RF2362

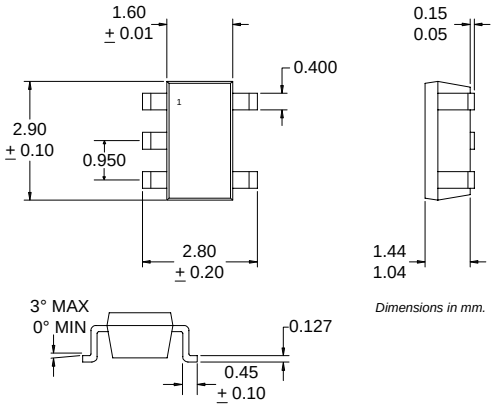
PCS CDMA/TDMA 3V
PA DRIVER AMPLIFIER

Typical Applications

- TDMA/CDMA/FM PCS Tx Amplifier
- Low Noise Transmit Driver Amplifier
- 2.4GHz WLAN Systems
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

The RF2362 is a low noise CDMA/TDMA PA driver amplifier with a very high dynamic range designed for transmit digital PCS applications at 1880MHz. The device functions as an outstanding PA driver amplifier in the transmit chain of digital subscriber units where low transmit noise power is a concern. The IC includes a power down feature that can be used to completely turn off the device. The IC is featured in a standard SOT 5-lead plastic package.



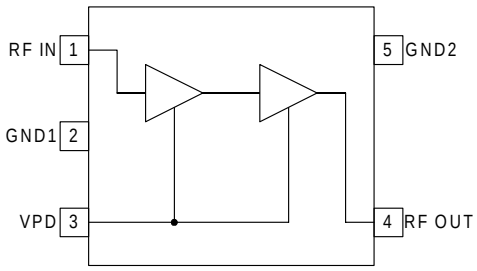
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: SOT 5-Lead Package

Features

- Low Noise and High Intercept Point
- Adjustable Bias Current
- Power Down Control
- Single 2.5V to 6.0V Power Supply
- 150MHz to 2500MHz Operation
- Extremely Small SOT23-5 Package



Functional Block Diagram

Ordering Information

RF2362	PCS CDMA/TDMA 3V PA Driver Amplifier
RF2362 PCBA	Fully Assembled Evaluation Board

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Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage	-0.5 to +8.0	V_{DC}
Input RF Level	+10	dBm
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-40 to +150	°C

Caution! ESD sensitive device.

