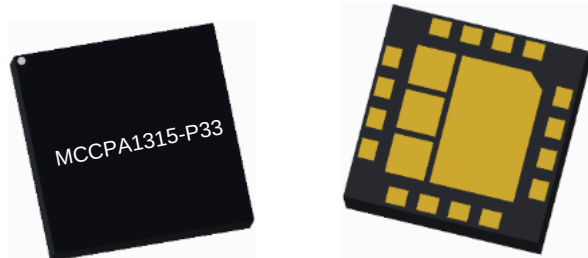


Product Overview

The MCCPA1315-P33 is a two-stage HBT linear power amplifier for business drone application .It works at 1300-1500MHz.This PA can deliver 29dBm MCS0 output power, and 24dBm with EVM -35dB for MCS9 and -50dBc ACPR for 20M LTE at 24dBm output power,and power gain higher than 28dB

ROHS compliant

Evaluation boards are available upon request.



16Pad 5×5mm Laminate Package

Figure1.

Functional Block Diagram

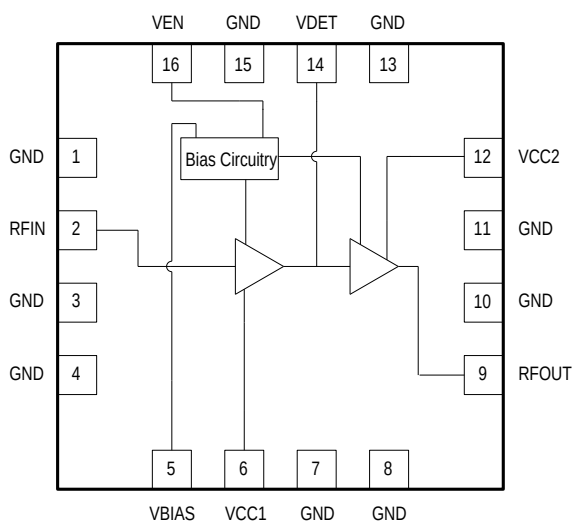


Figure2.

Key Features

- Frequency Range: 1300-1500MHz
- 28dB Gain
- 35dBm P3dB
- 16% PAE at 24dBm output power
- 29dBm MCS0 HT20 Spectral Mask Compliance
- 24dBm MCS9 HT40-41 dB Dynamic EVM
- Below -48dBc ACPR at 24dBm output power LTE
- Input/output internally matched to 50Ω
- Integrated temperature compensation circuits
- Compact and low-cost 5mm×5mm LGA package (MSL3,260°C per JEDEC J-STD-020)

Applications

- WiFi Business points
- FDD and TDD wireless systems
- Active antenna array and massive MIMO
- Customer Premises Equipment(CPE)

Ordering info

Part No.	Description
MCCPA1315-P33	7' Reel with 1500pcs

Pin Description

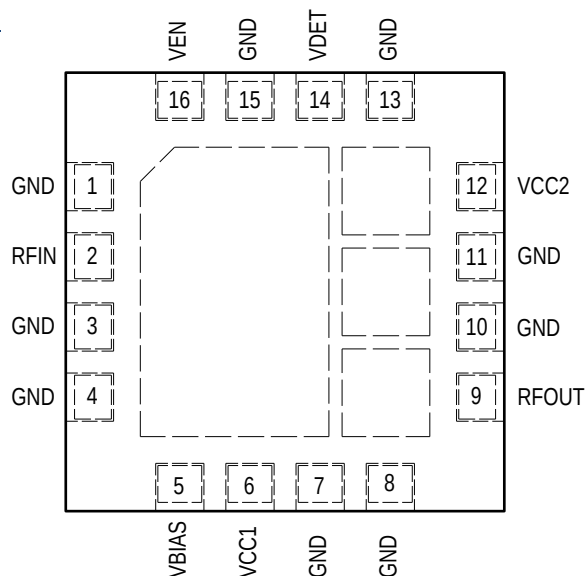


Figure 3. Pinout (Top View)

