(BOM)

Ref	Value,,Des	Size	Part Number
U1		SOT89	MCCG0060-P19
L1	8.2nH or 150nH for low band application	0603	
C1C4	100pF	0603	
C2	22pF	0603	
C3	100nF	0603	
C5	1nF	0603	
R1	2.2R±5% 1/16W	0603	

Notes¹: Rest of then components on the schematic are not used in this part.

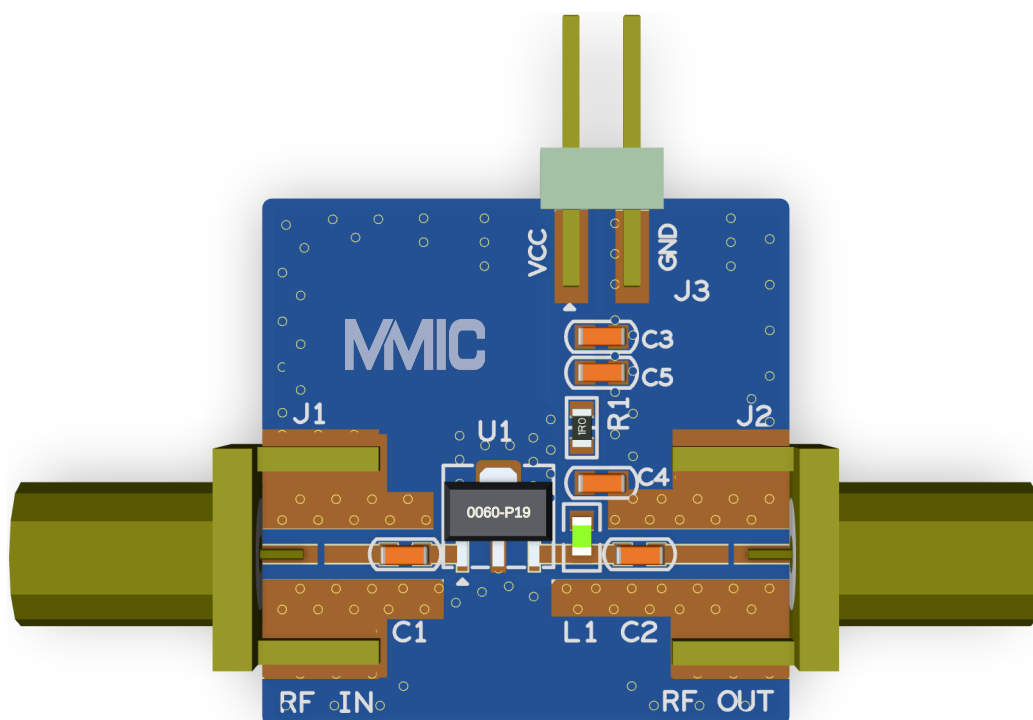
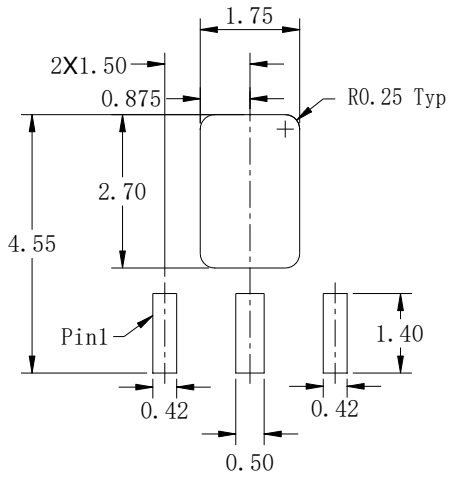
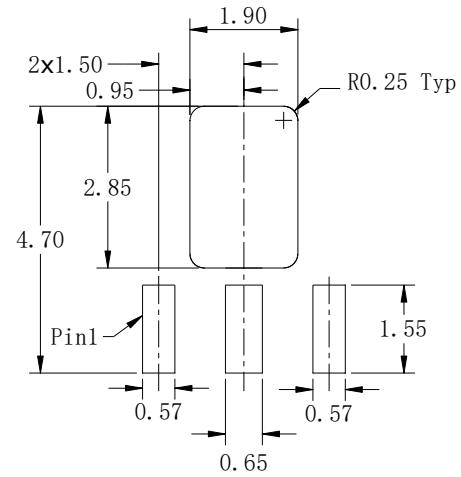