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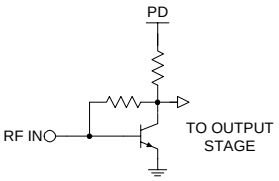
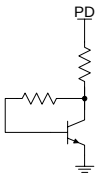
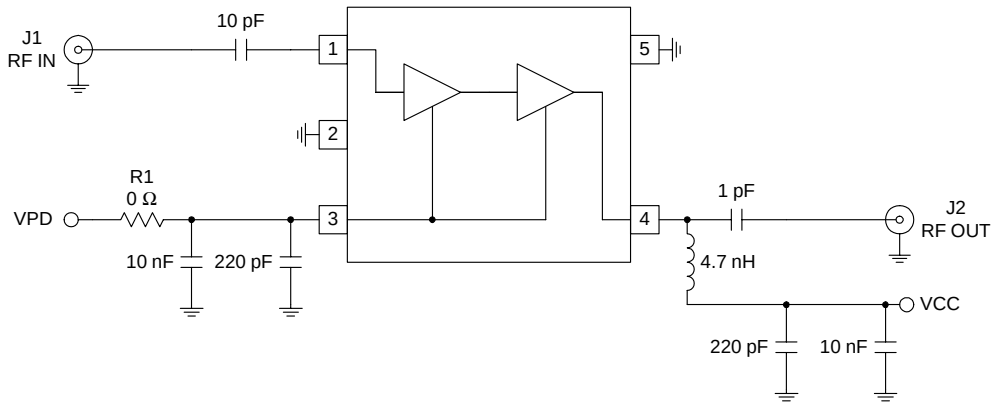
Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
RF Frequency Range		150 to 2500		MHz	
1880 MHz Performance					Schematic per Evaluation Board, T = 25°C, RF = 1880 MHz, V_{PD} = 2.8 V
Gain	19	20.1	21.5	dB	V_{CC} = 3.5V
	19	20.1	21.5	dB	V_{CC} = 3.0V
	19	20.1	21.5	dB	V_{CC} = 2.7V
Output IP3	+24	+25.5	+35	dBm	V_{CC} = 3.5V
		+25.0		dBm	V_{CC} = 3.0V
		+24.5		dBm	V_{CC} = 2.7V
Noise Figure		2.2	2.5	dB	V_{CC} = 3.5V
		2.2	2.5	dB	V_{CC} = 3.0V
		2.2	2.5	dB	V_{CC} = 2.7V
Reverse Isolation		32		dB	V_{CC} = 3.5V
		32		dB	V_{CC} = 3.0V
		32		dB	V_{CC} = 2.7V
Input VSWR		1.8:1	2.0:1		
Output VSWR		1.6:1	2.0:1		Using External LC network used on Evaluation Board
P_{1dB}	14	14.5		dBm	V_{CC} = 3.5V
	12.5	14		dBm	V_{CC} = 3.0V
	11	13.5		dBm	V_{CC} = 2.7V
Power Supply					T = 25 °C
Voltage (V_{CC})		2.5 to 6.0		V	
Voltage (V_{PD})	2.7	2.8	2.9	V	
Current Consumption	24	35	43	mA	V_{CC} = 3.5V; V_{PD} = 2.8 V; V_{PD} + V_{CC} - Current Consumption from V_{PD} is 8.5 mA Typ. @ V_{PD} = 2.8V and 12 mA Max @ V_{PD} = 2.9 V
	24	32	38	mA	V_{CC} = 3.0V; V_{PD} = 2.7V; V_{PD} + V_{CC}
	29	37	43	mA	V_{CC} = 2.7V; V_{PD} = 2.9V; V_{PD} + V_{CC}
- Power Down			10	µA	V_{CC} = 3.5V; $V_{PD} \leq$ 0.9V