Pin	Name	Description	Pin	Name	Description
1	GND	Ground	9	RFOUT	RF output port
2	RFIN	RF input port	10	GND	Ground
3	GND	Ground	11	GND	Ground
4	GND	Ground	12	VCC2	Stage 2 collector voltage
5	VBIAS	Bias Voltage	13	GND	Ground
6	VCC1	Stage 1 collector voltage	14	VDET	Power detector
7	GND	Ground	15	GND	Ground
8	GND	Ground	16	VEN	PA Enable

Absolute Maximum Ratings¹

Parameter	Rating	Unit
Operating Temp, T _c	-40 to +105	°C
Operating Junction Temp, T _j	175	°C
Storage Temp, T _{STG}	-55 to +125	°C
Thermal Resistance, R _{θjc}	27	°C/W
Operating Voltage, V _{CC1} , V _{CC2} , V _{BIAS}	5.5	V
Input Power, P _{IN}	10	dBm

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

Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Frequency,F	1300		1500	MHz
Operating Temp,Tc	-40	25	85	°C
Operating Voltage,VCC1,VCC2,VBIAS	4.5	5	5.5	V
PA Enable Voltage,VEN	1.6	1.8	5	V
PA Enable Current,IEN		400		uA

Electrical Specifications¹

Parameter	Conditions	Min	Typ	Max	Unit
Frequency		1300	1450	1500	MHz
Output average power	MCS0		29		dBm
DEVM @24dBm	MCS9		-35		dB
P3dB			35		dBm
Gain @29dBm	MCS0	26	28		dB
Power added efficiency			15		%
Quiescent current			215		mA
ACPR@+24dBm	20MHz LTE-TM1.1,8.5dB PAR	-45	-50		dBc
Output return loss			-10		dB
Reverse isolation					dB
Instantaneous bandwidth			75		MHZ

Notes¹:VCC1=VCC2=VBIAS=5V, VEN= 1.8 V, F=1450MHz, TC=25°C , Input/Output Load=50Ω

Detector Specifications¹

Output Power(dBm)	VDET(mV)	Output Power(dBm)	VDET(mV)
27	617	21	395
26	568	20	372
25	525	19	351
24	486	18	332
23	453	17	317
22	421	RF off	223

Notes¹:VCC1=VCC2=VBIAS=5V, VEN=1.8V, F=1450MHz, Signal=CW, TC=25°C , Input/Output Load=50Ω

