TBQ-3017

14.0 to 14.5 GHz MMIC

Power Amplifier for VSAT Applications

Features

- +27 dB Output Power at 1 dB Gain Compression
- 24 dB Minimum Small Signal Gain
- 6 dB Typical Noise Figure
- Thermally Efficient Copper-Tungsten Package

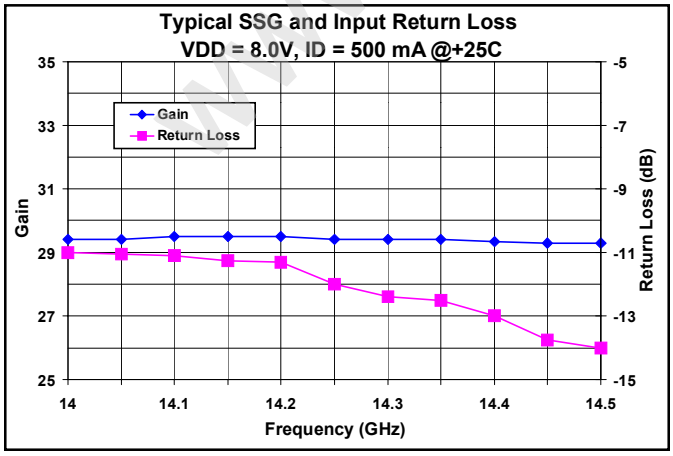
Product Description

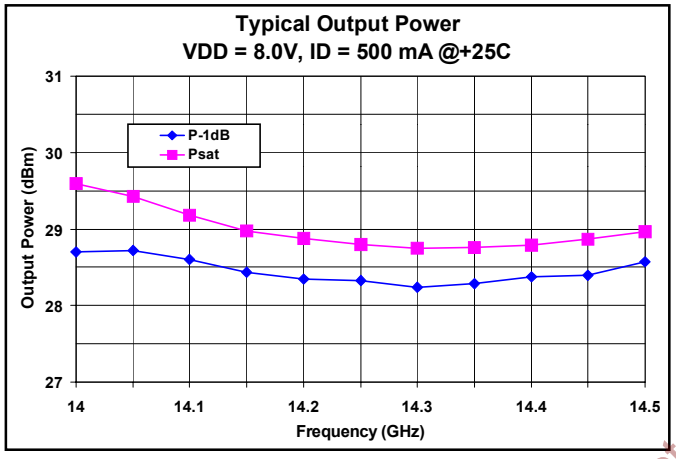
The TBQ-3017 is a three stage PHEMT GaAs MMIC amplifier that is ideally suited for Ku-Band VSAT applications. The amplifier provides a minimum of 24 dB gain and delivers 27 dBm output power from 14.0 to 14.5 GHz. The small package provides a simple, cost effective solution to customized designs. The base material is gold plated copper-tungsten to provide excellent thermal dissipation.

Electrical Specifications (T = + 25°C, V_d = 8V, V_g = -0.1V to -1.5V, I_d = 500mA)

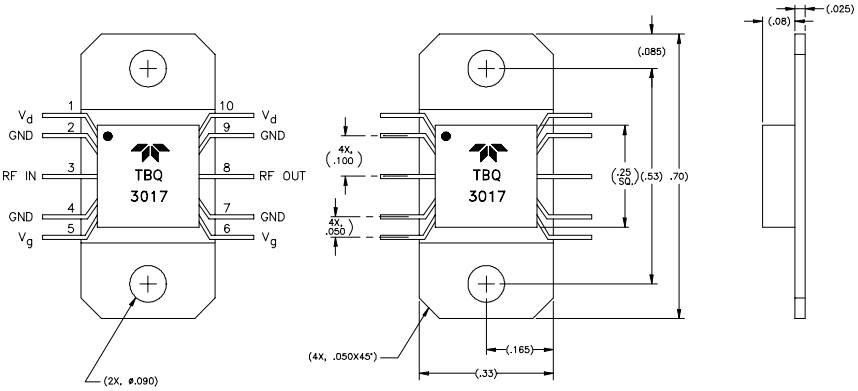
Parameter	Symbol	Min	Max	Typical	Units
Operating Frequency	F_{OP}	14	14.5	-	GHz
Gain	S_{21}	24	-	29	dB
Input VSWR	VSWR	-	-	3:1	-
Output VSWR	VSWR	-	-	3:1	-
Output Power at 1 dB Gain Compression*	P_{-1dB}	27	-	28	dBm
Third Order Intercept	IP3	-	-	35	dBm
Noise Figure	NF	-	-	6	dB
Gain Variation Over Operating Frequency	ΔS_{21}	-	-	2	dB
Gain Variation at any Frequency over Temperature	ΔS_{21}	-	-	-0.05	dB/ °C

