FUNCTIONAL BLOCKS

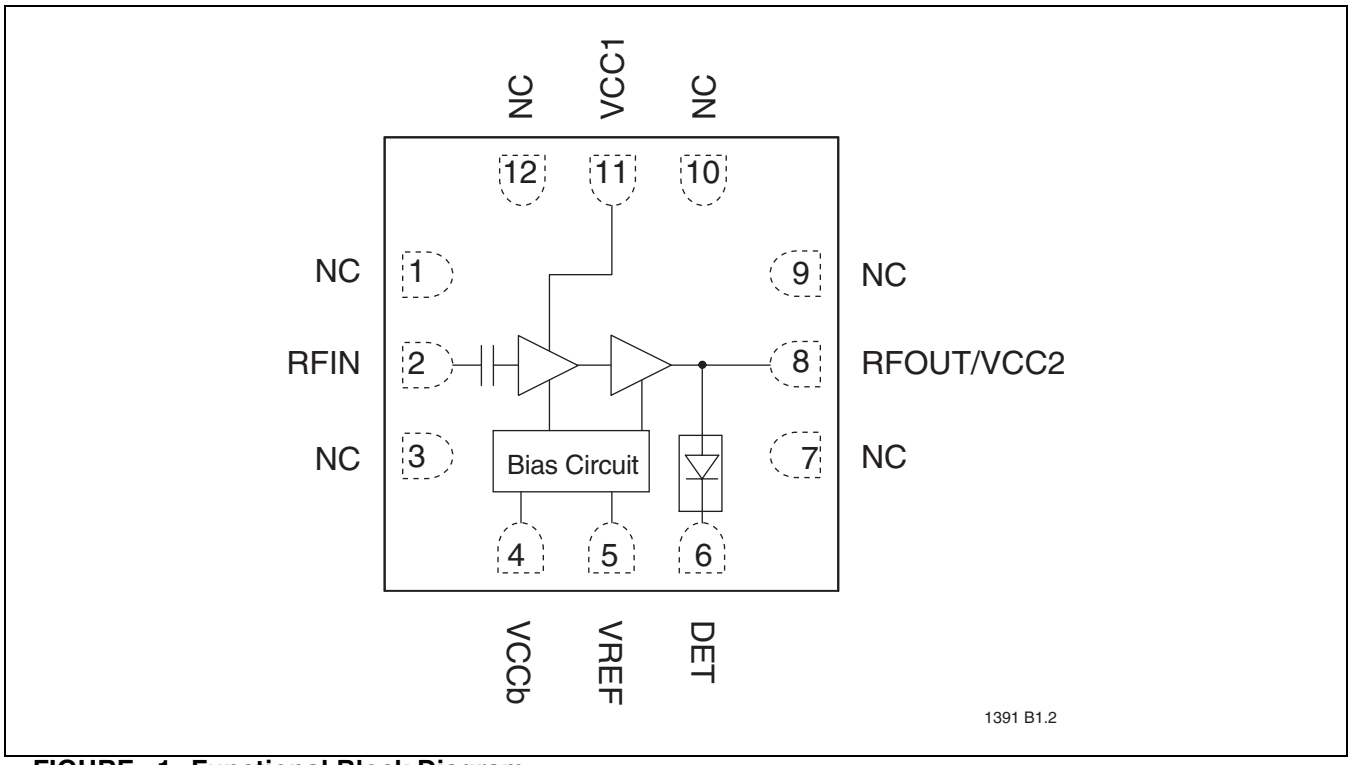

FIGURE 1: Functional Block Diagram

PIN ASSIGNMENTS

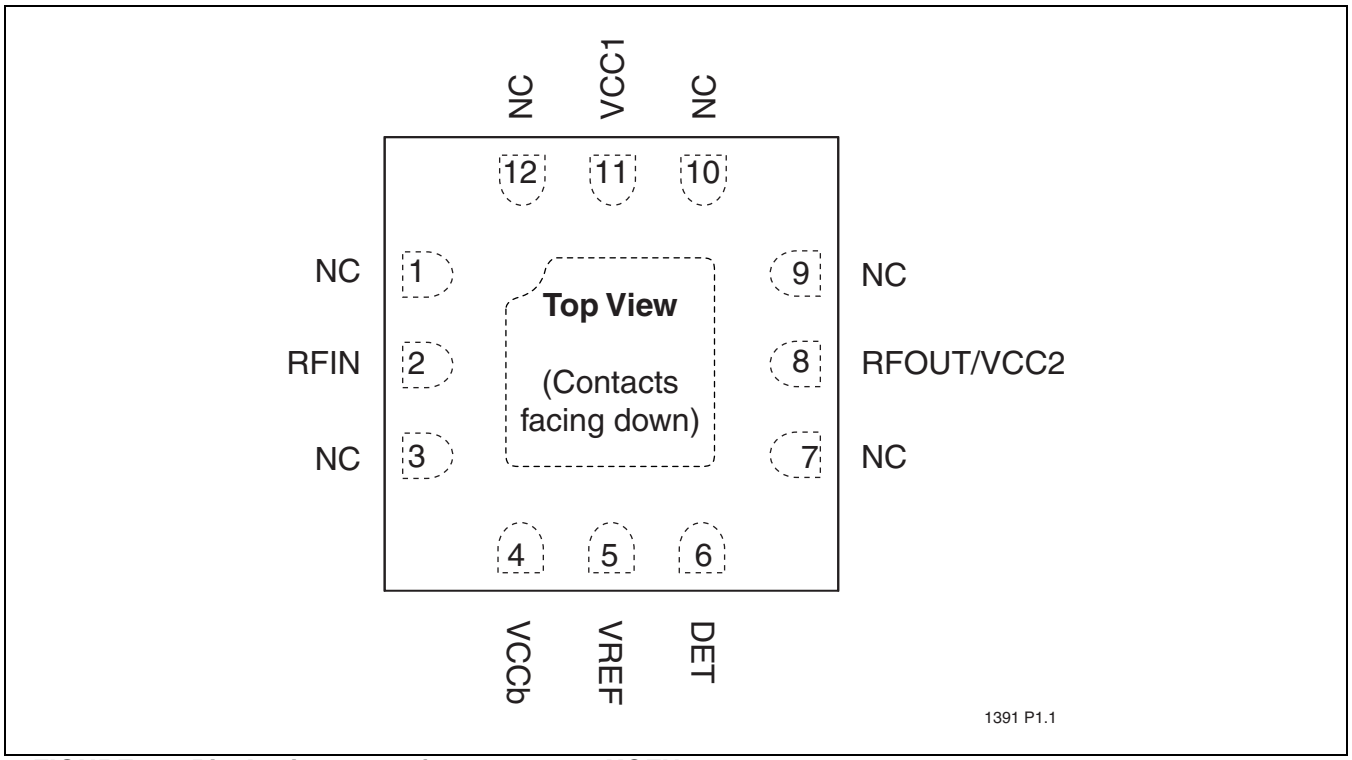

FIGURE 2: Pin Assignments for 12-contact XQFN

PIN DESCRIPTIONS

TABLE 1: Pin Description

Symbol	Pin No.	Pin Name	Type[1]	Function
GND	0	Ground		Low-inductance GND pad
NC	1	No Connection		Unconnected pin
RFIN	2		I	RF input, DC decoupled
NC	3	No Connection		Unconnected pin
VCCb	4	Power Supply	PWR	Supply voltage for bias circuit
VREF	5		PWR	1st and 2nd stage idle current control
Det	6		O	On-chip power detector
NC	7	No Connection		Unconnected pin
VCC2/RFOUT	8	Power Supply	PWR/O	Power Supply, 2nd stage / RF output
NC	9	No Connection		Unconnected pin
NC	10	No Connection		Unconnected pin
VCC1	11	Power Supply	PWR	Power supply, 1st stage
NC	12	No Connection		Unconnected pin

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1. I=Input, O=Output

Data Sheet

ELECTRICAL SPECIFICATIONS

The AC and DC specifications for the power amplifier interface signals. Refer to Table 2 for the DC voltage and current specifications. Refer to Figures 3 through 10 for the RF performance.

Absolute Maximum Stress Ratings (Applied conditions greater than those listed under "Absolute Maximum Stress Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these conditions or conditions greater than those defined in the operational sections of this data sheet is not implied. Exposure to absolute maximum stress rating conditions may affect device reliability.)

Input power to pin 2 (P_{IN}) . . . . . +5 dBm
Average output power (P_{OUT})[1] . . . . . +26 dBm
Supply Voltage at pins 4, 8, and 11 (V_{CC}) . . . . . -0.3V to +4.0V
Reference voltage to pin 5 (V_{REF}) . . . . . -0.3V to +3.3V
