

Product Description

The TQ9132B amplifier is an 800-2500 MHz amplifier capable of providing moderate output power (50 mW) for a wide variety of transmit and receive applications. The amplifier's input and output are matched to 50 Ω with internal circuitry, simplifying interfaces to 50 Ω systems. In addition, DC blocking capacitors are included on chip, permitting direct connections to the input and output. Its 8-pin surface mount package and low cost are well suited to many wireless communications applications.

Electrical Specifications¹

Parameter	Min	Typ	Max	Units
Gain	13.5	16		dB
Output 1 dB Gain Compression	15.5	17		dBm
Input Return Loss		12		dB
Output Return Loss		12		dB
DC Supply Current		85	100	MA

Note 1: Test Conditions: $V_{DD} = 5.0\text{ V}$, $\text{Freq.} = 2500\text{ MHz}$, $T_A = 25^\circ\text{ C}$.

Note 2: . Min/max values 100% production tested

TQ9132B

DATA SHEET

**3V Cellular TDMA/AMPS
Power Amplifier IC**

Features

- Single 3V- 6V supply
- Wide frequency range
- +17 dBm output power
- Input and output matched to 50 W
- SO-8 surface mount plastic package

Applications

- Power Amplifier drivers
- PCN Medium-power amplifiers
- Medium-power WLANs
- CDPD Modems
- Base Station receivers

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Electrical Characteristics

Parameter	Conditions	Min.	Typ/Nom	Max.	Units
Frequency		800	800 to 2500	2500	MHz
Supply Voltage (V _{DD})		3.0	5.0	6.0	V
Gain		13.5	16		dB
Noise Figure			4.1		dB
Output 1 dB Gain Compression		15.5	17		dBm
Output 3 rd Order Intercept			27		dBm
Input Return Loss			12	10	dB
Output Return Loss			12	10	dB
DC Supply Current			85	100	mA

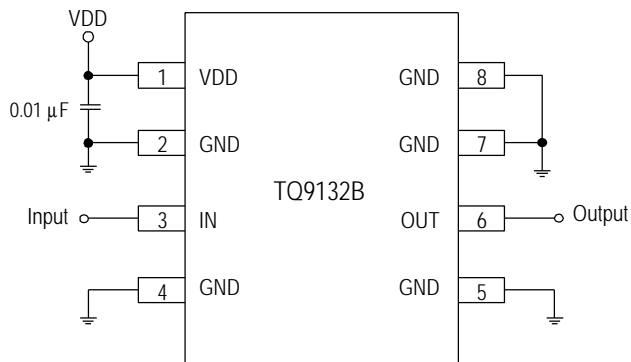
Note 1: Test Conditions: V_{DD} = 5.0 V, Freq. = 2500 MHz, T_A = 25° C.