* I_d = 500mA, typical

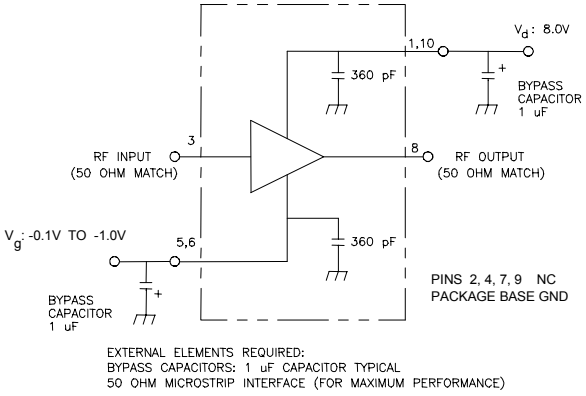




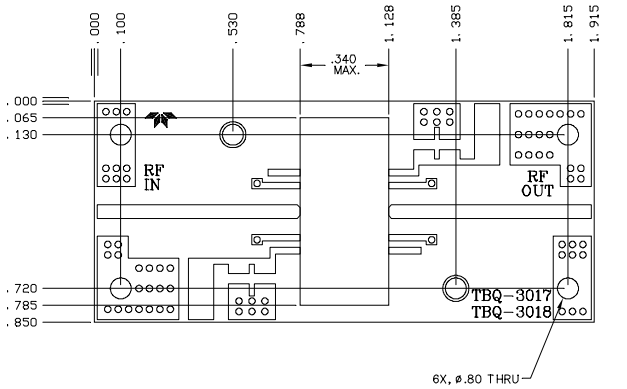
Package Outline



Typical Biasing Configuration



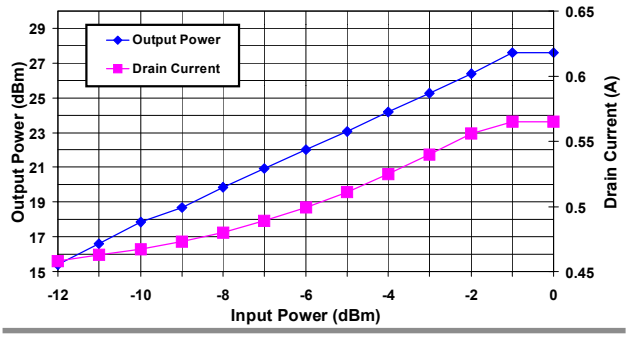
Evaluation Board



Notes

1. Dual bias supply required.
2. DC supply sequencing or protection circuitry not included. See Amplifier Biasing Procedure
3. A 360 pF DC supply line decoupling capacitor is included on both V_d and V_g lines. (See typical biasing configuration shown above).
4. The last fixture or circuit should incorporate additional bypass capacity (25ufd) on the drain and gate bias terminals to prevent oscillations caused by feedback signals.
5. Supply (drain and gate) wire/leads should be as short as possible.
6. Close placement of external components to the power amplifier is essential for stability purposes.
7. TET recommends the unit be soldered to DC and RF ground for best results.
8. Pin numbers indicated on outline drawing are for user information only. Units are not labeled with pin numbers.
9. MASK drawing for circuit board available on the Teledyne Wireless website at www.teledynewireless.com.

Power Transfer Curve and Drain Current at 14.25 GHz
Biased at Vd = 8V and Vg = -0.2V (typical)



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