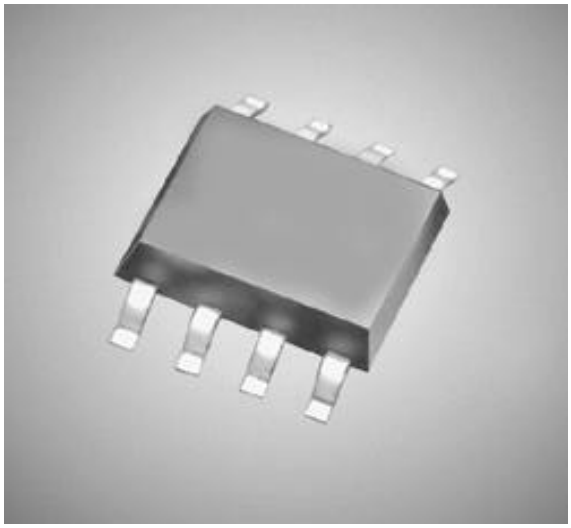
WJ515101



2.1 - 2.7 GHz
LOW NOISE AMPLIFIER

- 1.4 dB NOISE FIGURE
- 24 dB GAIN
- +20 dBm OUTPUT IP3
- 45 dB REVERSE ISOLATION
- SINGLE SUPPLY OPERATION (+3.6V TO +5.0V)
- SOIC-8 PACKAGE

Specifications*

Symbol	Performance Characteristic	Min	Typ	Max	Units
F	Frequency	2.1		2.7	GHz
G	Gain	21	24		dB
ΔG	Gain Variation over Frequency		1.3	2.1	dB
G_{TC}	Gain Temperature Coefficient		-0.025		dB/°C
NF	Noise Figure		1.4	1.8	dB
NF_{TC}	NF Temperature Coefficient		0.0067		dB/°C
P1dB	Output Power at 1dB Compression		10		dBm
OIP3	Third Order Intercept Point		20		dBm
S11	Input VSWR		2.0:1		dB
S22	Output VSWR		1.12:1		dB
$\|S_{12}\|^2$	Isolation	35	45		dB
I_{DD}	DC Current	27	45	60	mA

*Notes:
1. Tests performed in Broadband Application Circuit Fixture with external input match.
2. Electrical specification: T_A= 25°C, V_{DD}=+5.0V, unless otherwise specified.
3. Typical values are measured at 2.4 GHz

Absolute Maximum Ratings

Operating temperature.....-40°C to +80°C
Storage Temperature.....-65°C to +100°C
DC Voltage..... +12 V
Continuous RF Input Power..... +16 dBm
Channel Temperature.....175°C

Typical Scattering Parameters* (No external input match): Z_0=50 Ω, T_A=25°C, V_{DD} = +5.0V

