Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage (RF Applied)	-0.5 to +5.25	V
Supply Voltage (No RF Applied)	-0.5 to +6.0	V
DC Supply Current	TBD	mA
Input RF Power	+10*	dBm
Operating Temperature	-30 to +85	°C
Storage Temperature	-40 to +150	°C
Moisture Sensitivity	TBD	

*Maximum Input Power with a 50Ω load.

Caution! ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

RFMD Green: RoHS compliant per EU Directive 2002/95/EC, halogen free per IEC 61249-2-21, < 1000ppm each of antimony trioxide in polymeric materials and red phosphorus as a flame retardant, and <2% antimony in solder.

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Typical Conditions					T=25 °C, V_{CC}=5.0V, V_{REG}=2.85V, using an IEEE802.11g waveform, 54MBps, unless otherwise noted
Frequency	2412		2484	MHz	Compliance with standard 802.11b/g/n
TX Performance					
802.11g & 11n Output Power	25	26		dBm	
EVM		2.5	3	%	
FCC Ch1 and Ch 11 Mask for restricted bands					
802.11b output power	27	28			Use 802.11b waveform at 1MBps
ACP1		-36	-33	dBc	Use 802.11b waveform at 1MBps
ACP2		-56	-53	dBc	Use 802.11b waveform at 1MBps
Gain	30	35		dB	
Gain variation over Temp			+/-2	dB	
Second Harmonic			TBD	dBm/MHz	
Third Harmonic			TBD	dBm/MHz	
Low Gain Mode - gain reduction	18	20	22	dB	Drop in Gain versus High Gain Mode by Setting V_{REG2}=0V
Power Detect Range	0.2		1.2	V	P_{OUT}=0dBm to 27dBm. Usable range from 0dBm to 32dBm
Power Detect Power Range	0		29	dBm	
Input Return Loss - Tx_in pin	10	15		dB	In Specified Frequency Band
Output Return Loss	8	10		dB	In Specified Frequency Band
RX Performance					
Return Loss - RX	10	15		dB	In Specified Frequency Band
RX Insertion Loss - RX		0.7		mA	
RF-to-control isolation all control pins	TBD			mA	
RX to Ant isolation while in Tx mode	25	30		mA	
RX to TX isolation while in Tx mode	25	30		mA	

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Typical Conditions (continued)					T=25 °C, V_{CC}=5.0V, V_{REG}=2.85V, using an IEEE802.11g waveform, 54 MBps, unless otherwise noted
DC					
Operating Current		420	TBD	mA	
Quiescent Current		200	TBD	mA	Vcc=5.0, V_{REG}=2.85V and RF=OFF
I_{REG}			10	mA	
PDown Current			TBD	mA	P_{DOWN}=0V, V_{REG}=2.85V, V_{CC}=5V
Leakage Current		0.5	5	µA	V_{CC}=5V, V_{REG}=0V, P_{DOWN}=0V
Power Supply - V_{CC}		5	5.25	V	
Power supply - V_{REG1}, V_{REG2}, V_{REG3}	2.8	2.85	3	V	
Switch and Control					
Turn-on time from setting of V_{REG}'s			400	nsec	Output Stable to Within 90% of Final Gain
T/R switching time			0.5	nsec	
Voltage Logic High	2.8	2.85	3.4	V	
Voltage Logic Low	0		0.2	V	
Control Current - Logic High		5	10	µA	
Control Current - Logic Low		0.1		µA	
Other					
Stability at P_{OUT}	-25		30	dBm	No spurs above -47 dBm into 4:1 VSWR
Max Pin (Ruggedness - 50Ω)			10	dBm	No damage for VSWR=1:1