Note 2: . Min/max values 100% production tested

Absolute Maximum Ratings

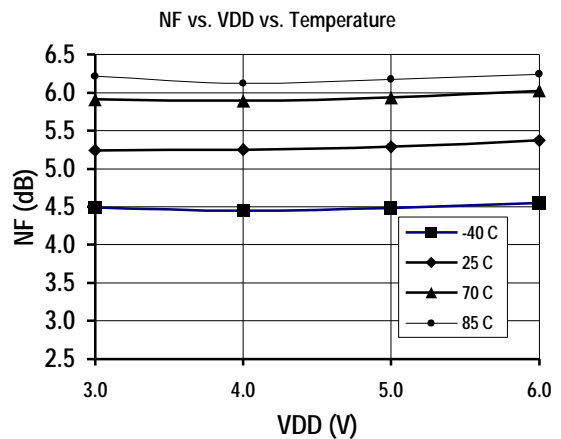
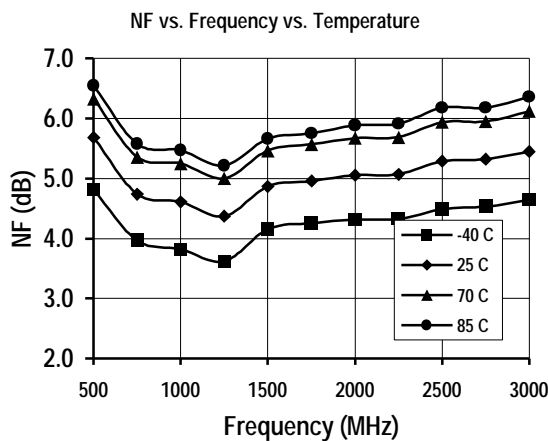
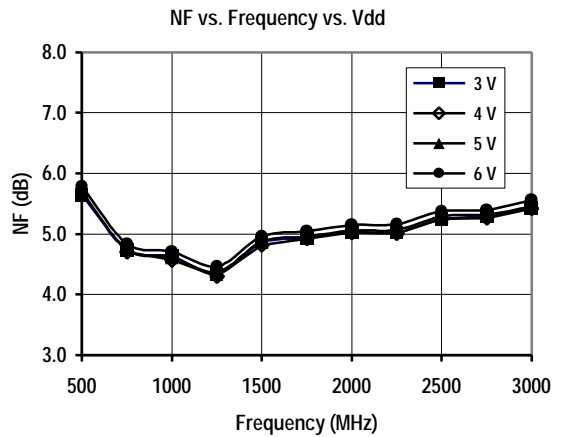
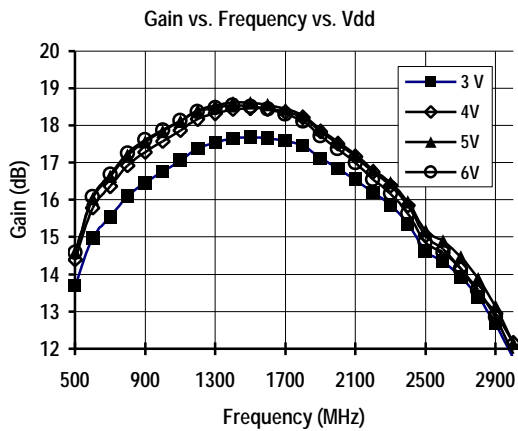
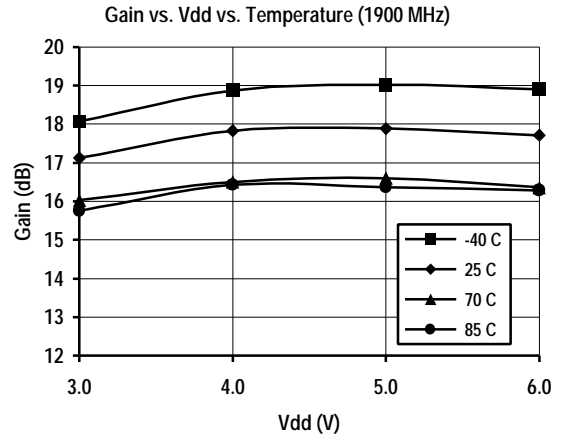
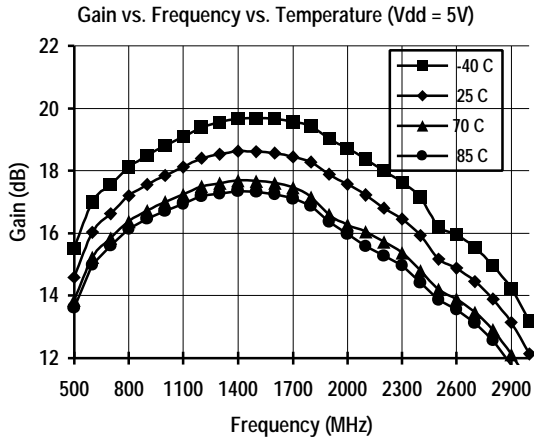
Parameter	Value	Units
DC Power Supply	7.0	V
Power Dissipation	500	mW
Input Power	+10	dBm
Storage Temperature	-55 to 150	° C
Operating Temperature (case)	-40 to 70	° C
Thermal Resistance	135.5	°C/W

Application/Test Circuit



Typical Performance

Test Conditions (Unless Otherwise Specified): VDD = 5 V, Freq. = 2500 MHz, T_C = 25 °C.