Freq	S11		S21			S12			S22	
GHz	Mag	Ang	dB	Mag	Ang	dB	Mag	Ang	Mag	Ang
1.95	0.89	-83.9	18.19	8.12	-151.2	-57.0	0.001	-32.0	0.20	138.7
2.10	0.86	-91.5	19.25	9.17	178.1	-54.6	0.002	-41.7	0.10	91.5
2.25	0.82	-99.8	20.24	10.28	149.1	-51.6	0.003	-54.0	0.08	8.2
2.40	0.76	-108.6	21.22	11.51	120.9	-48.1	0.004	-62.6	0.13	-50.1
2.55	0.68	-118.1	22.19	12.87	92.6	-44.7	0.006	-73.8	0.20	-86.5
2.70	0.57	-127.9	23.08	14.25	63.0	-41.1	0.009	-85.8	0.27	-119.0
2.85	0.43	-134.8	23.70	15.31	31.7	-38.2	0.012	-101.5	0.34	-151.5
3.00	0.28	-128.5	23.80	15.49	-1.0	-35.7	0.016	-118.9	0.40	175.6
3.15	0.25	-99.4	23.23	14.50	-33.0	-34.0	0.020	-136.7	0.44	144.5
3.30	0.34	-86.3	22.10	12.74	-62.2	-32.9	0.023	-152.3	0.45	117.4
3.45	0.44	-88.6	20.71	10.86	-88.0	-32.2	0.025	-165.7	0.44	94.8
3.60	0.51	-95.2	19.25	9.17	-110.5	-31.5	0.027	-175.7	0.43	76.7
3.75	0.55	-102.3	17.83	7.79	-130.7	-30.8	0.029	174.8	0.41	61.6
3.90	0.58	-109.4	16.52	6.70	-149.1	-30.2	0.031	168.0	0.40	49.3
4.05	0.60	-116.0	15.30	5.82	-166.1	-29.3	0.034	160.7	0.39	39.0
4.20	0.61	-122.4	14.20	5.13	177.8	-28.4	0.038	154.3	0.38	30.5
4.35	0.61	-128.5	13.18	4.56	162.4	-27.6	0.042	147.7	0.37	23.4
4.50	0.61	-134.1	12.22	4.08	147.6	-26.6	0.047	141.1	0.36	17.5
4.65	0.61	-139.4	11.33	3.69	133.0	-25.5	0.053	134.5	0.36	12.6
4.80	0.60	-144.0	10.49	3.34	118.8	-24.4	0.060	126.0	0.37	8.4
4.95	0.59	-147.7	9.67	3.05	104.6	-23.3	0.068	117.4	0.38	5.2
5.10	0.59	-150.6	8.81	2.76	90.3	-22.4	0.076	106.9	0.40	1.6
5.25	0.60	-152.7	7.89	2.48	76.3	-21.5	0.084	95.3	0.43	-2.3
5.40	0.63	-154.7	6.89	2.21	62.7	-21.0	0.089	82.6	0.47	-7.8
5.55	0.68	-157.9	5.79	1.95	50.0	-20.8	0.091	69.4	0.51	-15.0
5.70	0.74	-163.1	4.65	1.71	38.3	-21.0	0.089	57.1	0.55	-23.7
5.85	0.80	-169.4	3.52	1.50	28.0	-21.5	0.084	45.7	0.58	-33.0
6.00	0.85	-176.4	2.48	1.33	18.4	-22.4	0.076	36.0	0.60	-42.8

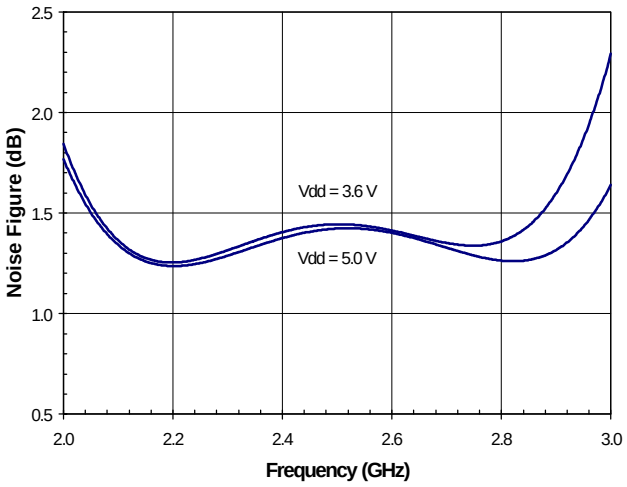
Typical Noise Parameters* (No external input match):
T_A=25°C, V_{DD} = +5.0V

Freq	NF_O	Γ_{OPT}		R_n/Z_O	G_{assoc}
GHz	(dB)	Mag	Ang		(dB)
1.95	0.87	0.72	62.4	0.44	21.8
2.10	0.84	0.68	68.4	0.38	22.3
2.25	0.91	0.66	73.1	0.34	22.6
2.40	0.93	0.63	79.2	0.30	231.0
2.55	1.02	0.30	84.5	0.27	23.5
2.70	1.05	0.54	90.6	0.24	23.9
2.85	1.15	0.52	96.6	0.22	24.1