DC supply current (I_{CC})[2] . . . . . 300 mA
Operating Temperature (T_A) . . . . . -40ºC to +85ºC
Storage Temperature (T_{STG}) . . . . . -40ºC to +120ºC
Maximum Junction Temperature (T_J) . . . . . +150ºC
Surface Mount Solder Reflow Temperature . . . . . 260°C for 10 seconds

1. Never measure with CW source. Pulsed single-tone source with <50% duty cycle is recommended. Exceeding the maximum rating of average output power could cause permanent damage to the device.
2. Measured with 100% duty cycle 54 Mbps 802.11g OFDM Signal

Operating Range

Range	Ambient Temp	V_{CC}
Industrial	-40°C to +85°C	3.3V

TABLE 2: DC Electrical Characteristics at 25°C

Symbol	Parameter	Min.	Typ	Max.	Unit	Test Conditions
V_{CC}	Supply Voltage at pins 4, 8, 11	3.0	3.3	3.6	V	
I_{CC}	Supply Current					
	for 802.11g, 23.5 dBm		220		mA	
	for 802.11b, 23.5 dBm		220		mA	
I_{CQ}	Idle current for 802.11g to meet EVM ~2.5% @ 20 dBm		70		mA	
V_{REG}	Reference Voltage for, with 130Ω resistor	2.75	2.85	2.95	V	

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TABLE 3: AC Electrical Characteristics for Configuration at 25°C

Symbol	Parameter	Min.	Typ	Max.	Unit
F_{L-U}	Frequency range	2412		2484	MHz
G	Small signal gain	27	28		dB
G_{VAR1}	Gain variation over band (2412–2484 MHz)			±0.5	dB
G_{VAR2}	Gain ripple over channel (20 MHz)		0.2		dB
ACPR	Meet 11b spectrum mask	23			dBm
	Meet 11g OFDM 54 Mbps spectrum mask	23			dBm
Added EVM	@ 20 dBm output with 11g OFDM 54 Mbps signal		2.5		%
2f, 3f, 4f, 5f	Harmonics at 22 dBm, without external filters			-40	dBc

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TYPICAL PERFORMANCE CHARACTERISTICS
Test Conditions: V_{CC} = 3.3V, T_A = 25°C, unless otherwise specified

