

Features

- Guaranteed performance @ 960-1215MHz, 36Vdc .
- Output power: 30W peak
- Minimum gain: 9.0dB min., 9.5dB typ.
- 100% tested for load mismatch at all phase angles with 10:1 VSWR
- Hermetically sealed, industry standard package
- Silicon nitride passivated
- Gold metallized, emitter ballasted for long life and resistance to metal migration
- Internal input matching for broadband operation

Description and Applications

Designed for 960–1215 MHz long or short pulse common base amplifier applications such as JTIDS and Mode-S transmitters.

Maximum Ratings

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V _{CES}	55	Vdc
Collector-Base Voltage (1)	V _{CBO}	55	Vdc
Emitter-Base Voltage	V _{EBO}	3.5	Vdc
Collector Current — Continuous (1)	I _C	3.0	Adc
Total Device Dissipation @ T _C = 25°C (1), (2) Derate above 25°C	PD	110 0.625	Watts mW/°C
Storage Temperature Range	T _{stg}	- 65 to + 200	°C
Junction Temperature	TJ	200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Мах	Unit
Thermal Resistance, Junction to Case (3)		1.6	°C/W

NOTES:

1. Under pulse RF operating conditions.

Commitment to produce in volume is not guaranteed.

2. These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as pulsed RF amplifiers.

3. Thermal Resistance is determined under specified RF operating conditions by infrared measurement techniques. (Worst case θ_{JC} value measured @ 23% duty cycle)

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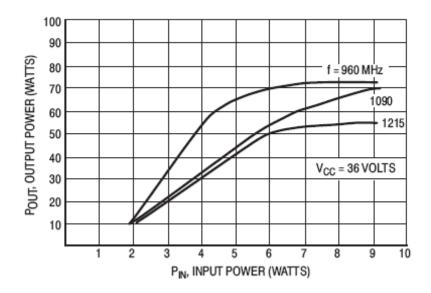
CASE 332A-03, STYLE 2

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Тур	Max	Unit	
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I _C = 25 mAdc, V _{BE} = 0)	V _{(BR)CES}	55	_	_	Vdc	
Collector–Base Breakdown Voltage (I _C = 25 mAdc, I _E = 0)	V _{(BR)CBO}	55	—	_	Vdc	
Emitter–Base Breakdown Voltage (I _E = 5.0 mAdc, I _C = 0)	V _{(BR)EBO}	3.5	_	_	Vdc	
Collector Cutoff Current (V _{CB} = 36 Vdc, I _E = 0)	I _{CBO}	_	_	2.0	mAdc	
ON CHARACTERISTICS						
DC Current Gain (I _C = 500 mAdc, V _{CE} = 5.0 Vdc)	h _{FE}	20	—	—	—	
FUNCTIONAL TESTS (10 μs Pulses @ 50% duty cycle for 3.5 ms; overall duty cycle – 25%)						
Common–Base Amplifier Power Gain (V _{CC} = 36 Vdc, P _{out} = 30 W Peak, f = 960 MHz)	G _{PB}	9.0	9.5	—	dB	
Collector Efficiency (V _{CC} = 36 Vdc, P _{out} = 30 W Peak, f = 960 MHz)	η	40	45	_	%	
Load Mismatch (V _{CC} = 36 Vdc, P _{out} = 30 W Peak, f = 960 MHz, VSWR = 10:1 All Phase Angles)	Ψ	No Degradation in Output Power				



