

PT9790

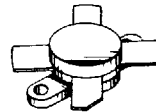
The RF Line
SSB Power Transistor

... designed primarily for wideband, large-signal output and driver amplifier stages in the 2 to 30 MHz frequency range.

- Designed for Class A, AB or C Power Amplifiers
- Specified 50 Volt, 28 MHz Characteristics:
 - Output Power — 150 Watts PEP
 - Power Gain — 15 dB Min, Class AB
- 100% Tested for Load Mismatch at all Phase Angles with $\infty:1$ VSWR
- Gold Metallization for Improved Reliability
- Diffused Ballast Resistors

2-30 MHz
 150 WATTS PEP
 50 VOLTS
 SSB POWER
 TRANSISTOR
 NPN SILICON

2



CASE 211-11, STYLE 1
 (.500 SOE F)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	55	Vdc
Collector-Base Voltage	V _{CBO}	110	Vdc
Emitter-Base Voltage	V _{EBO}	4	Vdc
Collector Current — Continuous	I _C	15	Adc
Total Device Dissipation (at T _C = 25°C Derate above 25°C)	P _D	300 2	Watts W/°C
Operating Junction Temperature	T _J	200	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R _{θJC}	0.5	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (I _C = 50 mA, I _B = 0)	V _{(BR)CEO}	55	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 100 mA, I _E = 0)	V _{(BR)CBO}	110	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 5 mA, I _C = 0)	V _{(BR)EBO}	4	—	—	Vdc

ON CHARACTERISTICS

DC Current Gain (I _C = 1 A, V _{CE} = 5 V)	h _{FE}	10	—	60	—
---	-----------------	----	---	----	---

DYNAMIC CHARACTERISTICS

Output Capacitance (V _{CB} = 28 V, I _E = 0, f = 1 MHz)	C _{ob}	—	200	—	pF
--	-----------------	---	-----	---	----

(continued)

ELECTRICAL CHARACTERISTICS — continued

Characteristic	Symbol	Min	Typ	Max	Unit
FUNCTIONAL TESTS					
Common-Emitter Amplifier Power Gain ($V_{CE} = 50\text{ V}$, $P_{out} = 150\text{ W PEP}$, $f = 28\text{ MHz}$, $I_{CQ} = 50\text{ mA}$)	GPE	15	—	—	dB
Load Mismatch ($V_{CE} = 50\text{ V}$, $I_Q = 50\text{ mA}$, $P_{out} = 150\text{ W PEP}$, $f = 28\text{ MHz}$, Load VSWR = $\infty:1$, All Phase Angles)	ψ	No Degradation in Output Power			
Intermodulation Distortion ($V_{CE} = 50\text{ Vdc}$, $P_{out} = 150\text{ W PEP}$, $I_{CQ} = 50\text{ mA}$, $f = 28\text{ MHz}$)	IMD	—	—	-32	dB

TYPICAL CHARACTERISTICS

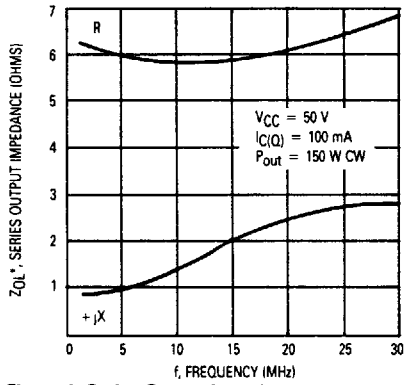


Figure 1. Series Output Impedance versus Frequency

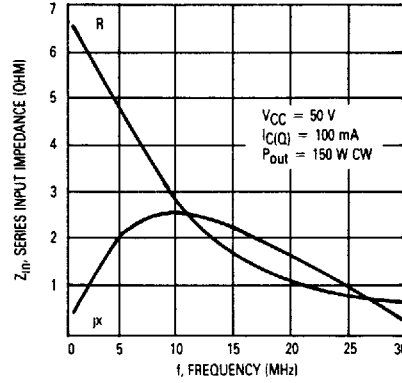


Figure 2. Series Input Impedance versus Frequency

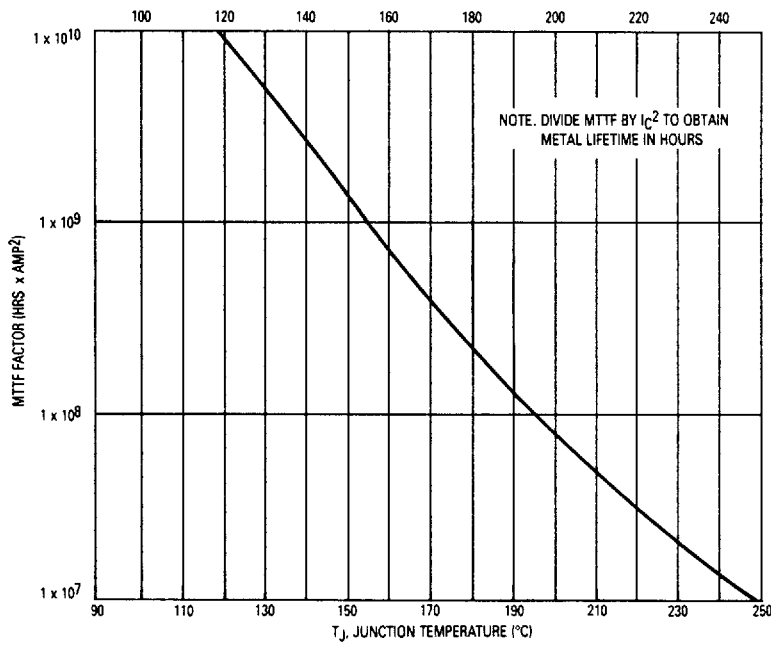
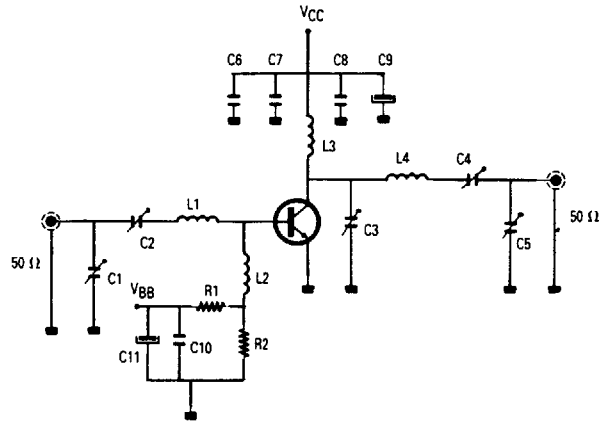


Figure 3. MTTF Factor versus Junction Temperature



- C1, C5 — 170–780 pF, ARCO 469 Trimmer capacitor
- C2, C4 — 80–480 pF, ARCO 466 Trimmer capacitor
- C3 — 55–300 pF, ARCO 427 Trimmer capacitor
- C6 — 1000 pF Mica Capacitor UNELCO
- C7 — 10 μ F Ceramic Disc
- C8, C10 — 0.1 μ F Ceramic Disc
- C9, C11 — 470 μ F 63 V Electrolytic

- L1 — 5 turns 15/10 mm Silvered wire, 10 mm ID, 25 mm length
- L2 — 10 turns 8/10 mm Enameled wire, 10 mm ID
- L3 — 4 turns 12/10 mm Enameled wire, 10 mm ID, 10 mm length
- L4 — 7 turns 15/10 mm Enameled wire, 10 mm ID, 20 mm length

- R1 — 1 Ω , 2 W
- R2 — 2.7 Ω , 2 W

Figure 4. 28 MHz Test Circuit