

Product Overview

The MCCPA4959-P29 is a two-stage HBT linear power amplifier for business drone application .It works at 4900-5925MHz.This PA can deliver 29dBm MCS0 output power, and 24dBm with EVM 3.5% for MCS9 with 100M NR signal at 24dBm output power,and power gain higher than 31dB.

ROHS compliant

Evaluation boards are available upon request.



20Pin 4×4mm QFN Package

Figure1.

Functional Block Diagram

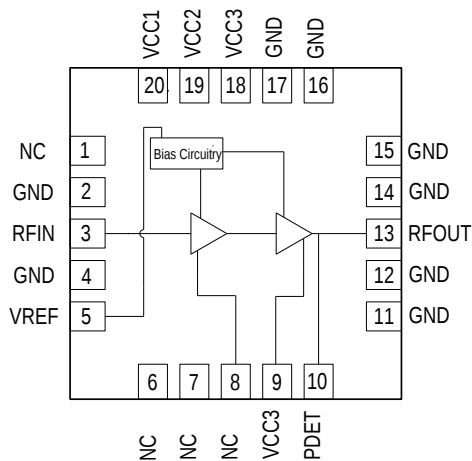


Figure2.

Key Features

- Frequency Range: 4900-5929MHz
- 31dB Gain
- 40% PAE at 33dBm output power
- 29dBm MCS0 HT20 Spectral Mask Compliance
- 3.5% EVM at 24dBm with 100M NR signal
- 3Input/output internally matched to 50Ω
- Integrated temperature compensation circuits
- Compact and low-cost 4mm×4mm QFN package (MSL3,260 per JEDEC J-STD-020)

Applications

- WiFi Access points
- LTE-U Picocell
- FDD and TDD wireless systems
- Active antenna array and massive MIMO
- ISM application
- Point-to-Point backhaul
- Customer Premises Equipment(CPE)

Ordering info

Part No.	Description
MCCPA4959-P29	7' Reel with 1500pcs

Pin Description

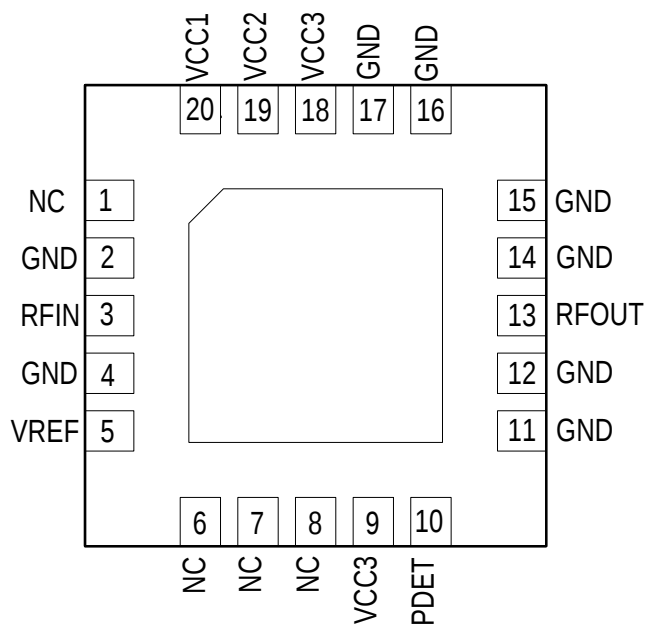


Figure 3.Pinout (Top View)

Pin	Name	Description	Pin	Name	Description
1	NC	Not Connected	11	GND	Ground
2	GND	Ground	12	GND	Ground
3	RFIN	RF input port	13	RFOUT	RF output port
4	GND	Ground	14	GND	Ground
5	VREF	Reference supply Voltage	15	GND	Ground
6	NC	Not Connected	16	GND	Ground
7	NC	Not Connected	17	GND	Ground
8	NC	Not Connected	18	VCC3	Collector 3 supply voltage
9	VCC3	Collector 3 supply voltage	19	VCC2	Collector 2 supply voltage
10	PDET	Power detector output voltage	20	VCC1	Collector 1 supply voltage