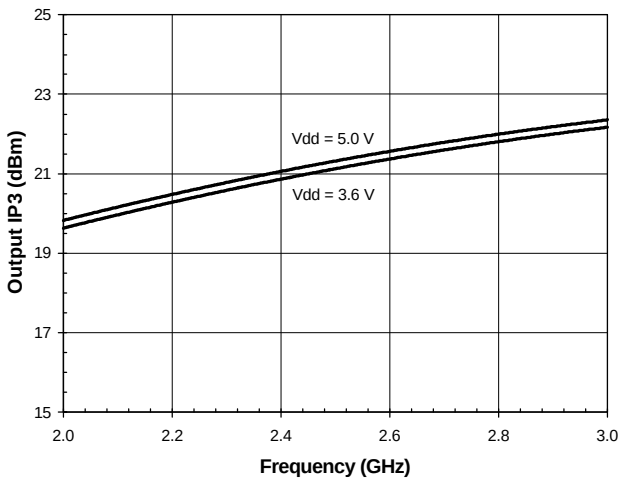
*Note: S-parameters and noise parameters are measured without external input match. The reference planes are located at outer ends of the package leads, shown as the dimension 236mil in SOIC-8 package outline.

SM-515101 Typical Performance[1] : T_A=25°C

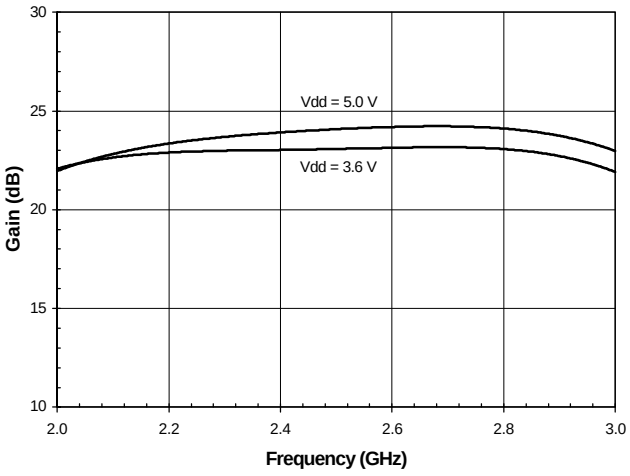
Noise Figure vs. Frequency



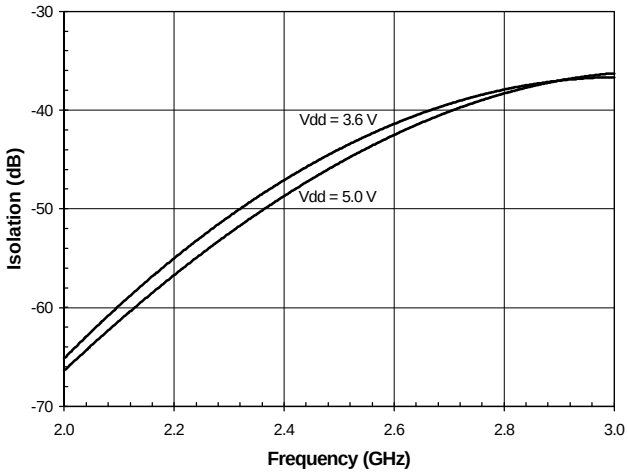
Output IP3 vs. Frequency



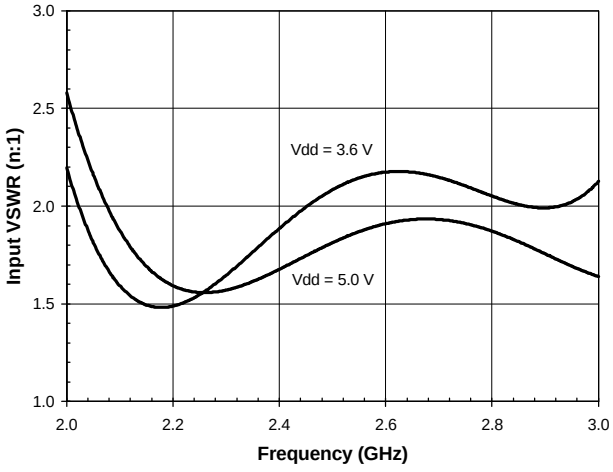
Gain vs. Frequency