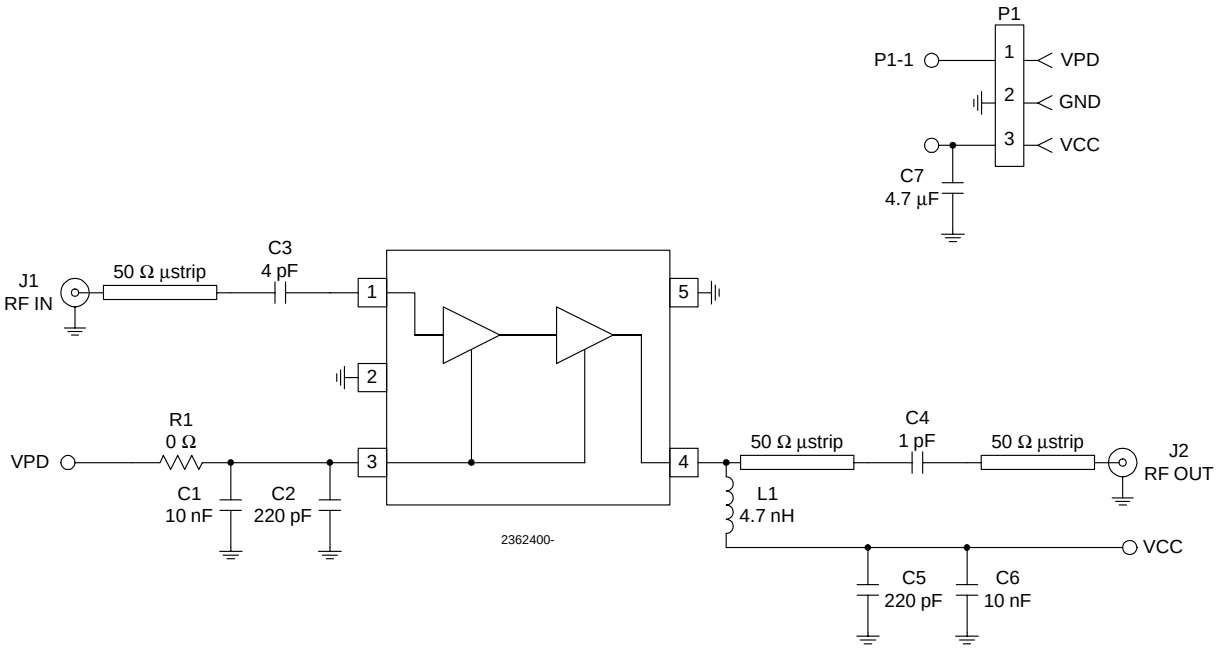
Pin	Function	Description	Interface Schematic
1	RF IN	RF input pin. This pin is DC-coupled and matched to 50Ω at 1880MHz.	
2	GND1	Ground connection. For best performance, keep traces physically short and connect immediately to ground plane.	
3	VPD	Power Down for the IC. V_{PD} = 2.8V +/- 0.1V turns on the part. V_{PD} < 0.9V turns off the part. External RF bypassing is required. The trace length between the pin and the bypass capacitors should be minimized. The ground side of the bypass capacitors should connect immediately to ground plane. Nominal current required for V_{PD} = 2.8V is 8.5 mA typical and 12 mA Max (@ V_{PD} = 2.9 V).	
4	RF OUT	Amplifier Output pin. This pin is an open-collector output. It must be biased to either V_{CC} or pin 4 through a choke or matching inductor. This pin is typically matched to 50Ω with a shunt bias/matching inductor and series blocking/matching capacitor. Refer to application schematics.	
5	GND2	Ground connection. For best performance, keep traces physically short and connect immediately to ground plane.	

Application Schematic: ~1880 MHz Operation, Internal Collector Bias

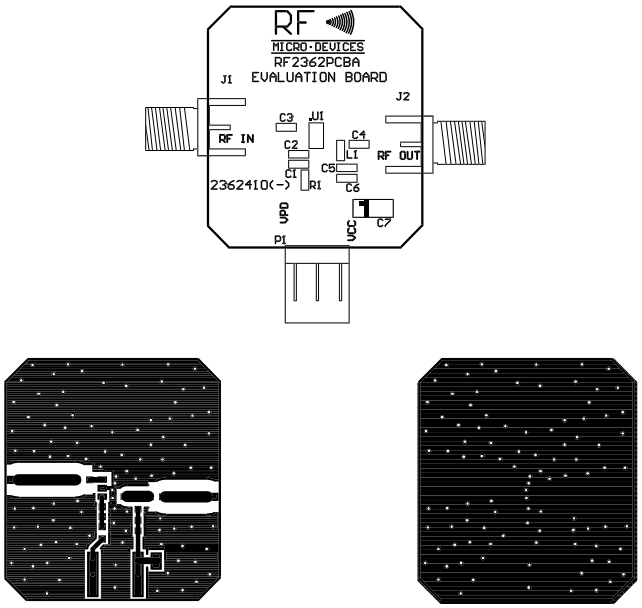


Evaluation Board Schematic

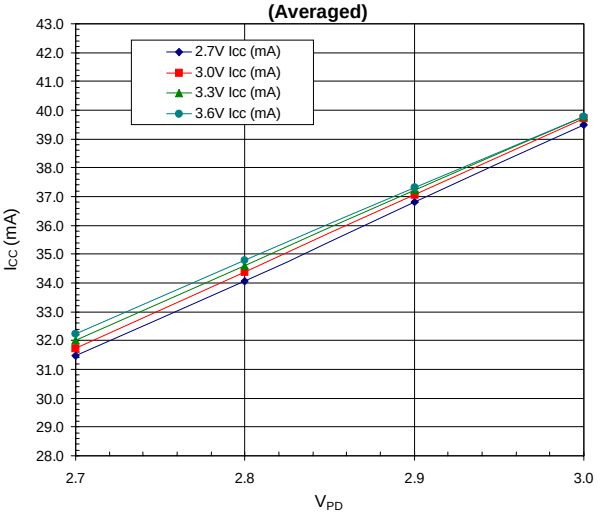
(Download Bill of Materials from www.rfmd.com.)



