

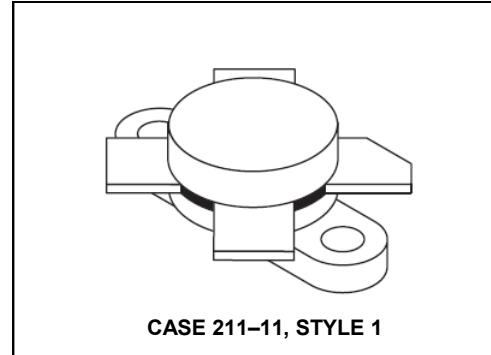
The RF Line NPN Silicon Power Transistor

150W(PEP), 30MHz, 28V

Rev. V1

Designed primarily for applications as a high-power linear amplifier from 2.0 to 30 MHz.

- Specified 28 V, 30 MHz characteristics —
Output power = 150 W (PEP)
Minimum gain = 10 dB
Efficiency = 40%
- Intermodulation distortion @ 150 W (PEP) —IMD = -30 dB (min.)
- 100% tested for load mismatch at all phase angles with 30:1 VSWR



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CBO}	85	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	20	Adc
Withstanding Current — 10 s	—	30	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	290 1.66	Watts W/ $^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.6	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
—	—	—	—	—	—

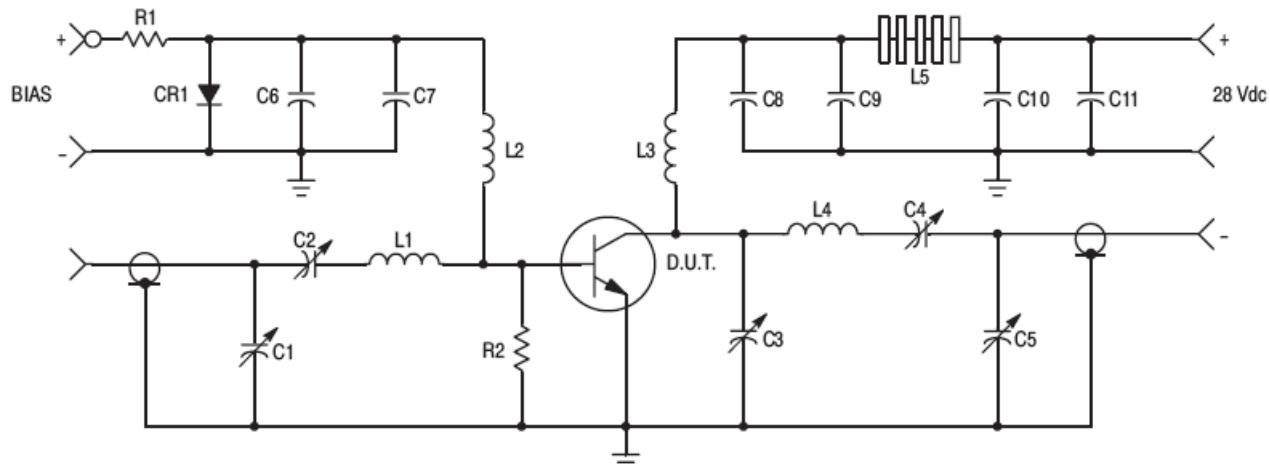
OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 200 \text{ mA}\text{dc}$, $I_B = 0$)	$V_{(BR)CEO}$	35	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 100 \text{ mA}\text{dc}$, $V_{BE} = 0$)	$V_{(BR)CES}$	85	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \text{ mA}\text{dc}$, $I_E = 0$)	$V_{(BR)CBO}$	85	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \text{ mA}\text{dc}$, $I_C = 0$)	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 28 \text{ Vdc}$, $V_{BE} = 0$, $T_C = 25^\circ\text{C}$)	I_{CES}	—	—	20	mAdc

(continued)