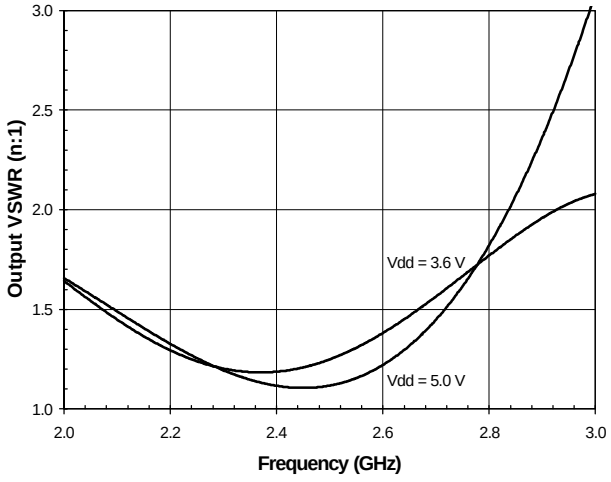
Isolation vs. Frequency



Input VSWR vs. Frequency



Output VSWR vs. Frequency



Broadband Application Circuit

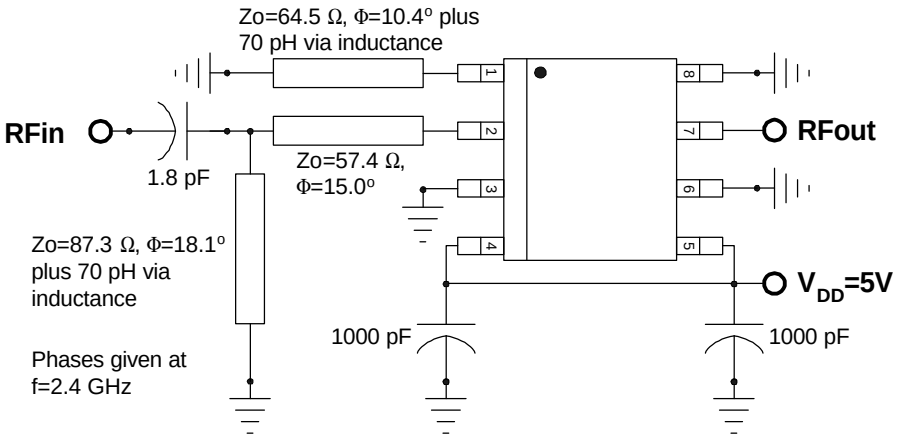
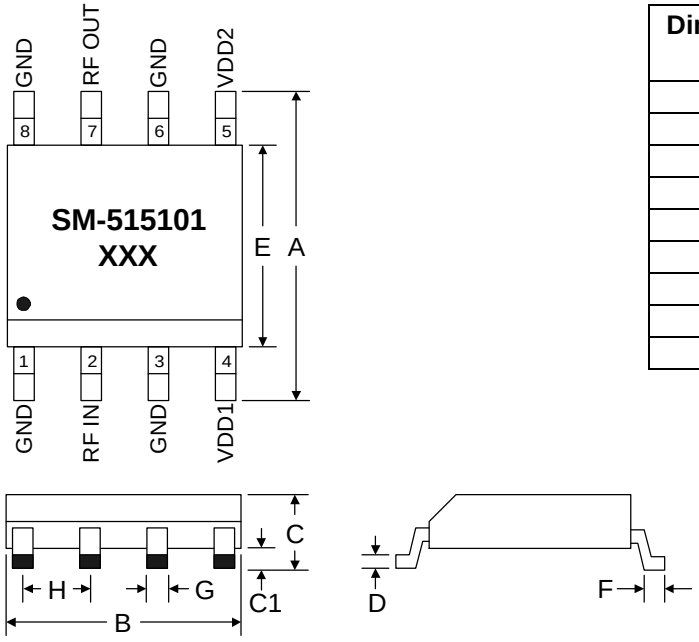


Figure 1

SOIC-8 Package Outline and Pinout



SOIC-8 Package Outline and Pinout 1

SOIC-8 Package Dimensions

Dimension	Inches (Maximum)	Millimeters (Maximum)
A	0.244	6.20
B	0.202	5.13
C	0.068	1.73
C1	0.010	0.25
D	0.010	0.25
E	0.163	4.19
F	0.050	1.27
G	0.020	0.50
H	0.050 nominal	1.27 nominal