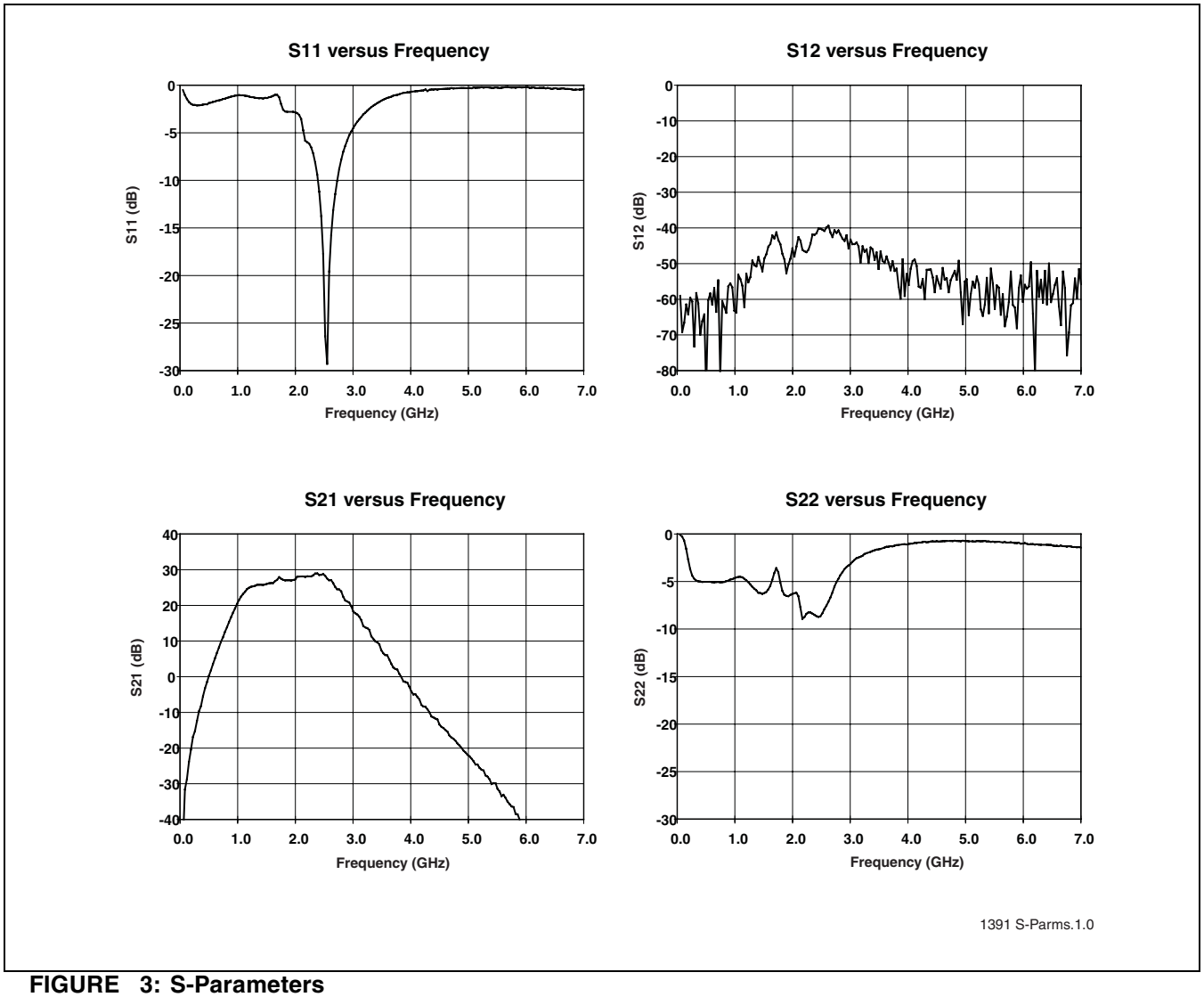


FIGURE 3: S-Parameters

TYPICAL PERFORMANCE CHARACTERISTICS
Test Conditions: V_{CC} = 3.3V, T_A = 25°C, 54 Mbps 802.11g OFDM Signal