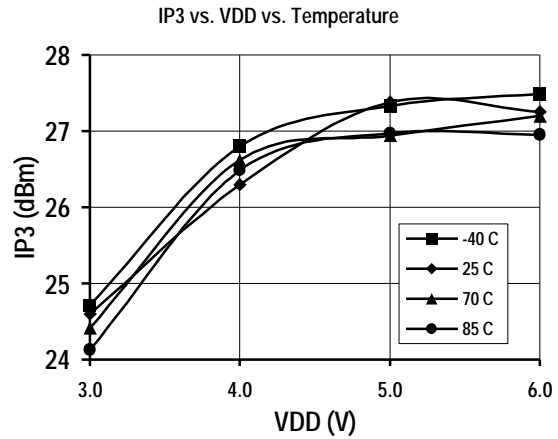
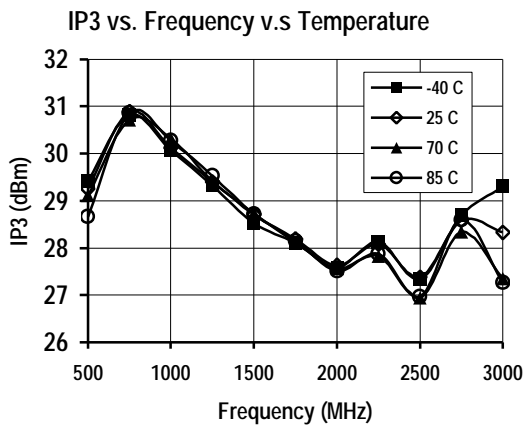
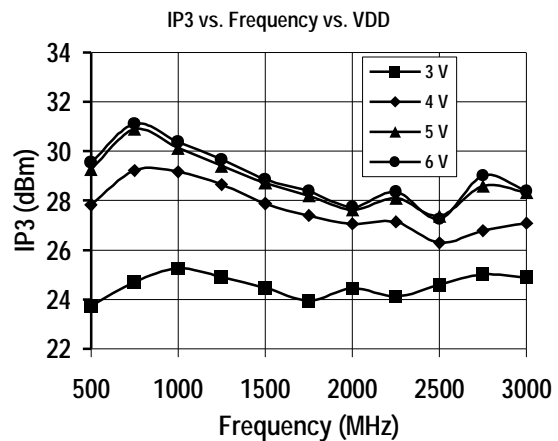
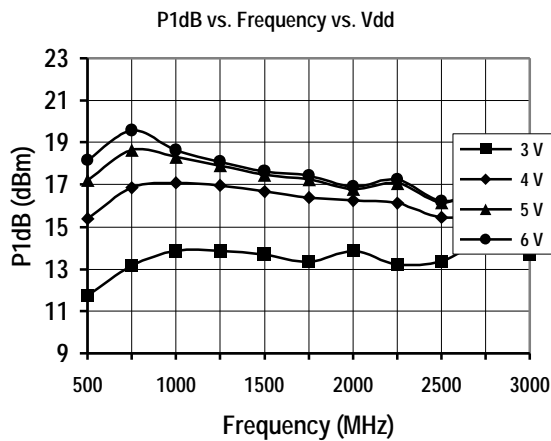
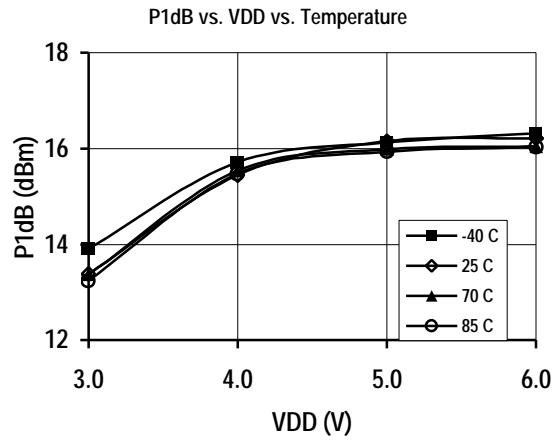
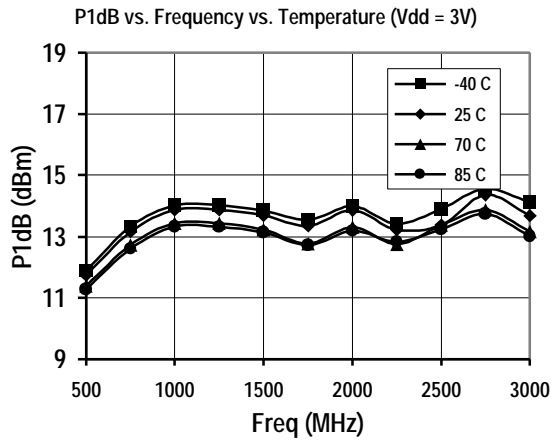