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Pin	Function	Description
1	VRX	Switch control for Rx mode
2	RX	RF Output is internally matched to 50Ω and DC blocked.
3	GND	Ground connection
4	PDET	Power detector provides an output voltage proportional to the RF output power level.
5	VREG3	Third stage bias voltage. This Pin requires regulated supply for best performance.
6	VREG2	Second stage bias voltage. This Pin requires regulated supply for best performance.
7	VREG1	First stage bias voltage. This Pin requires regulated supply for best performance.
8	PDOWN	Power down pin. Apply <0.3VDC to power down the three power amplifier stages. Apply 1.75VDC to 5.0VDC to power up. If function is not desired, Pin may be connected to VREG.
9	GND	Ground connection
10	TXIN	RF input is internally matched to 50Ω and DC blocked.
11	GND	Ground connection
12	GND	Ground connection
13	VBIAS	Supply voltage for the bias reference and control circuits.
14	VCC1	This pin is connected internally to the collector of the 1st stage RF device. To achieve specified performance, the layout of these pins should match the Recommended Land Pattern.
15	GND	Ground connection
16	VCC2	This pin is connected internally to the collector of the 2nd stage RF device. To achieve specified performance, the layout of these pins should match the Recommended Land Pattern.
17	VCC3	This pin is connected internally to the collector of the 3rd stage RF device. To achieve specified performance, the layout of these pins should match the Recommended Land Pattern.
18	GND	Ground connection
19	GND	Ground connection
20	VTX	Switch control for Tx mode
21	GND	Ground connection
22	GND	Ground connection
23	ANT	RF Output is internally matched to 50Ω and DC blocked.
24	GND	Ground connection
PkG Base	GND	Ground connection

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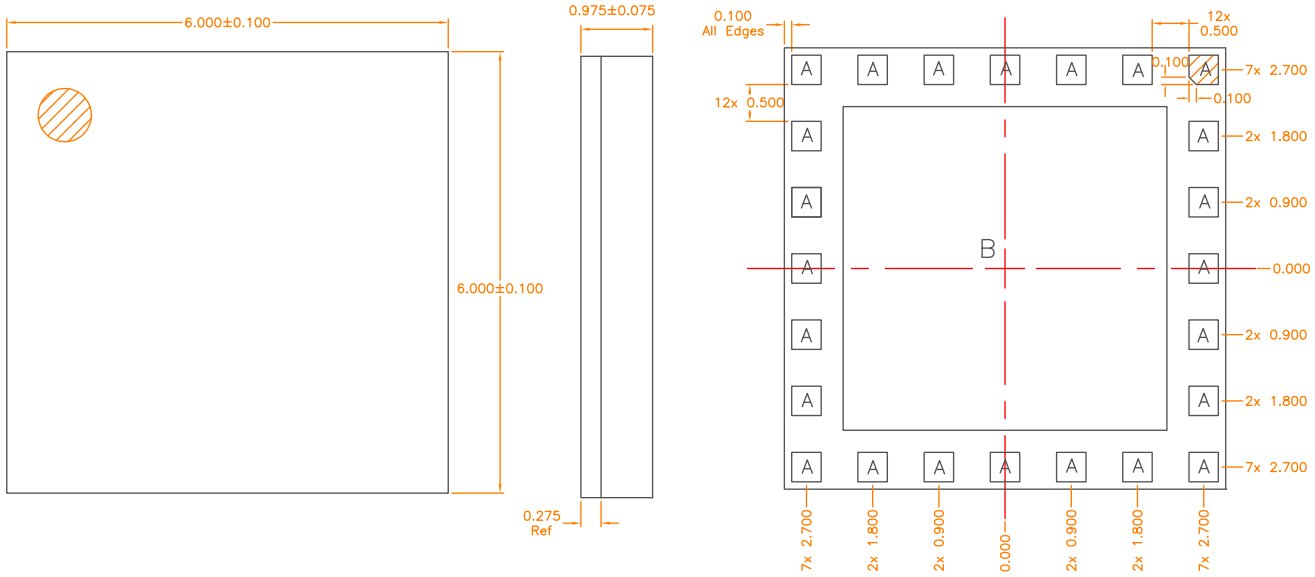
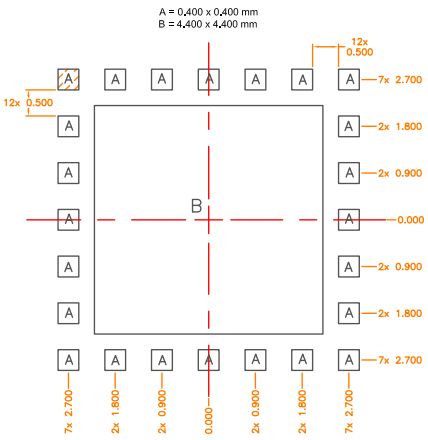
Package Drawing