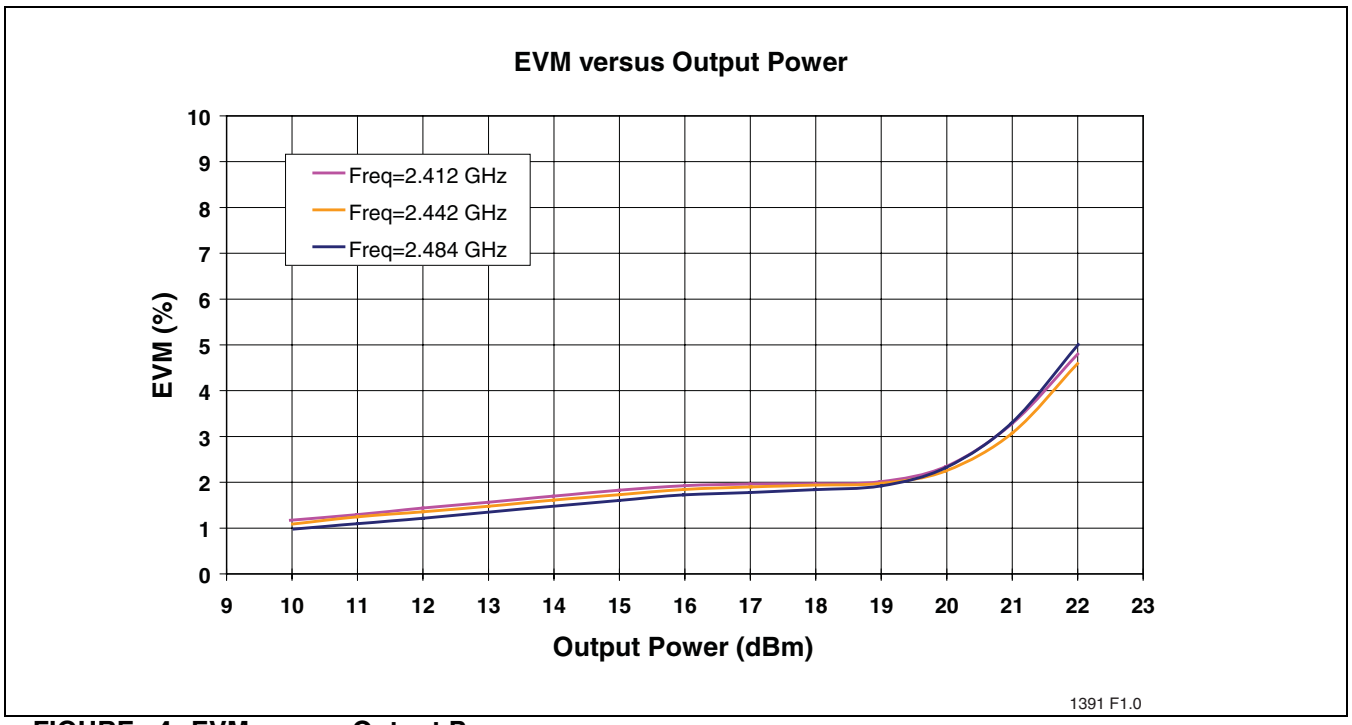


FIGURE 4: EVM versus Output Power

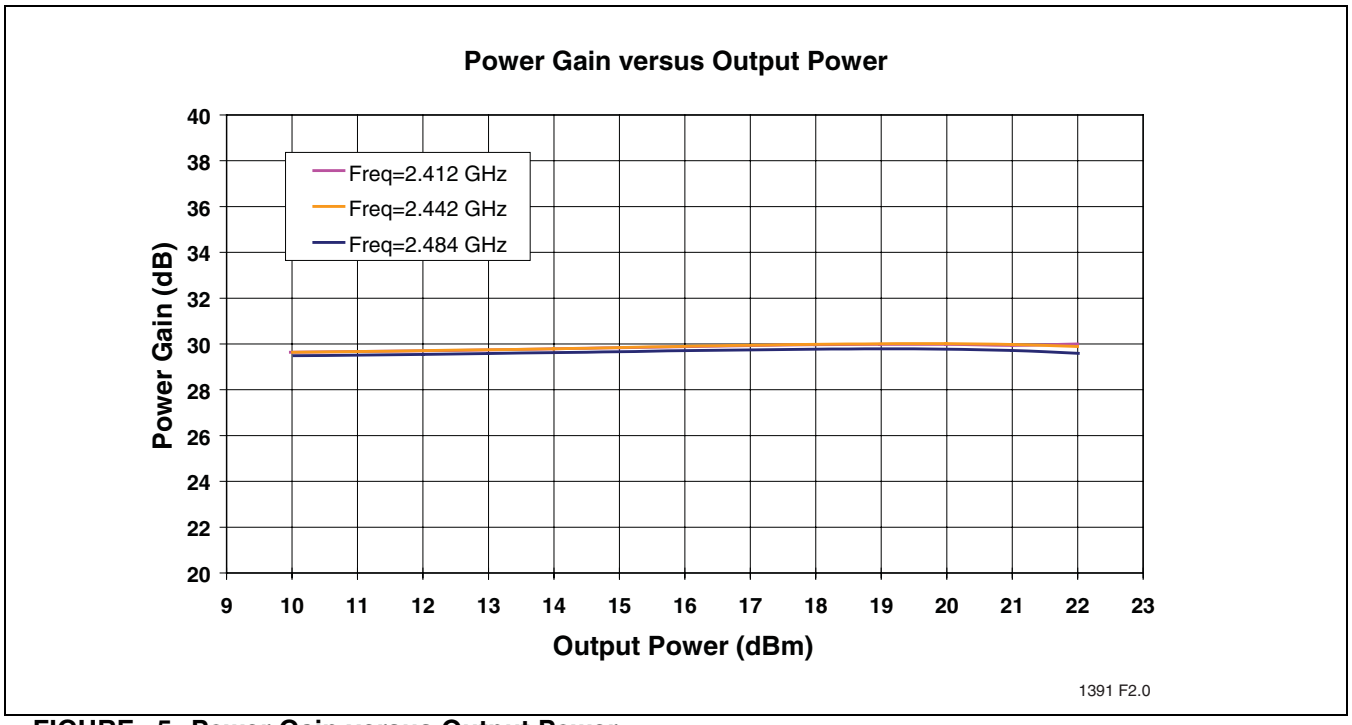


FIGURE 5: Power Gain versus Output Power

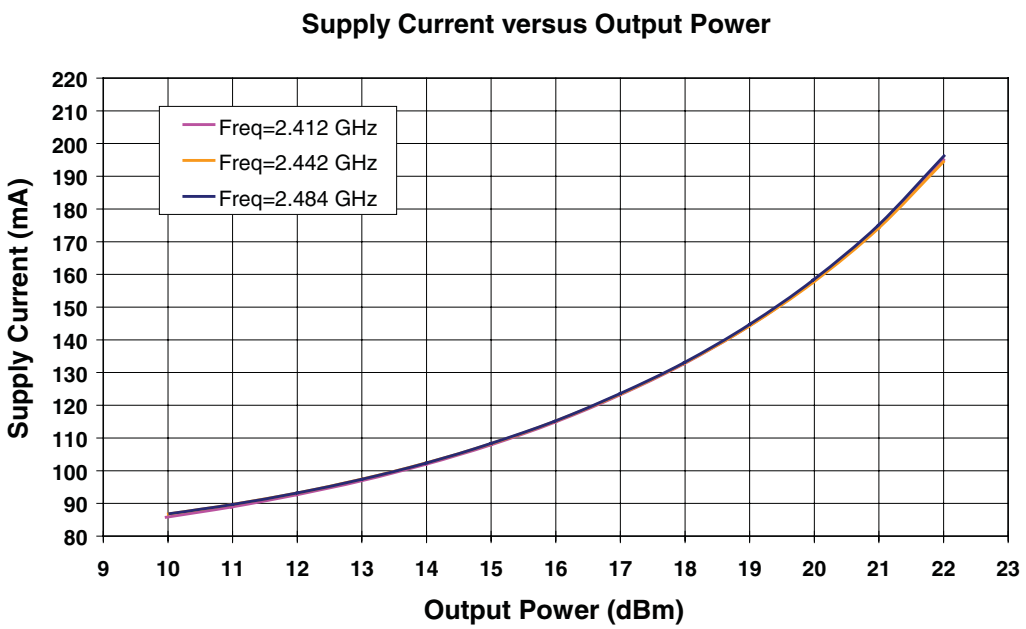