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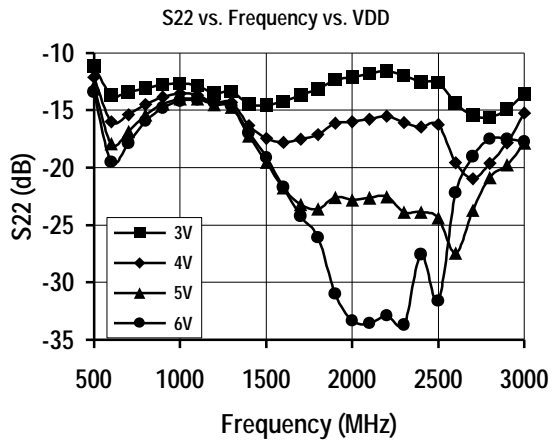
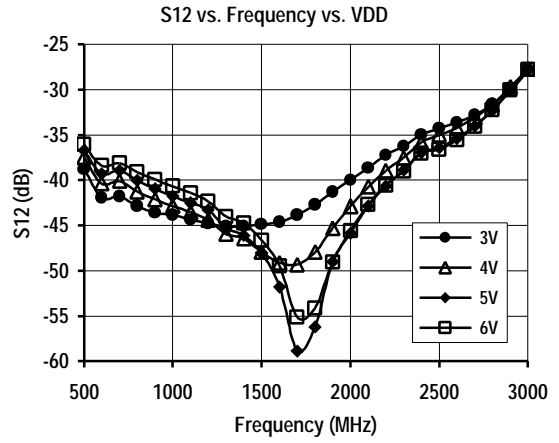
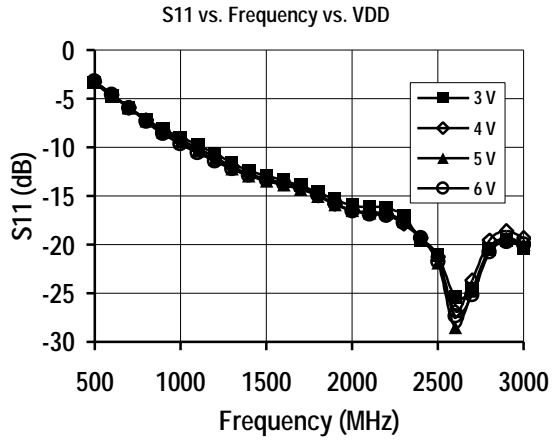
Typical Performance

Test Conditions (Unless Otherwise Specified): VDD = 5 V, Freq. = 2500 MHz, T_c = 25° C.



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Test Conditions (Unless Otherwise Specified): VDD = 5 V, Freq. = 2500 MHz, T_C = 25°C.