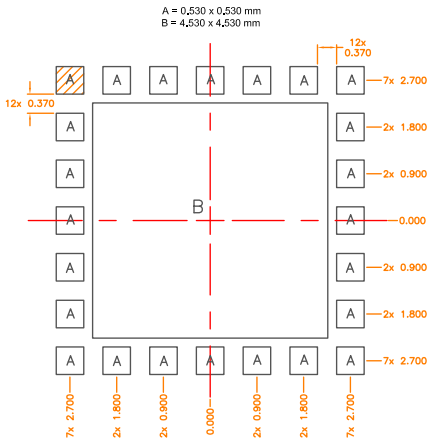


Notes:
1. Shaded area represents Pin 1 location.

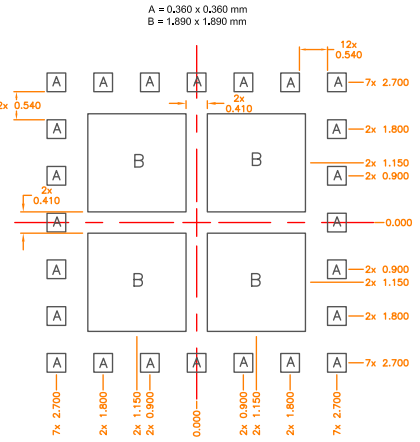
A = 0.400 x 0.400 mm
B = 4.400 x 4.400 mm



PCB Metal Land Pattern



PCB Solder Mask Pattern



PCB Stencil Pattern

Notes:
1. Shaded area represents Pin 1 location.

Note: Thermal vias for center slug "B" should be incorporated into the PCB design. The number and size of thermal vias will depend on the application. Example of the number and size of vias can be found on the RFMD evaluation board layout.

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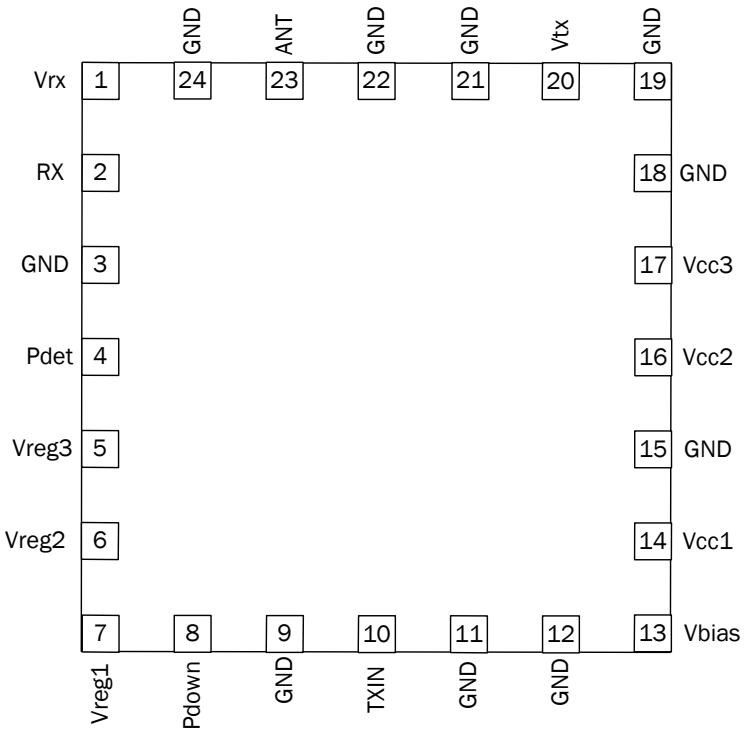
Pin Out