FIGURE 6: Total Current Consumption for 802.11g operation versus Output Power

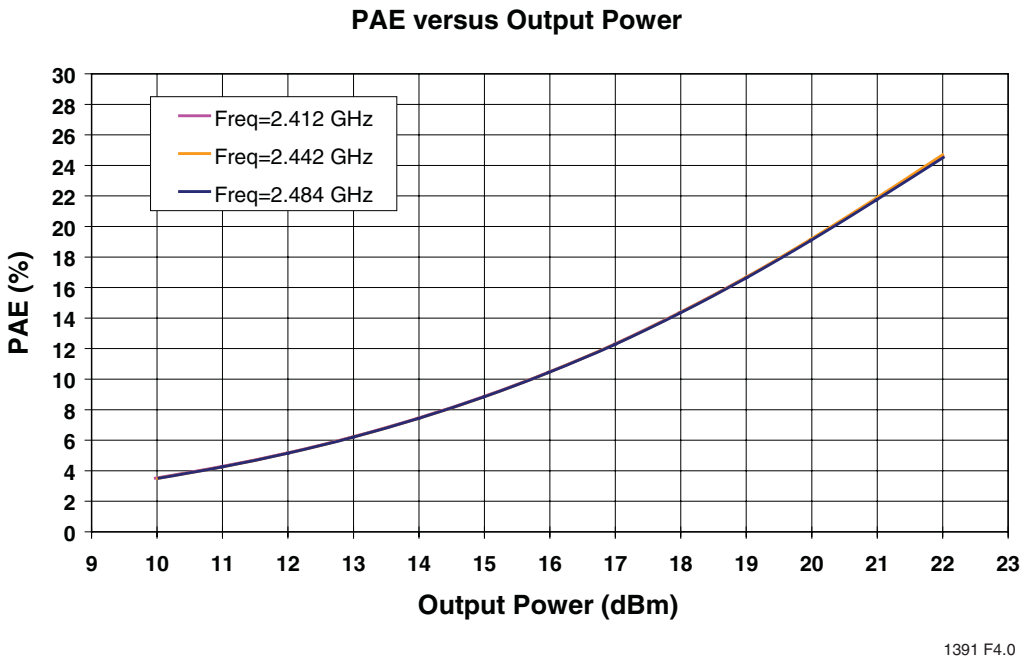


FIGURE 7: PAE versus Output Power

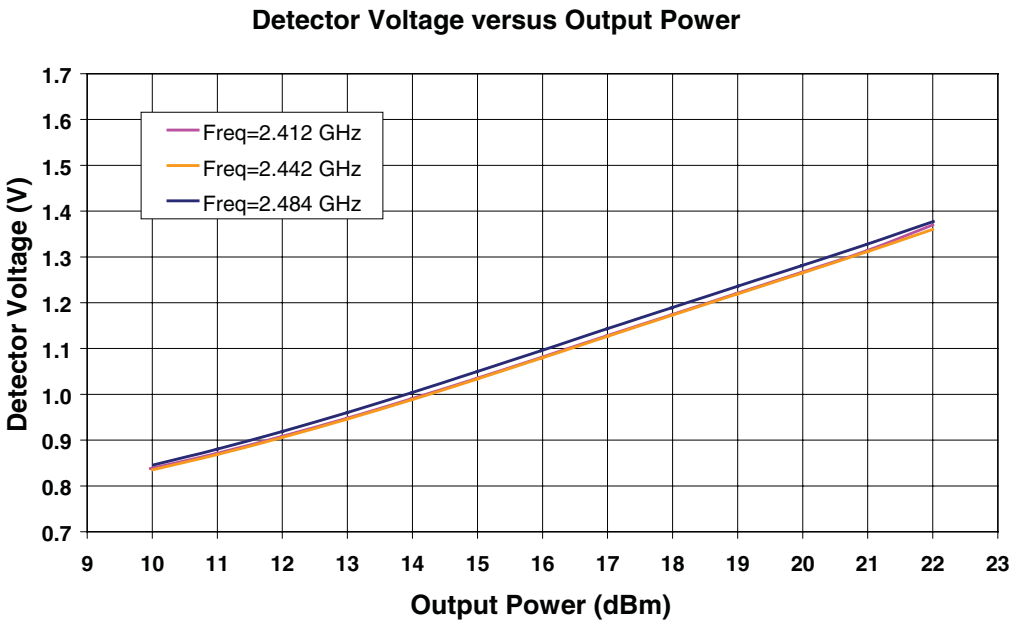


FIGURE 8: Detector Characteristics versus Output Power