Evaluation Board Schematic

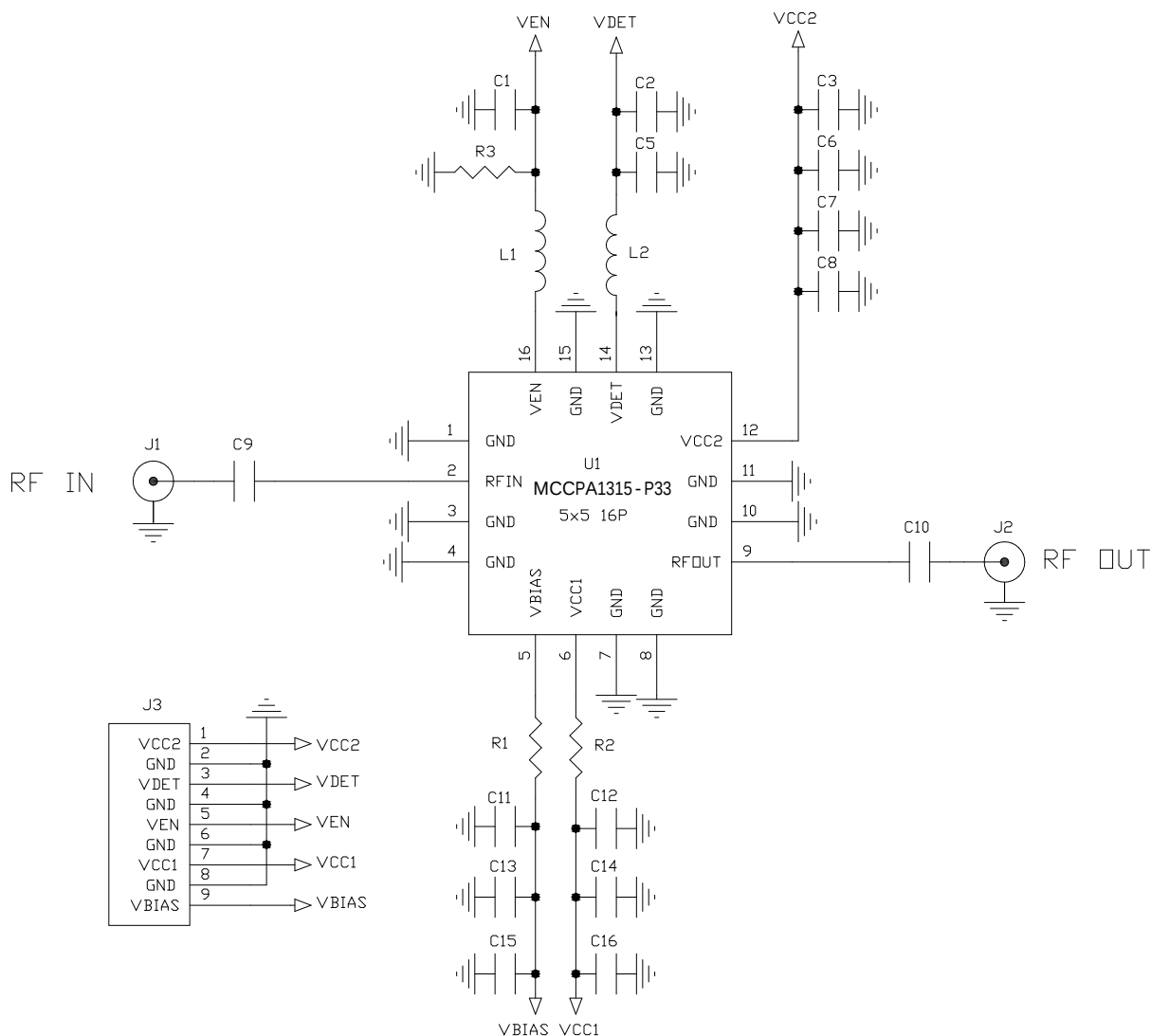


Figure 4. Evaluation Board Schematic

Evaluation Board Bill of Materials

Ref,Des	Value	Size
C9	47 pF 25V $\pm 10\%$ X7R	0402/0603
C10	22 pF 25V $\pm 10\%$ X7R	0402/0603
C1 C6 C15 C16	4.7 uF 16V $\pm 10\%$ X7R	1206
L1 R1 R2	0 R $\pm 5\%$ 1/16 W	0402
R3	10 k Ω $\pm 10\%$ 1/16 W	0402