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Rev. V1



C1, C2, C3, C5 — 170–680 pF, ARCO 469
 C4 — 80–480 pF, ARCO 466
 C6, C8, C11 — ERIE 0.1 μ F, 100 V
 C7 — MALLORY 500 μ F, 15 V Electrolytic
 C9 — UNDERWOOD 1000 pF, 350 V
 C10 — 10 μ F, 50 V Electrolytic
 R1 — 10 Ω , 25 Watt Wire Wound
 R2 — 10 Ω , 1.0 Watt Carbon
 CR1 — 1N4997

L1 — 3 Turns, #16 Wire, 5/16" I.D., 5/16" Long
 L2 — 10 μ H Molded Choke
 L3 — 12 Turns, #16 Enamelled Wire, Close Wound, 1/4" Dia.
 L4 — 5 Turns, 1/8" Copper Tubing
 L5 — 10 Ferrite Beads — FERROXCUBE #56-590-65/3B

Figure 1. 30 MHz Test Circuit Schematic

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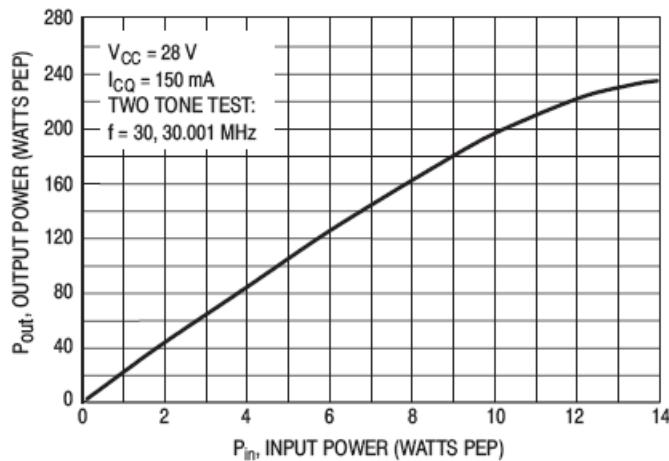