Absolute Maximum Ratings¹

Parameter	Rating	Unit
Operating Temp,Tc	-40 to +85	
Operating Junction Temp,Tj	175	
Storage Temp,TSTG	-55 to+125	
Thermal Resistance,Rθjc	25.9	/W
Operating Voltage,Vcc1,Vcc2,Vcc3	5.5	V
Inuput Power,PIN	10	dBm
Ruggedness	Pout=33dBm,CW,VSWR=10:1 no damage	

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	4900		5925	MHz
Operating Temp,Tc	-40	25	85	
Operating Voltage,Vcc1,Vcc2,Vcc3	4.5	5	5.5	V
Reference Voltage,VREF	2.6	2.7	2.8	V
Reference Current,IREF		8		mA

Electrical Specifications¹

Parameter	Conditions	Min	Typ	Max	Unit
Frequency		4900		5929	MHz
Output average power	MCS0		29		dBm
EVM @29dBm	MCS0				dB
EVM @24dBm	MCS9		tbd		dB
Gain @29dBm	MCS0		33		dB
Peak Power	CW signal		33	34	dBm
Power added efficiency	CW signal,@33dBm		40		%
Quiescent current			210		mA
Iutput return loss			-10		dB
Reverse isolation					dB
Instantaneous bandwidth			160		MHZ