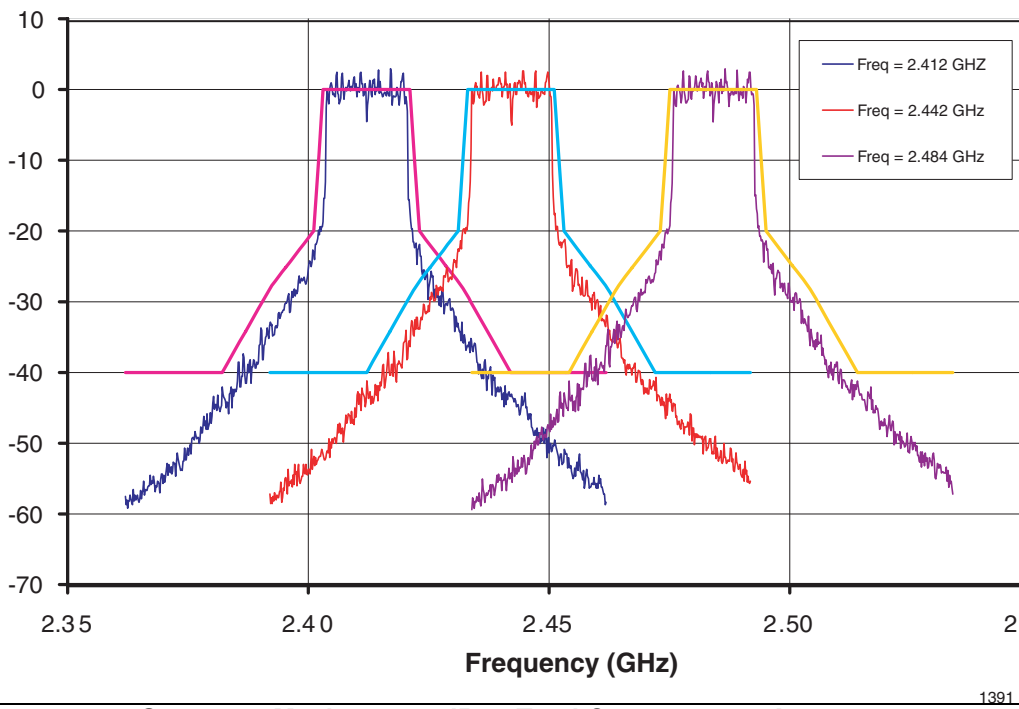


FIGURE 9: 802.11g Spectrum Mask at 23.5 dBm, Total Current 220 mA

TYPICAL PERFORMANCE CHARACTERISTICS
Test Conditions: V_{CC} = 3.3V, T_A = 25°C, 1 Mbps 802.11b CCK Signal