Figure 5. Evaluation Board Schematic and PCB Layout



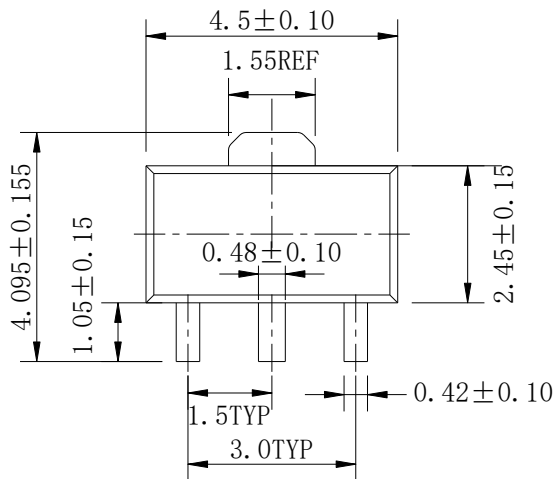
PCB Layout Footprint
Top View



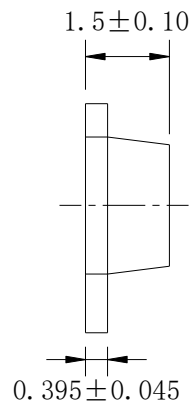
Solder Mask Opening
Top View

Figure 6. PCB Layout Footprint

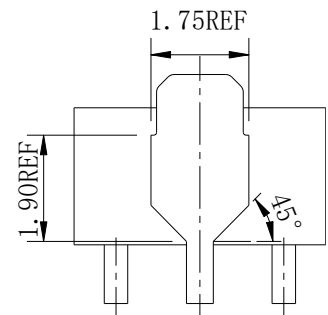
Package Marking and Dimensions



Top View



Side View



Bottom View

Figure 7.

Tape and Reel Information

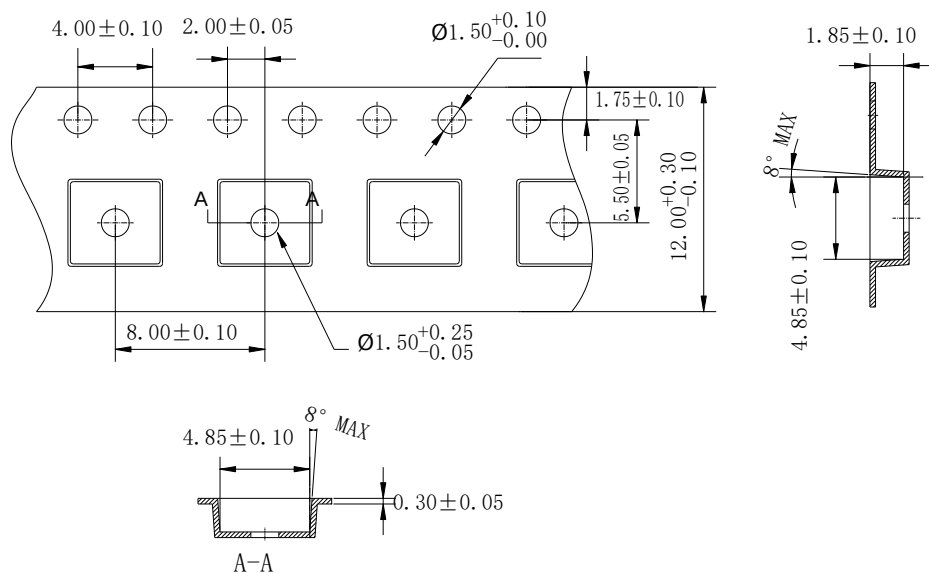


Figure 8.

NOTE: 1. 10 Pitches cumulative tolerance on tape $\pm 0.2\text{mm}$

2. Color: Black

3. Surface Resistivity: $1\text{E}5 \sim 1\text{E}10 \text{ } \Omega/\text{cm}^2$

4. Roughness: $R_a < 0.8\mu\text{m}$

5. Side bending of the carrier tape along the length direction $\leq 1\text{mm}/100\text{mm}$