Notes¹:VCC1=VCC2=5V,VREF=2.7V,F=5490MHz,Singal=CW,TC=25 , Input/Output Load=50Ω

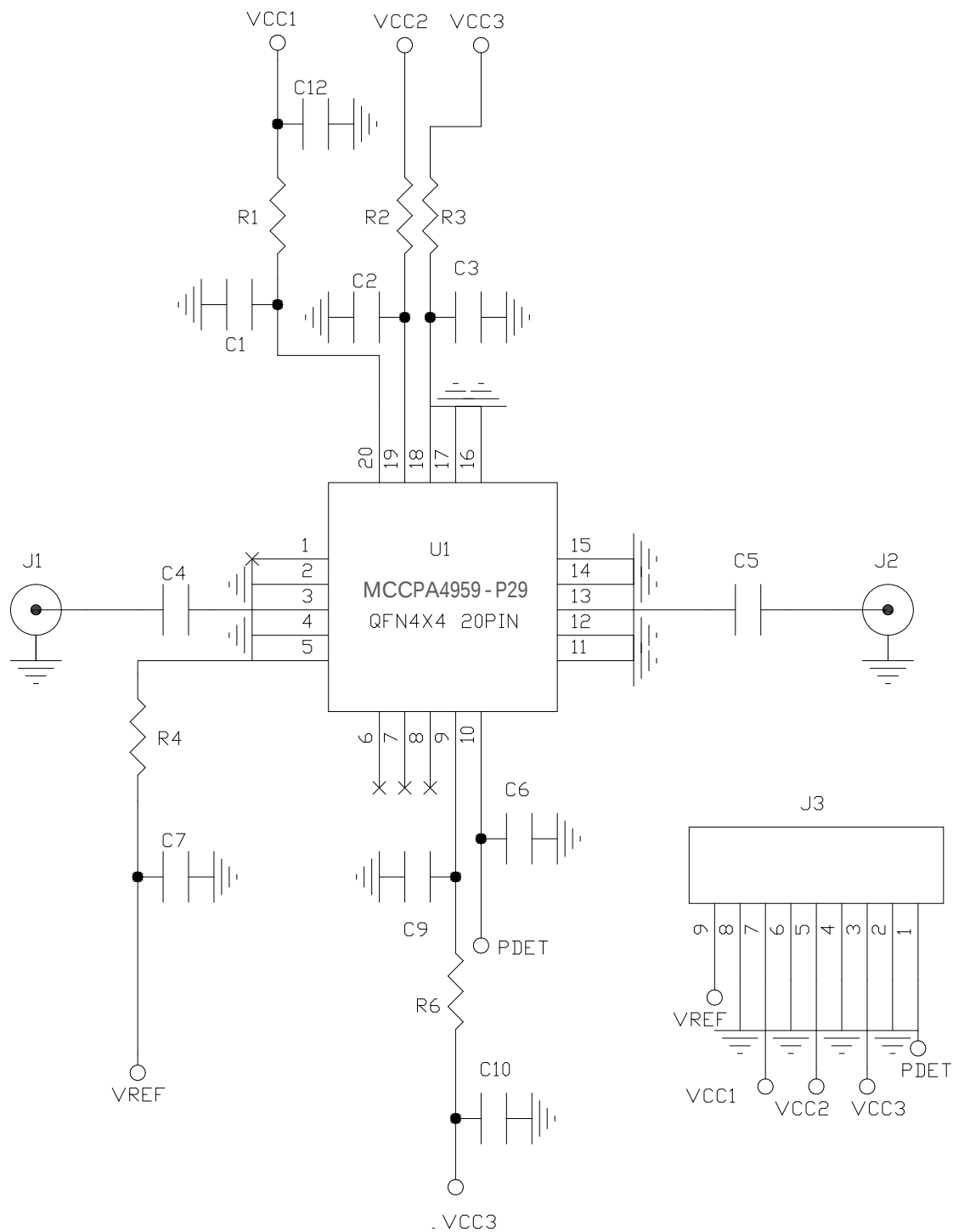


Figure 4. Evaluation Board Schemic

Evaluation Board Bill of Materials

Ref,Des	Value	Size
C1, C2, C3, C9	100 nF 25 V $\pm 10\%$ X7R	0402/0603
C4, C5	Murata GJM 2pF 25 V $\pm 10\%$ X7R	0402/0603
C7, C10, C12	4.7 uF 16 V $\pm 10\%$ X7R	1206
R1, R2, R3, R4, R6	0 R $\pm 5\%$ 1/16 W	0402

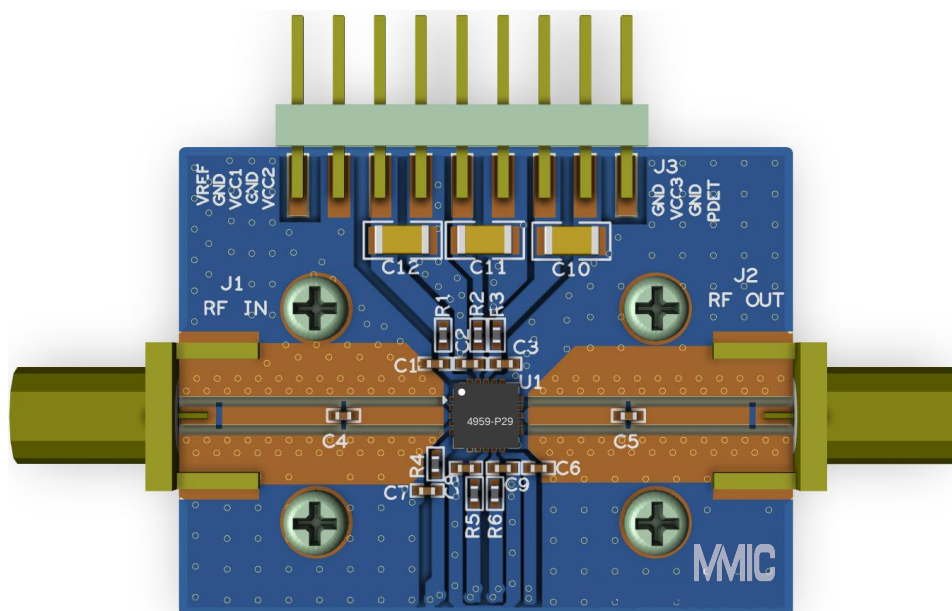


Figure 5 .Evaluation Board PCB information

Evaluation board test procedure

Turn-on sequence

- 1.Connect test equipment to the input and output port of Evaluation board and then connect DC ground.
- 2.Turn on VCC1,VCC2,VCC3 to 5V,then turn on VREF to 2.7V in order.
- 3.Apply RF signal

