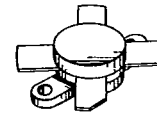


MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA
PT9785
The RF Line
SSB Power Transistor

... 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 13.5 Volt, 28 MHz Characteristics:
Output Power — 100 Watts PEP
Power Gain — 13 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

13 dB
2-30 MHz
100 WATTS PEP
13.5 VOLTS
SSB POWER
TRANSISTOR



.500 SOE F
CASE 211-11, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	20	Vdc
Collector-Base Voltage	V_{CBO}	40	Vdc
Emitter-Base Voltage	V_{EBO}	4	Vdc
Collector Current — Continuous	I_C	25	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2	Watts W/ $^\circ\text{C}$
Operating Junction Temperature	T_J	200	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Base Breakdown Voltage ($I_C = 100\text{ mA}$, $I_E = 0$)	$V_{(BR)CBO}$	40	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10\text{ mA}$, $I_C = 0$)	$V_{(BR)EBO}$	4	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 13.5\text{ V}$, $V_{BE} = 0$)	I_{CES}	—	—	20	mAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 2\text{ A}$, $V_{CE} = 5\text{ V}$)	h_{FE}	20	—	100	—
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FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ($V_{CE} = 13.5\text{ V}$, $P_{out} = 100\text{ W PEP}$, $f = 28\text{ MHz}$)	G_{PE}	13	—	—	dB
Load Mismatch ($V_{CE} = 13.5\text{ V}$, $P_{out} = 100\text{ W PEP}$, $f = 28\text{ MHz}$, Load VSWR = $\infty:1$, All Phase Angles)	ψ	No Degradation in Output Power			
Intermodulation Distortion ($V_{CE} = 12.5\text{ Vdc}$, $P_{out} = 100\text{ W PEP}$, $f = 28\text{ MHz}$)	IMD	—	-32	—	dB

TYPICAL CHARACTERISTICS

T-33-15

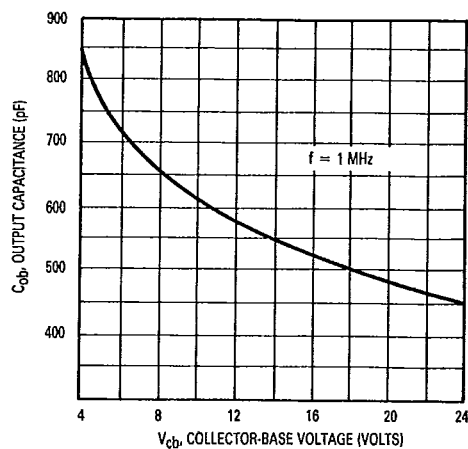
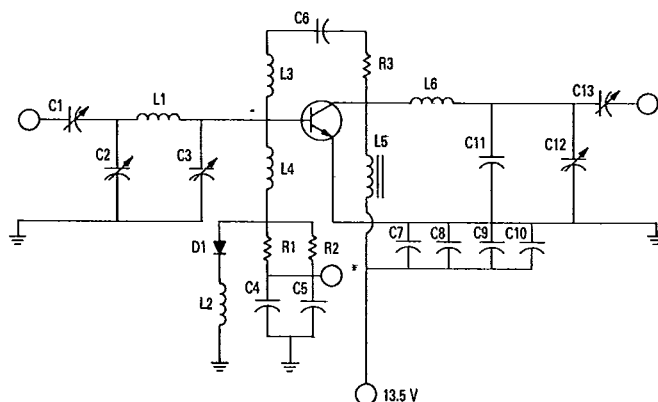


Figure 1. Output Capacitance versus Voltage



C1 — 425 ARCO
 C2 — 467 ARCO
 C3 — 489 ARCO
 C4 — 0.1 μ F
 C5, C6 — 5 μ F
 C7, C8 — 0.1 μ F
 C9 — 100 μ F
 C10 — 1000 pF UNELCO
 C11 — 100 pF UNELCO
 C12 — 468 ARCO
 C13 — 427 ARCO

*Note: Set voltage for 100 mA idle collector current.

L1 — 4 T., #16 AWG, 7/16" ID, 3/4" Long with
 5/8" long lead on base side.
 L2 — 0.33 μ H Delevan
 L3 — 10 μ H Delevan
 L4 — 1 μ H Delevan
 L5 — 4 T., #20 wire wound on 2 Stackpole
 Carbon Co. Ferrite #9500 DO A723-1838.
 L6 — 4 T., #10 AWG, 1/2" ID, 1" long.
 D1 — Power diode
 R1, R2 — 2.7 Ohms
 R3 — 51 Ohms 2W

Figure 2. 28 MHz Test Circuit