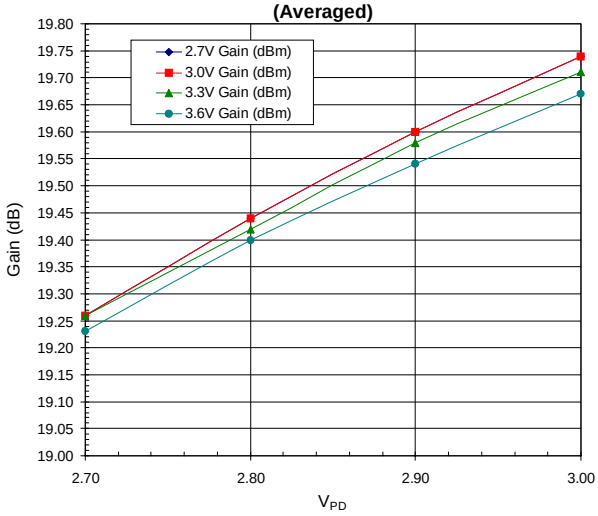
Evaluation Board Layout
Board Size 1” x 1”
Board Thickness 0.014”; Board Material FR-4



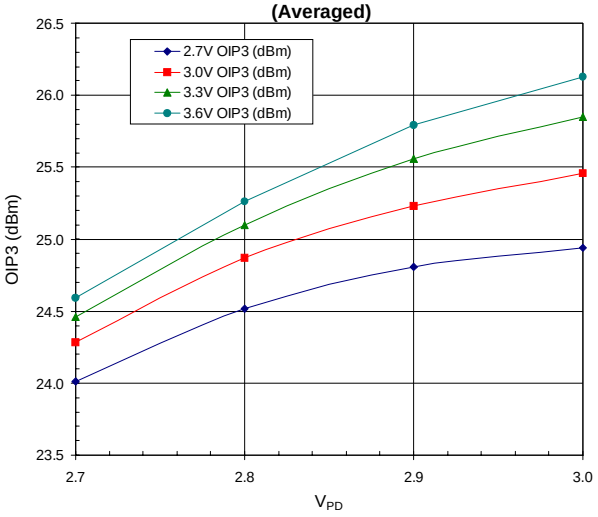
I_{CC} versus V_{PD} (Averaged)



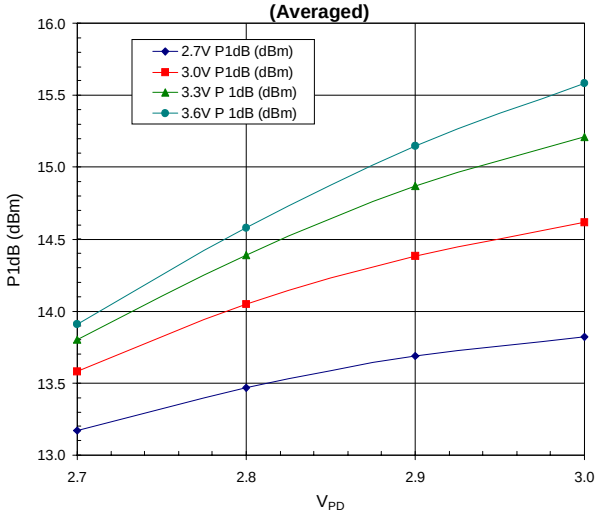
Gain versus V_{PD} (Averaged)



OIP3 versus V_{PD} (Averaged)



P1dB versus V_{PD} (Averaged)



Noise Figure versus V_{PD}