Turn-on sequence

- 1.Turn off RF signal
- 2.Turn off VREF,VCC1,VCC2 and VCC3 in order

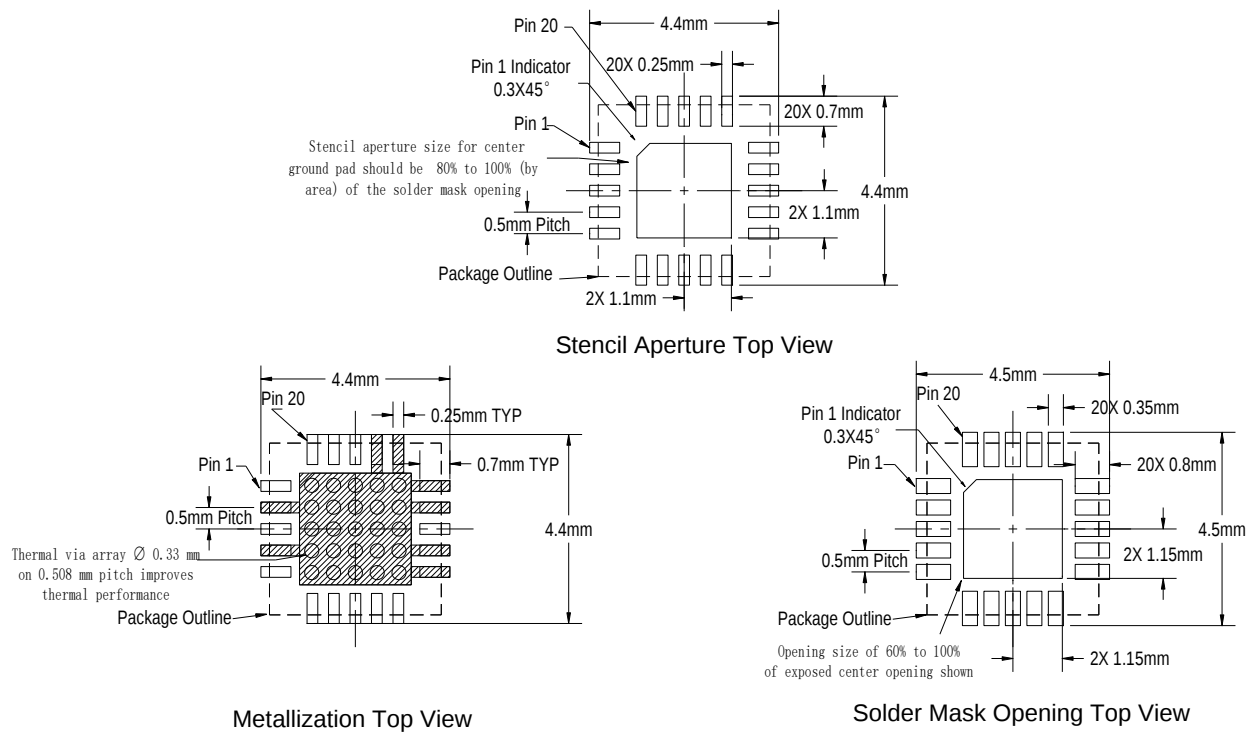


Figure 6. PCB Layout Footprint

Package Dimensions

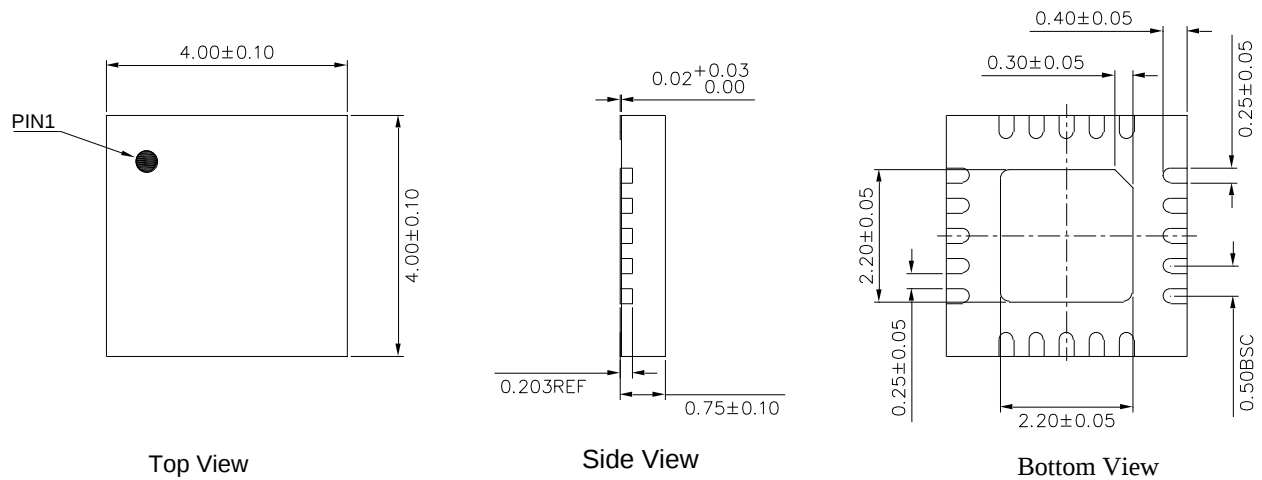


Figure 7. Package Dimensions

Tape and Reel Information

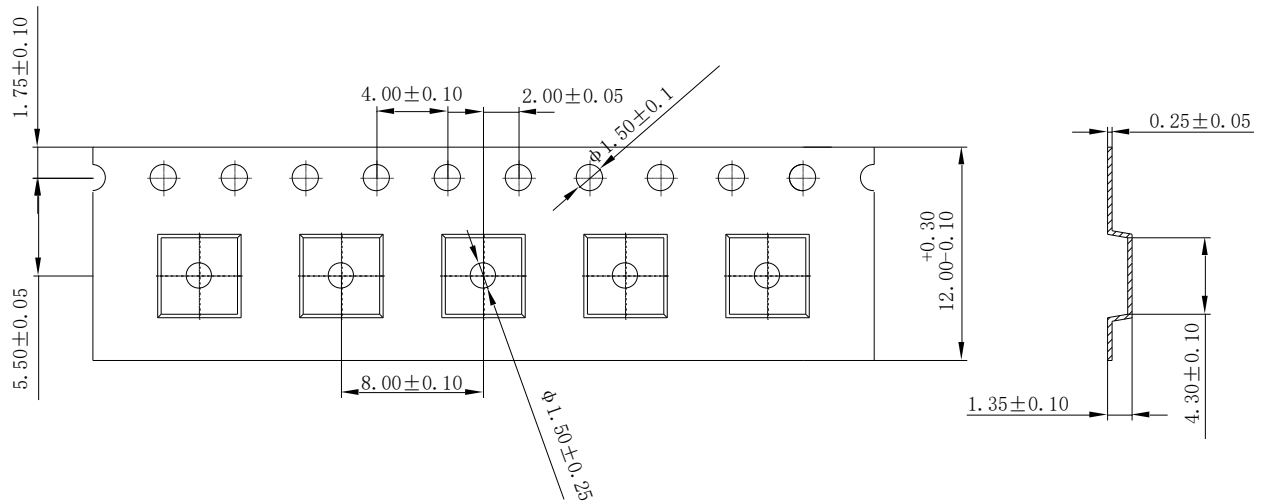


Figure 8

Technical requirements:

1. The accumulative error of the distance between any 10 transmitting holes is $\pm 0.1 \text{ mm}$;
2. The lateral bending of the belt along the length direction is $\leq 1 \text{ mm}/100 \text{ mm}$;
3. Roughness: $R_a < 0.8 \mu\text{m}$;
4. Carrier tape color: Black.