Figure 2. Output Power versus Input Power

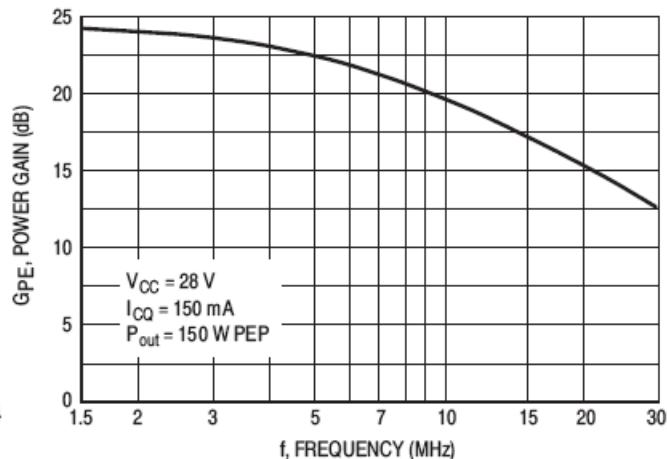


Figure 3. Power Gain versus Frequency

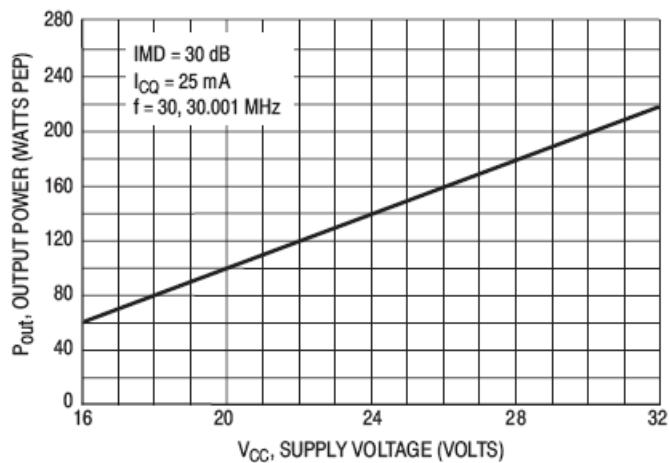


Figure 4. Linear Output Power versus Supply Voltage

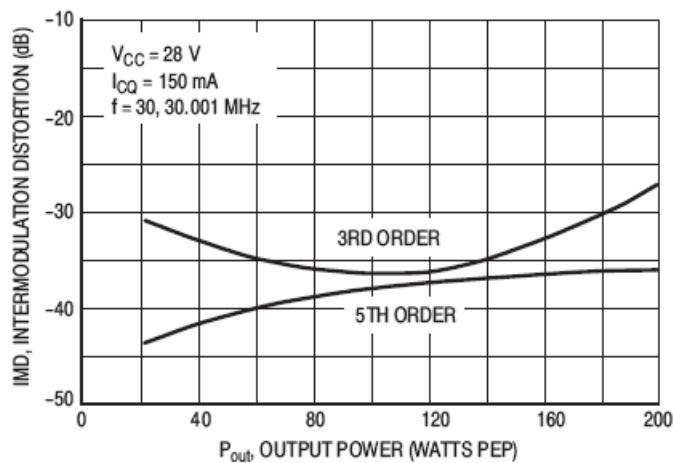


Figure 5. Intermodulation Distortion versus Output Power

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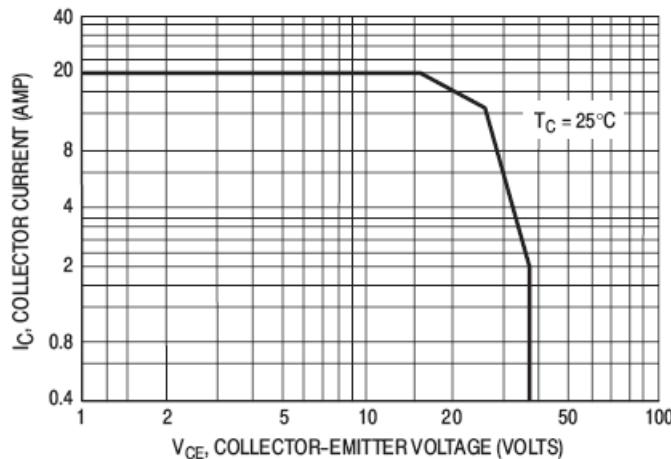