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

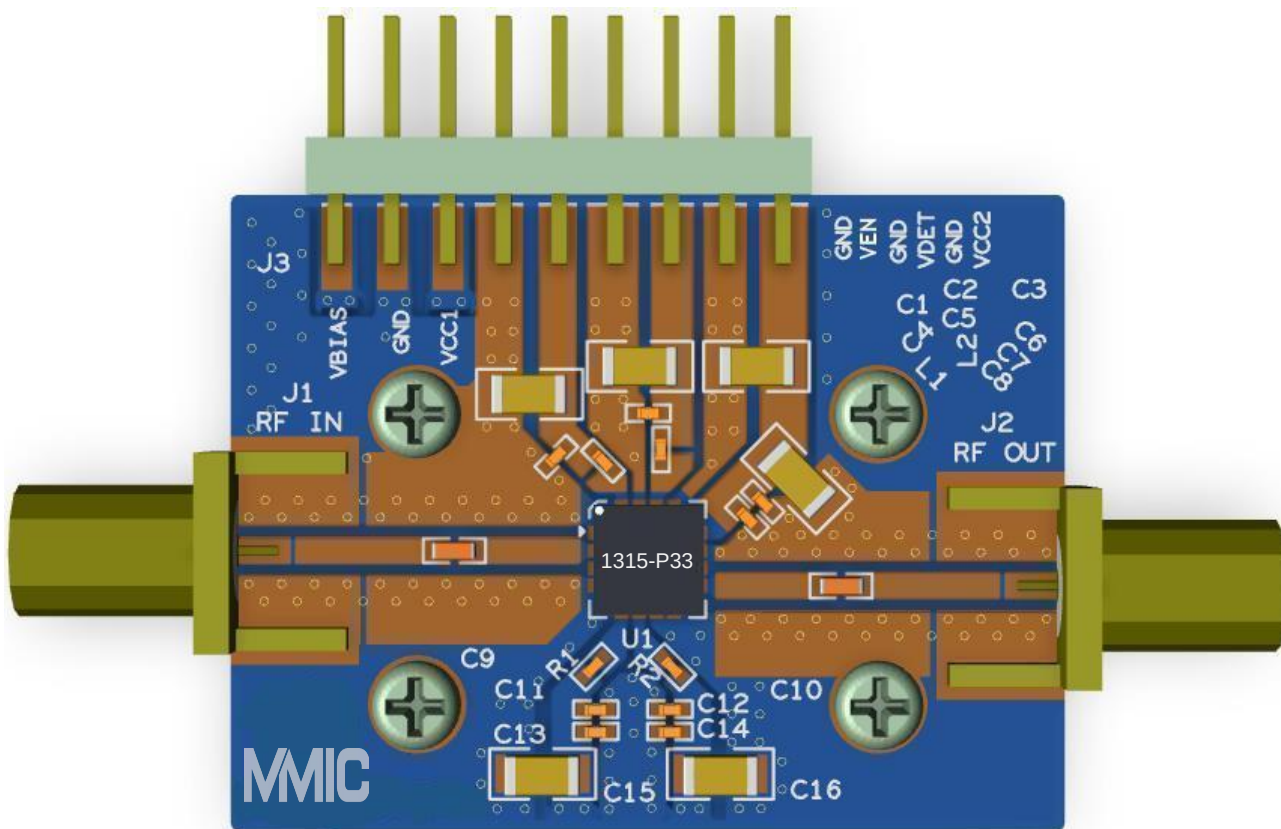


Figure 5 .Evaluation Board PCB information

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 to 5V, turn on VBIAS to 5V then turn on VEN to 1.8V in order.
- 3.Apply RF signal