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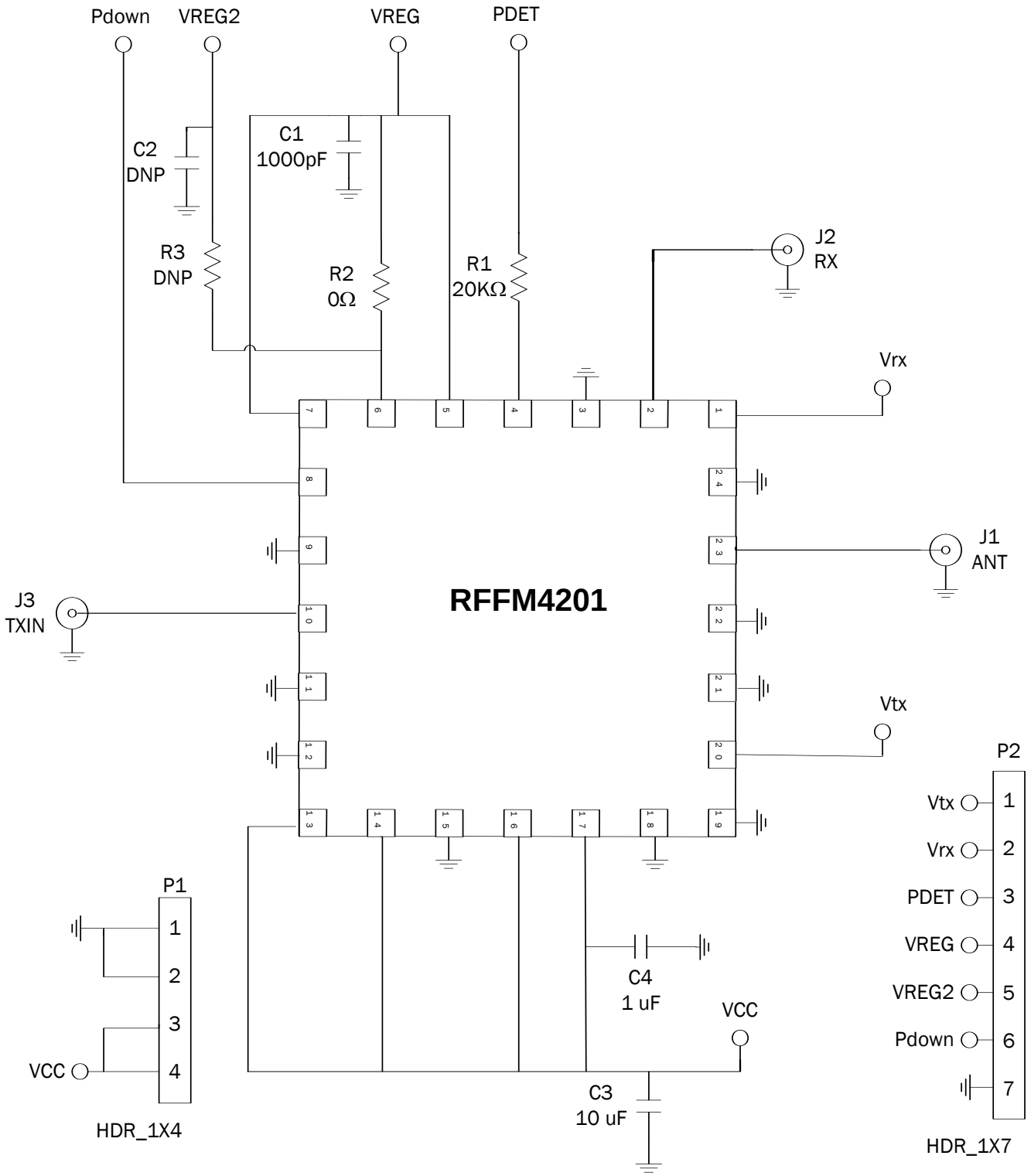
Evaluation Board Schematic



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