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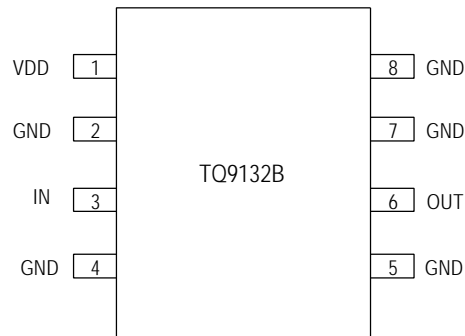
Data Sheet

S-Parameters (typical) ¹

Freq (MHz)	S11	∠S11	S21	∠S21	S12	∠S12	S22	∠S22
500	0.769	-110	5.2	22	0.012	83	0.157	12
600	0.644	-127	5.9	-15	0.010	17	0.159	-44
700	0.543	-144	6.5	-48	0.011	-17	0.185	-77
800	0.450	-159	7.0	-78	0.010	-38	0.206	-103
900	0.382	-172	7.4	-106	0.010	-56	0.216	-126
1000	0.326	92	7.7	-132	0.010	-72	0.219	-150
1100	0.281	166	7.9	-158	0.010	-85	0.221	-125
1200	0.247	157	8.2	152	0.010	-98	0.214	-164
1300	0.220	147	8.4	151	0.010	-109	0.204	140
1400	0.199	137	8.5	126	0.009	-120	0.194	118
1500	0.177	126	8.6	102	0.009	-130	0.185	92
1600	0.154	113	8.6	78	0.009	-137	0.175	64
1700	0.131	99	8.5	53	0.009	-133	0.165	36
1800	0.102	85	8.4	30	0.010	-141	0.165	7
1900	0.072	62	8.1	6	0.011	-158	0.165	-24
2000	0.053	-2	7.8	-17	0.012	-155	0.171	-54
2100	0.050	-49	7.5	-39	0.013	-127	0.18	-82
2200	0.063	-105	7.2	-62	0.015	137	0.188	-107
2300	0.085	-84	6.7	-84	0.016	159	0.194	-128
2400	0.119	58	6.4	-105	0.017	147	0.199	-148
2500	0.153	149	6.0	-127	0.019	134	0.201	-107
2600	0.182	146	5.6	-147	0.020	120	0.199	-8
2700	0.210	131	5.3	-132	0.021	107	0.198	160
2800	0.234	117	5.0	135	0.023	93	0.196	145
2900	0.258	103	4.7	151	0.024	76	0.191	128
3000	0.285	86	4.4	131	0.025	63	0.178	112

Note 1: Test Conditions: $V_{DD} = 5.0\text{ V}$, $\text{Freq.} = 2500\text{ MHz}$, $T_A = 25^\circ\text{ C}$. Reference plane at package leads.