Turn-on sequence

- 1.Turn off RF signal
- 2.Turn off VEN,VBIAS,VCC1 and VCC2 in order

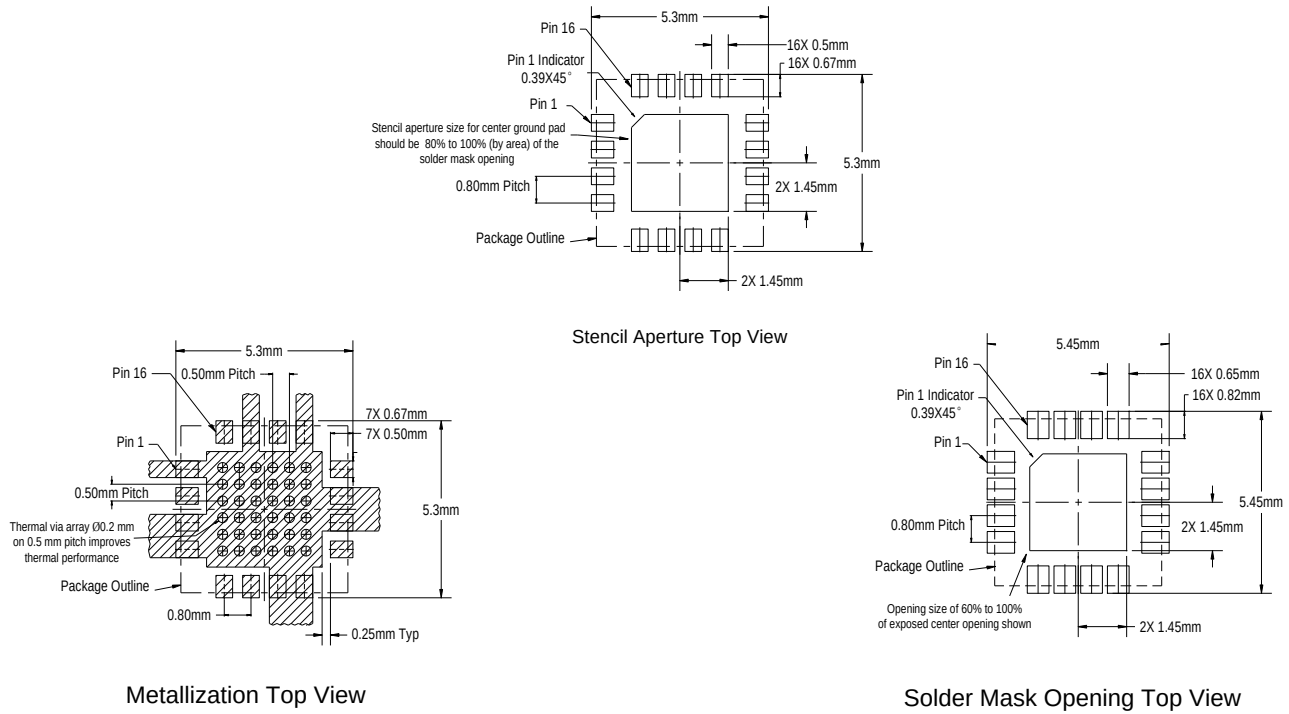


Figure 6.PCB Layout Footprint

Package Dimensions

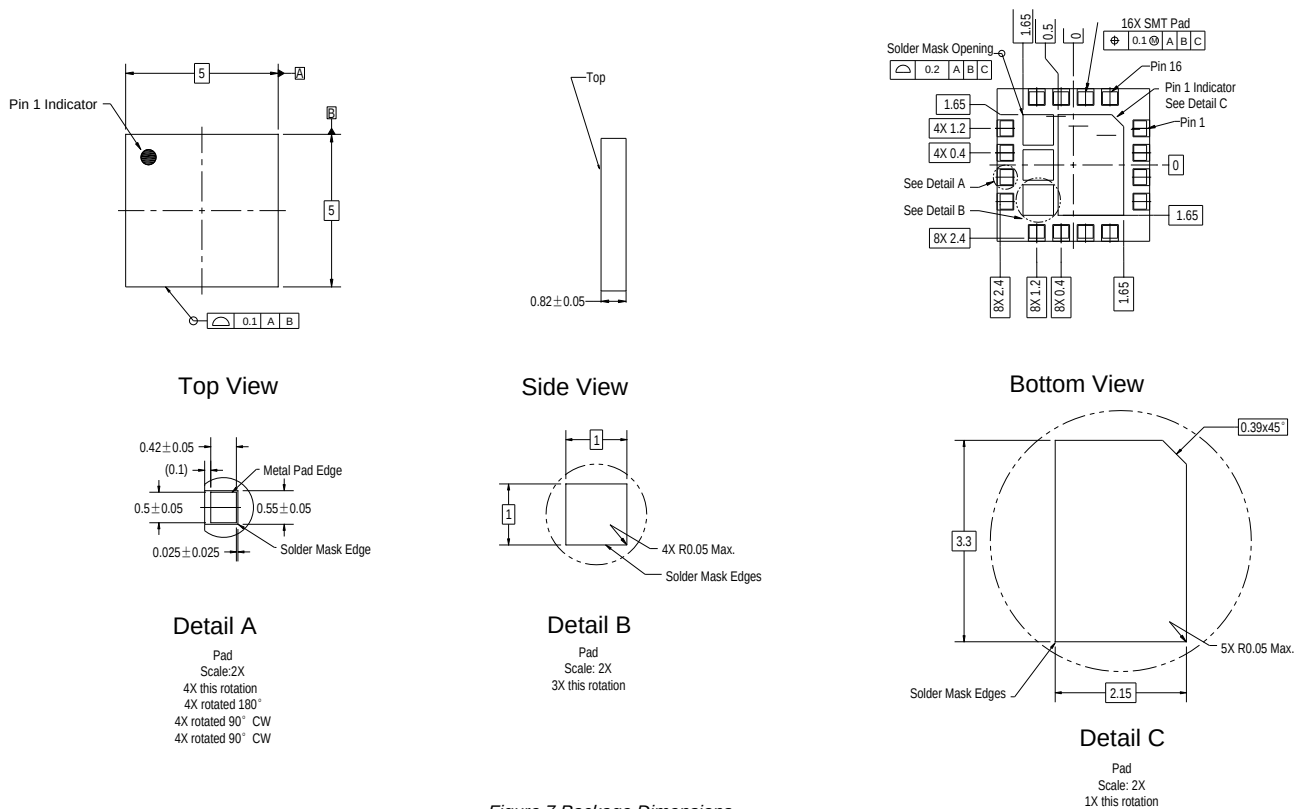


Figure 7.Package Dimensions