Figure 6. DC Safe Operating Area

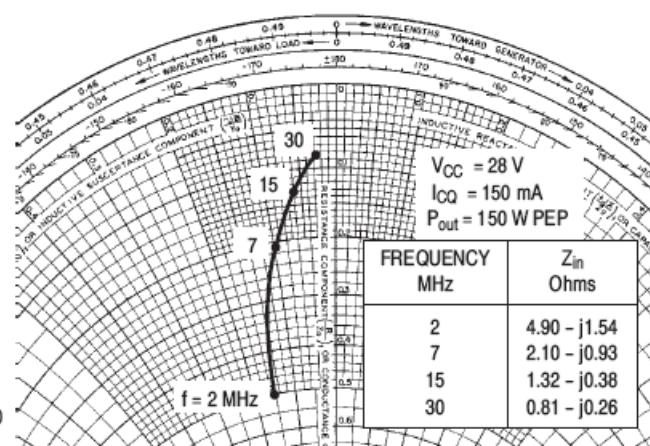


Figure 7. Series Input Impedance

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Rev. V1

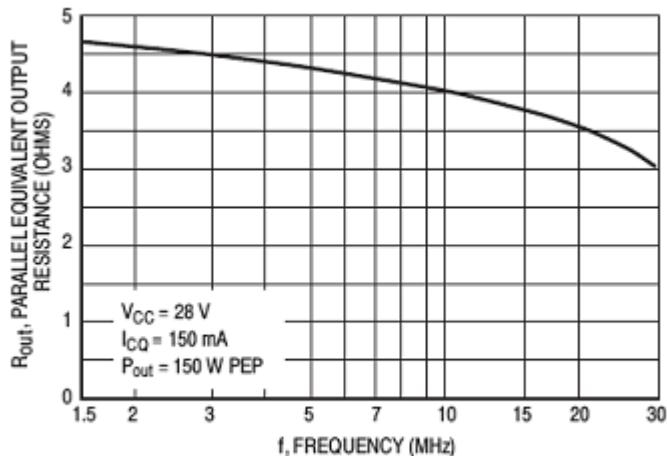


Figure 8. Output Resistance versus Frequency

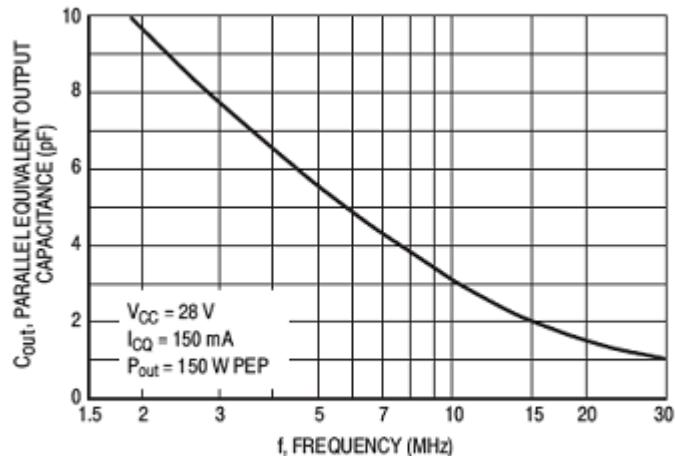
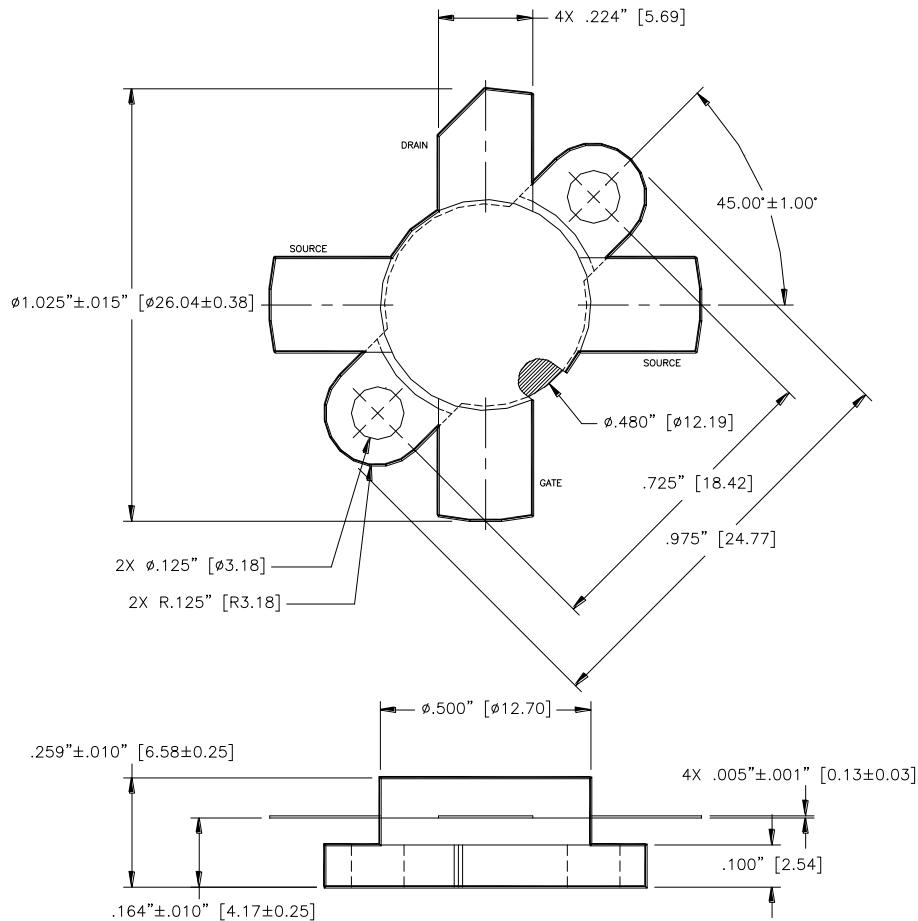


Figure 9. Output Capacitance versus Frequency



Unless otherwise noted, tolerances are inches $\pm .005"$ [millimeters ± 0.13 mm]

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