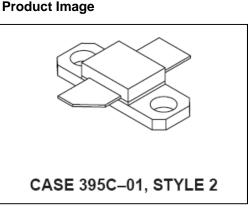


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Designed for 28 V microwave large–signal, common base, Class C, CW amplifier applications in the range 1600 – 1640 MHz.

- Specified 28 V, 1.6 GHz Class C characteristics Output power = 6 W Minimum gain = 7.4 dB, @ 6 W Minimum efficiency = 40% @ 6 W
- Characterized with series equivalent large–signal parameters from 1500 MHz to 1700 MHz
- Silicon nitride passivated
- Gold metalized, emitter ballasted for long life and resistance to metal migration



#### MAXIMUM RATINGS (T<sub>J</sub> = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	VCES	60	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	4.0	Vdc
Collector-Current	I <sub>C</sub>	1.0	Adc
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	PD	26 0.15	Watts W/∘C
Storage Temperature Range	T <sub>stg</sub>	-65 to +150	°C

#### THERMAL CHARACTERISTICS

(1) Thermal measurement performed using CW RF operating condition.

(2) Thermal resistance is determined under specified RF operating conditions by infrared measurement techniques.

1

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### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

	. *				
Characteristic	Symbol	Min	Тур	Мах	Unit
OFF CHARACTERISTICS	•	•	•		•
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 40 mAdc, V <sub>BE</sub> = 0)	V <sub>(BR)CES</sub>	55	_	_	Vdc
Collector–Base Breakdown Voltage (I <sub>C</sub> = 40 mAdc, I <sub>E</sub> = 0)	V <sub>(BR)</sub> CBO	55	_	_	Vdc
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 2.5 mAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	4.0	_	_	Vdc
Collector Cutoff Current (VCE = 28 Vdc, V <sub>BE</sub> = 0)	I <sub>CES</sub>	_	_	2.5	mAdc
ON CHARACTERISTICS	·				
DC Current Gain (I <sub>CE</sub> = 0.2 Adc, V <sub>CE</sub> = 5.0 Vdc)	h <sub>FE</sub>	20	_	80	-
DYNAMIC CHARACTERISTICS					
Output Capacitance (V <sub>CB</sub> = 28 Vdc, f = 1.0 MHz)	C <sub>ob</sub>	11	_	_	pf
FUNCTIONAL TESTS			1		•
Common–Base Amplifier Power Gain (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 6 Watts, f = 1600/1640 MHz)	G <sub>pe</sub>	7.4	_	_	dB
Collector Efficiency (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 6 Watts, f = 1600/1640 MHz)	η	40	45	_	%
Return Loss (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 6 Watts, f = 1600/1640 MHz)	I <sub>RL</sub>	_	8.0	_	dB
Output Mismatch Stress (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 6 Watts, f = 1600 MHz, Load VSWR = 3:1 all phase angles at frequency of test)	Ψ	No E	)egradation in	Output Pow	er

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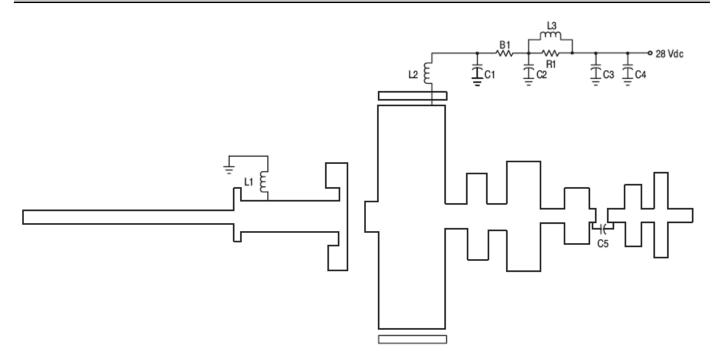
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### The RF Line NPN Silicon Power Transistor 6.0W, 1.6GHz, 28V

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Board Material - Teflon® Glass Laminate Dielectric Thickness - 0.30", ε<sub>r</sub> = 2.55", 2.0 oz. Copper

B1	Fair Rite Bead on #24 Wire	C4	47 μF, 50 V, Electrolytic Cap
C1, C5	100 pF, B Case, ATC Chip Cap	L1, L2	3 Turns, #18, 0.133" ID, 0.15" Long
C2	0.1 μF, Dipped Mica Cap	L3	9 Turns, #24 Enamel
C3	0.1 μF, Chip Cap	R1	82 Ω, 1.0 W, Carbon Resistor



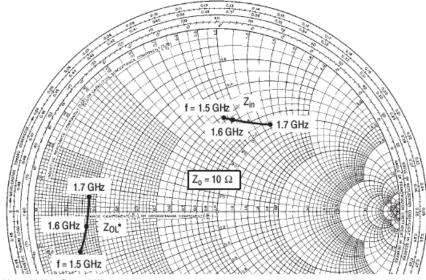
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V<sub>CC</sub> = 28 Vdc, P<sub>out</sub> = 6 W

f MHz	Z <sub>in</sub> Ohms	Z <sub>OL</sub> * Ohms
1500	6.28 + j 8.53	1.22 – j 1.37
1600	7.04 + j 9.00	1.58 – j 0.53
1700	9.55 + j 12.86	1.71 + j 0.39

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

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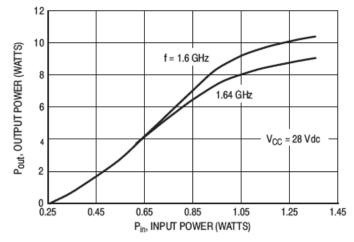


Figure 3. Output Power versus Input Power

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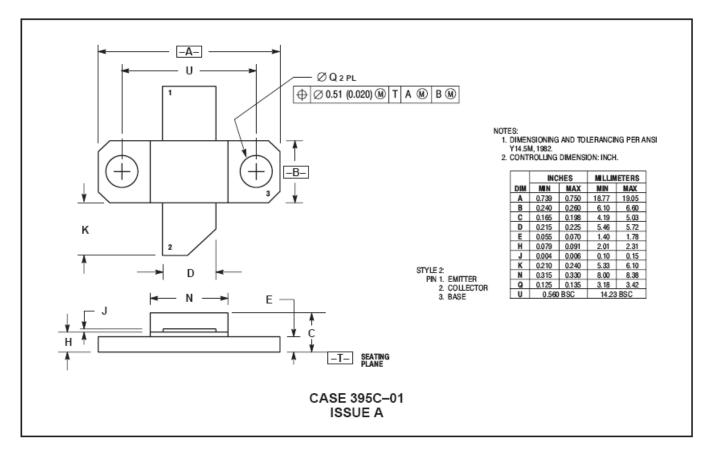
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PACKAGE DIMENSIONS



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