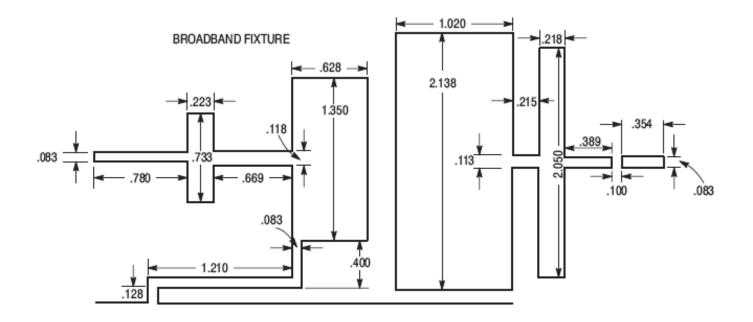
Output power versus input power

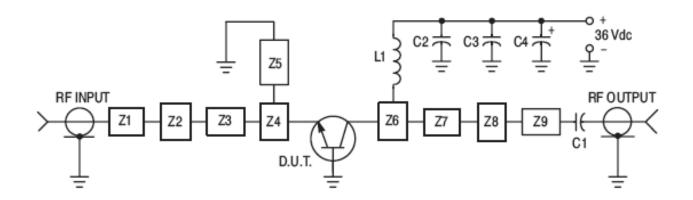
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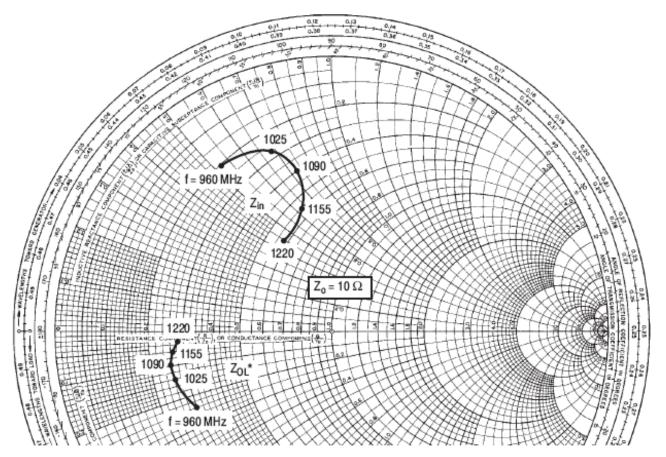
- C1 75 pF 100 Mil Chip Capacitor C2 — 39 pF 100 Mil Chip Capacitor C3 — 0.1 μ F C4 — 1000 μ F, 50 Vdc, Electrolytic
- L1 3 Turns #18 AWG, 1/8" ID, 0.18 Long

 $\begin{array}{l} \text{Z1-Z9} & --\text{Microstrip, See Details} \\ \text{Board Material} & --\text{Teflon, Glass Laminate} \\ \text{Dielectric Thickness} = 0.030'' \\ \epsilon_r = 2.55, 2 \text{ Oz. Copper} \end{array}$

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Pout = 30 W Pk V_{CC} = 36 V

f MHz	Zin Ohms	Z _{OL} * Ohms
960	2.05 + j5.2	2.9 - j2.35
1025	2.67 + j6.34	2.55 - j1.3
1090	4.0 + j7.1	2.52 - j0.9
1155	5.5 + j6.2	2.6 - j0.6
1220	5.7 + j4.3	2.8 – j0.3

Z_{OL}* = Conjugate of the optimum load impedance into which the device operates at a given output power, voltage, and frequency.

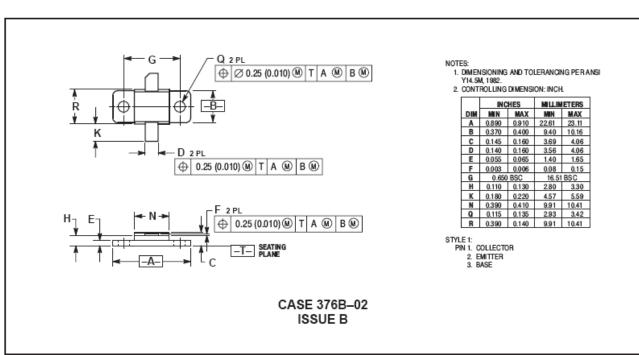
Series equivalent input/output impedances

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PACKAGE DIMENSIONS

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