Tape and Reel Information

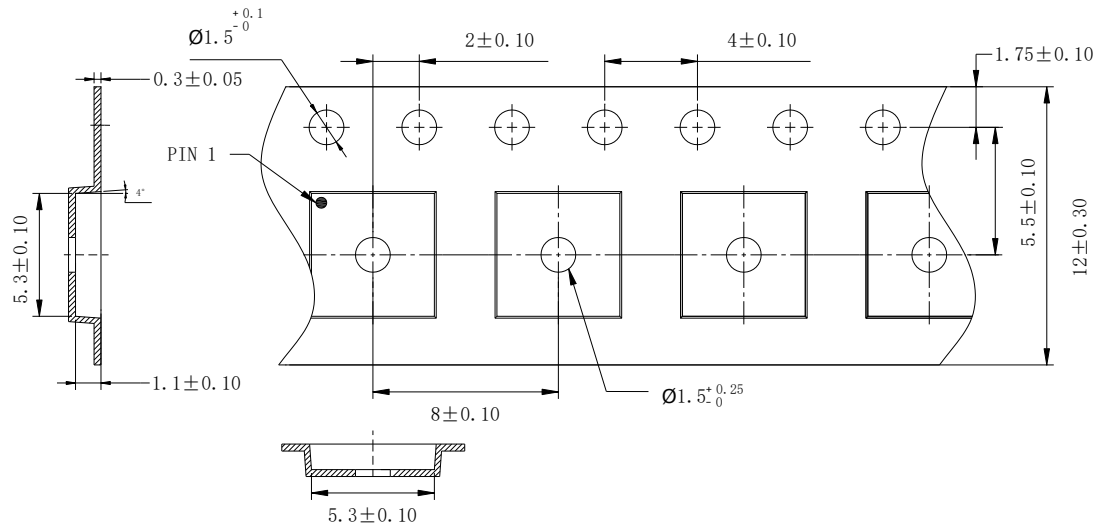


Figure 8

Technical requirements:

1. The Material :PS
- 2.MOLD# LGA/QFN(5×5)
- 3.Cover Tape Width: 9.5±0.1mm/9.3±0.1mm
- 4.Cover Tape Color:Transparent
- 5.Carrier tape color:Black.