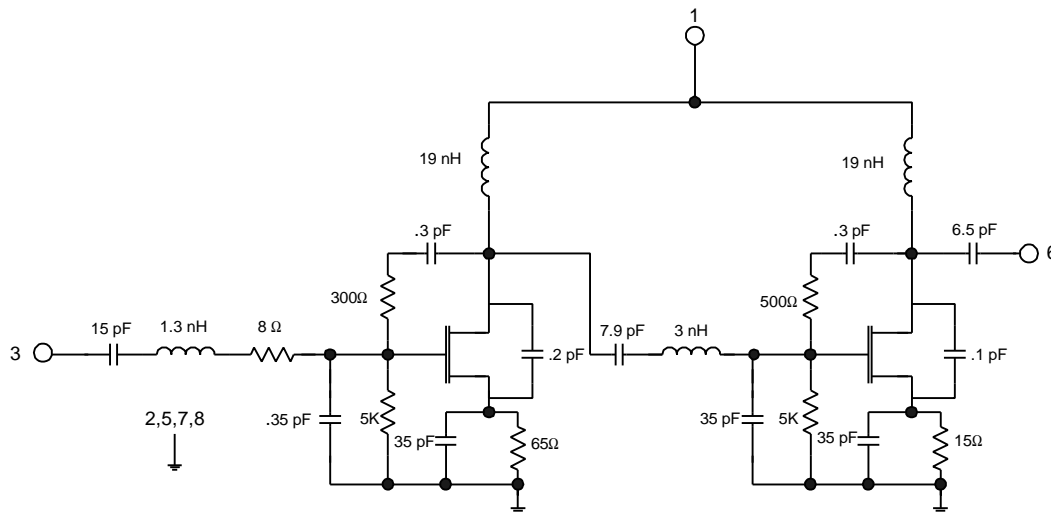
Package Pinout



Pin Descriptions

Pin Name	Pin #	Description and Usage
V _{DD}	1	Voltage from desired power supply. Decoupling is required. Decouple with a 0.01 μF capacitor within 5 mm of package.
IN	3	RF Input. Internally DC blocked and matched to 50 ohms. Connect directly to any 50 ohm source with 50 ohm printed microstrip line.
OUT	6	RF Output. Internally DC blocked and matched to 50 ohms. Connect directly to any 50 ohm source with 50 ohm printed microstrip line.
GND	2,4,5,7,8	Ground connections. Connect immediately to ground plan for stability and performance. Pins are internally connected.

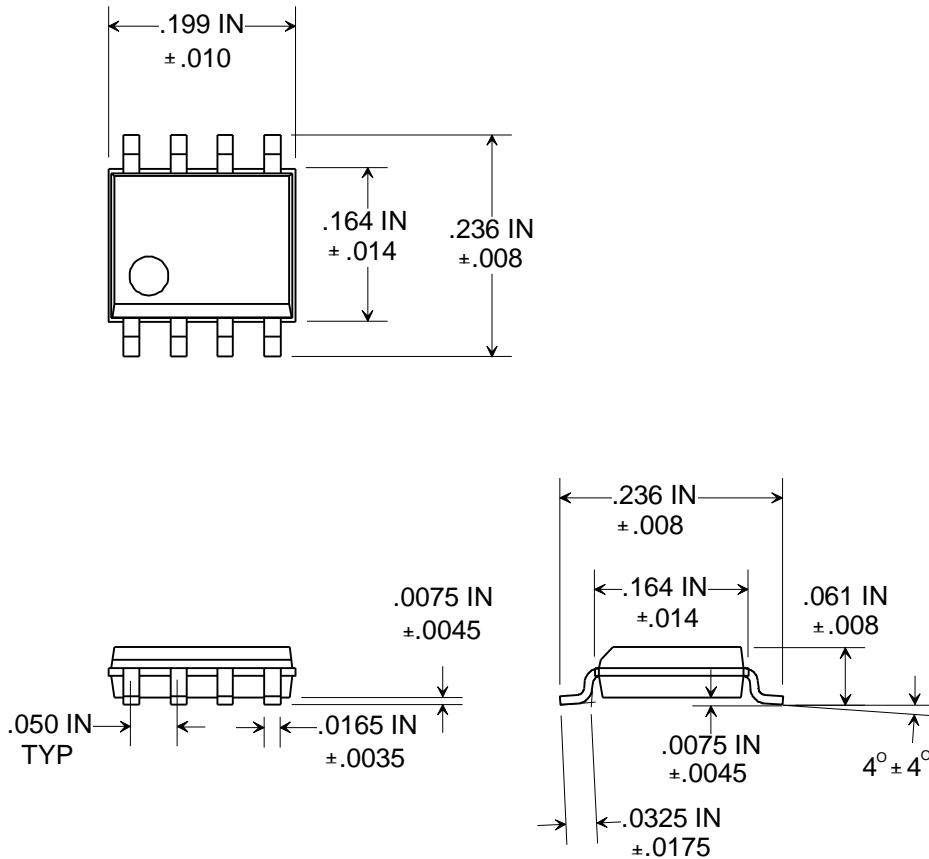
Simplified Schematic



TQ9132B

Data Sheet

Package Type: SO-8 Plastic Package



Additional Information

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Revision B, January 7, 1999



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