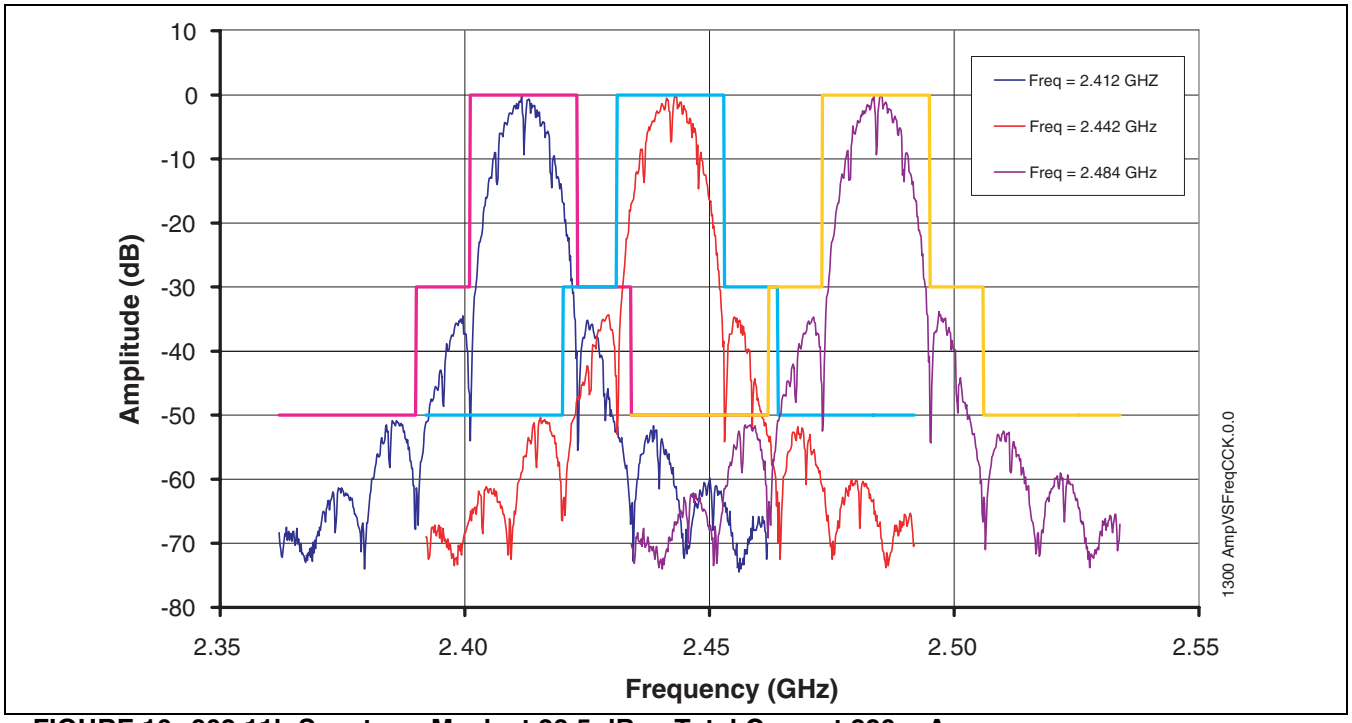


FIGURE 10: 802.11b Spectrum Mask at 23.5 dBm, Total Current 220 mA

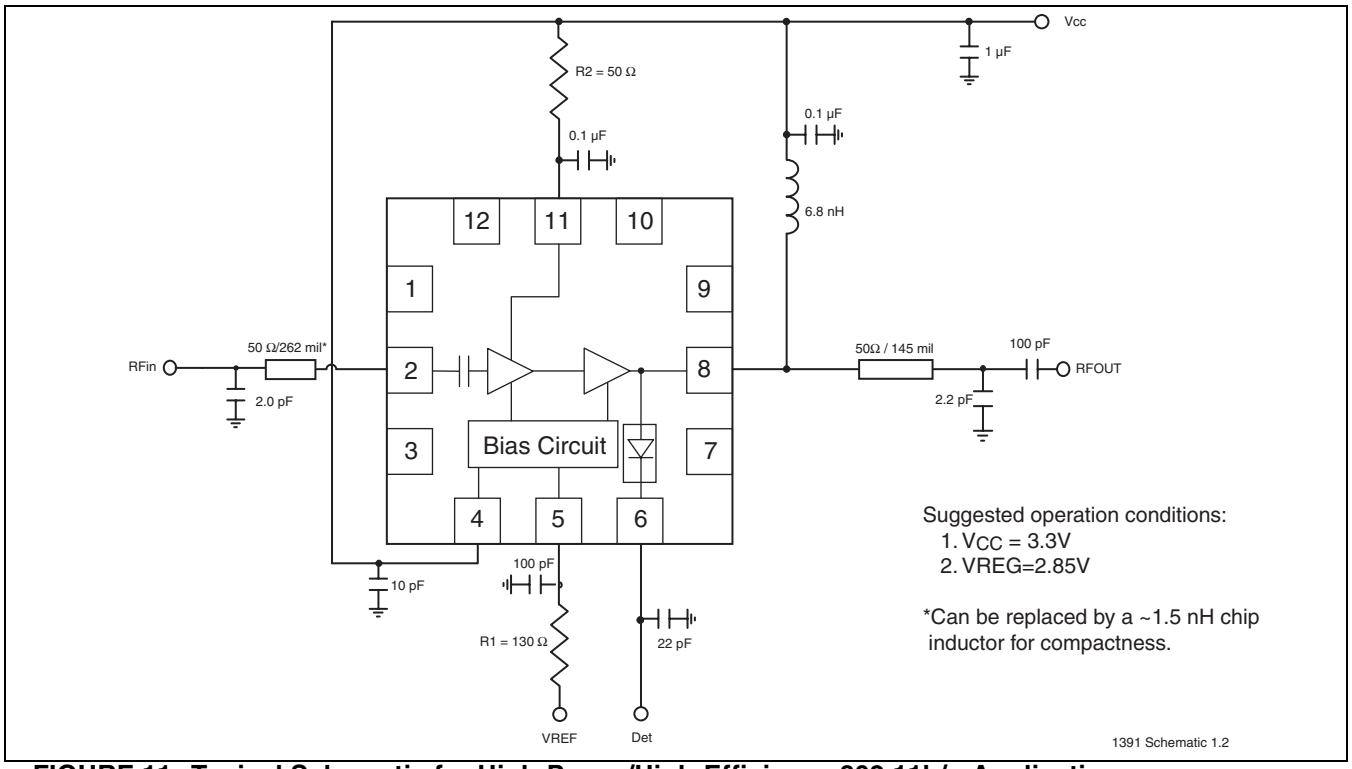
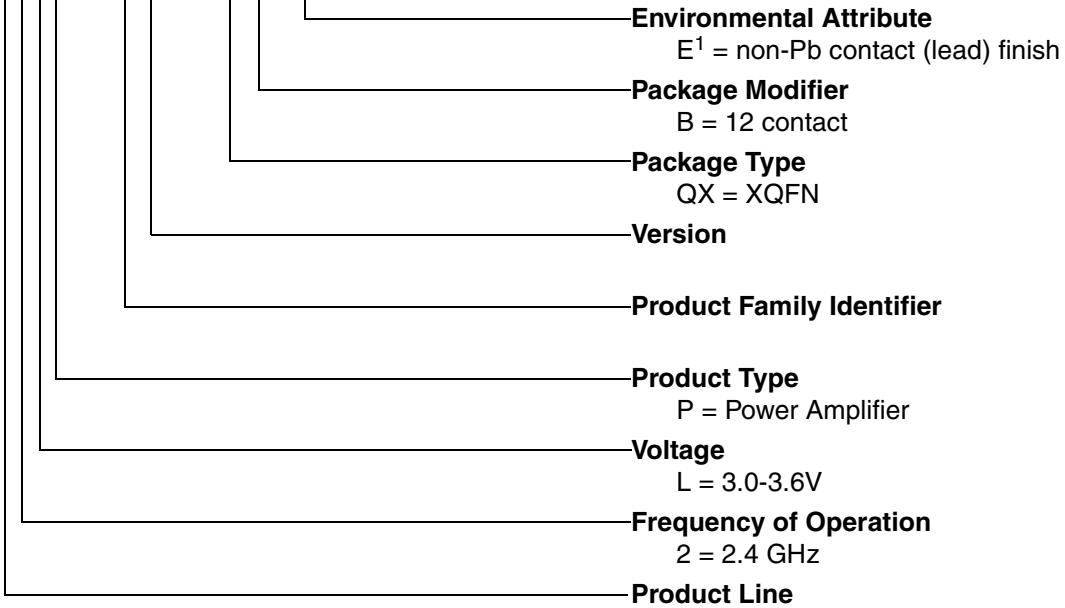


FIGURE 11: Typical Schematic for High-Power/High-Efficiency 802.11b/g Applications

PRODUCT ORDERING INFORMATION

SST12LP 07A - QXB E
SSTXXLP XXX - XXX X



1. Environmental suffix “E” denotes non-Pb solder.
SST non-Pb solder devices are “RoHS Compliant”.

Valid combinations for SST12LP07A

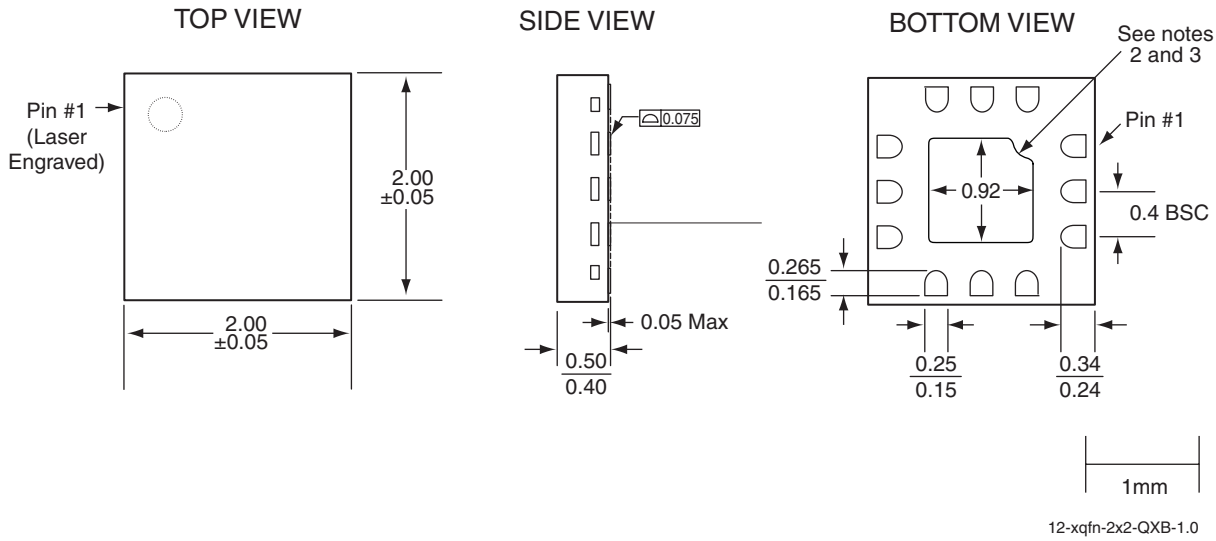
SST12LP07A-QXBE

SST12LP07A Evaluation Kits

SST12LP07A-QXBE-K

Note: Valid combinations are those products in mass production or will be in mass production. Consult your SST sales representative to confirm availability of valid combinations and to determine availability of new combinations.

PACKAGING DIAGRAMS



Note: 1. Complies with JEDEC JEP95 MO-220J, variant VEED-4 except external paddle nominal dimensions and pull-back of terminals from body edge.
2. From the bottom view, the pin #1 indicator may be either a curved indent or a 45-degree chamfer.
3. The external paddle is electrically connected to the die back-side and possibly to certain V_{SS} leads. This paddle **must** be soldered to the PC board; it is required to connect this paddle to the V_{SS} of the unit. Connection of this paddle to any other voltage potential **will** result in shorts and electrical malfunction of the device.
4. Untoleranced dimensions are nominal target dimensions.
5. All linear dimensions are in millimeters (max/min).

FIGURE 12: 12-Contact Extremely-thin Quad Flat No-lead (XQFN)
SST Package Code: QXB

TABLE 4: Revision History

Revision	Description	Date
00	• Initial release of data sheet	Aug 2008
01	• Revised “Features” and “Product Description” on page 1 • Updated Table 2 and Table 3 on page 4 • Modified Figure 11	Nov 2008
02	• Updated “Contact Information” on page 12	Mar 2009

CONTACT INFORMATION

Marketing

SST Communications Corp.
5340 Alla Road, Ste. 210
Los Angeles, CA 90066
Tel: 310-577-3600
Fax: 310-577-3605

Sales and Marketing Offices

NORTH AMERICA

Silicon Storage Technology, Inc.
1171 Sonora Court
Sunnyvale, CA 94086-5308
Tel: 408-735-9110
Fax: 408-735-9036

ASIA PACIFIC NORTH

SST Macao
Room N, 6th Floor,
Macao Finance Center, No. 202A-246,
Rua de Pequim, Macau
Tel: 853-2870-6022
Fax: 853-2870-6023

EUROPE

Silicon Storage Technology Ltd.
Mark House
9-11 Queens Road
Hersham, Surrey
KT12 5LU UK
Tel: 44 (0) 1932-238133
Fax: 44 (0) 1932-230567

ASIA PACIFIC SOUTH

SST Communications Co.
16F-6, No. 75, Sec.1, Sintai 5th Rd
Sijhih City, Taipei County 22101
Taiwan, R.O.C.
Tel: 886-2-8698-1198
Fax: 886-2-8698-1190

JAPAN

SST Japan
NOF Tameike Bldg, 9F
1-1-14 Akasaka, Minato-ku
Tokyo, Japan 107-0052
Tel: 81-3-5575-5515
Fax:81-3-5575-5516

KOREA

SST Korea
6F, Heungkuk Life Insurance Bldg 6-7
Sunae-Dong, Bundang-Gu, Sungnam-Si
Kyungki-Do, Korea, 463-020
Tel: 82-31-715-9138
Fax: 82-31-715-9137