

MITSUBISHI RF POWER MODULE M57796MA

144~148MHz, 12.5V, 5W FM PORTABLE RADIO

DESCRIPTION

M57796MA is a thick film RF power module specifically designed for 144 ~ 148MHz, 5W FM portable sets.

FEATURES

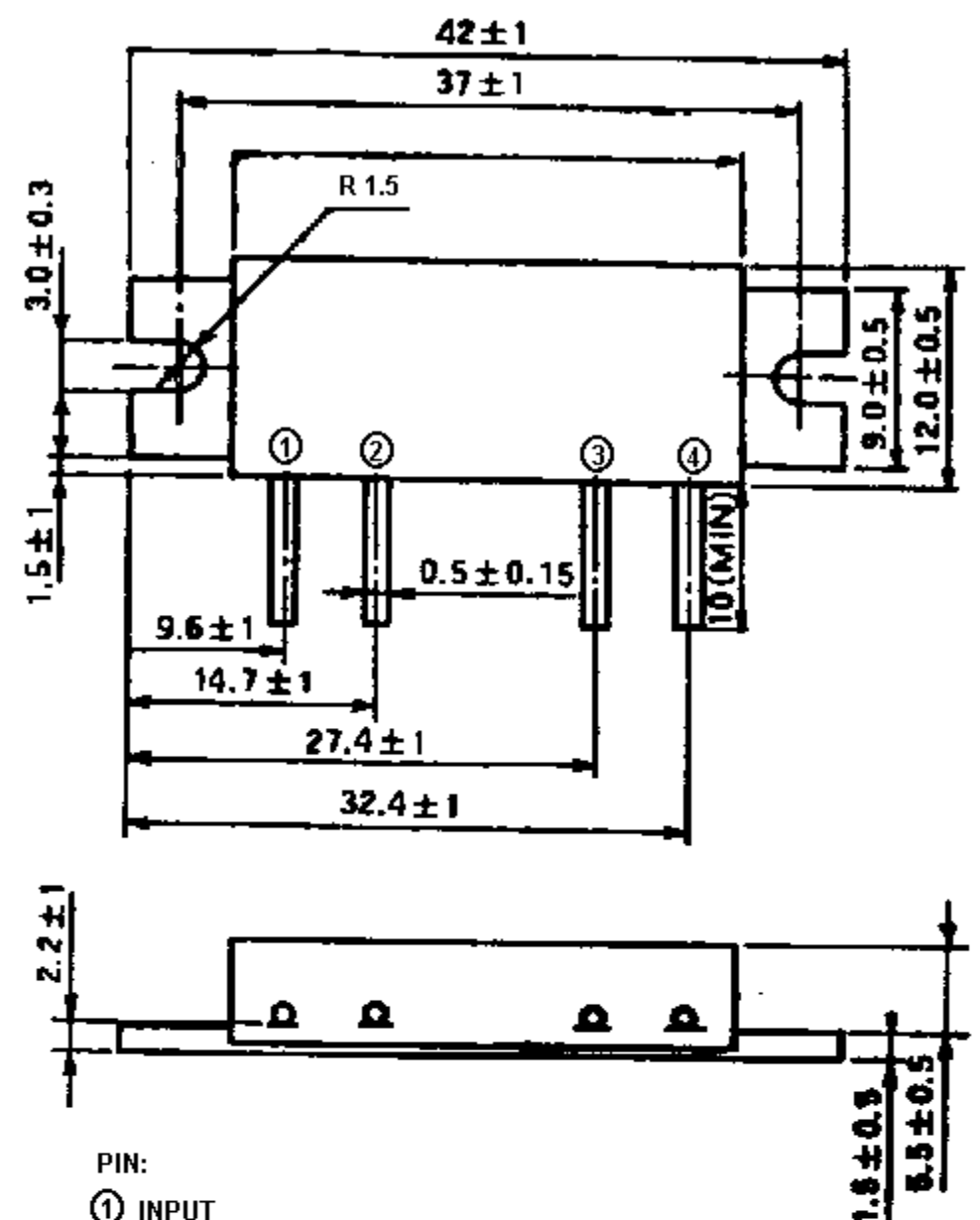
- High Gain, High Output RF Power and High Total Efficiency
 $G_p \geq 15\text{dB}$, $P_o \geq 7\text{W}$, $\eta_T \geq 50\%$ (55% Typ.)
 $@V_{CC} = 12.5\text{V}$, $V_{BB} = 5\text{V}$, $P_{in} = 200\text{mW}$
- Small Package: 42 x 12 x 5.5mm

APPLICATION

Output stage of 5W output power VHF band Portable sets.

OUTLINE DIAGRAM

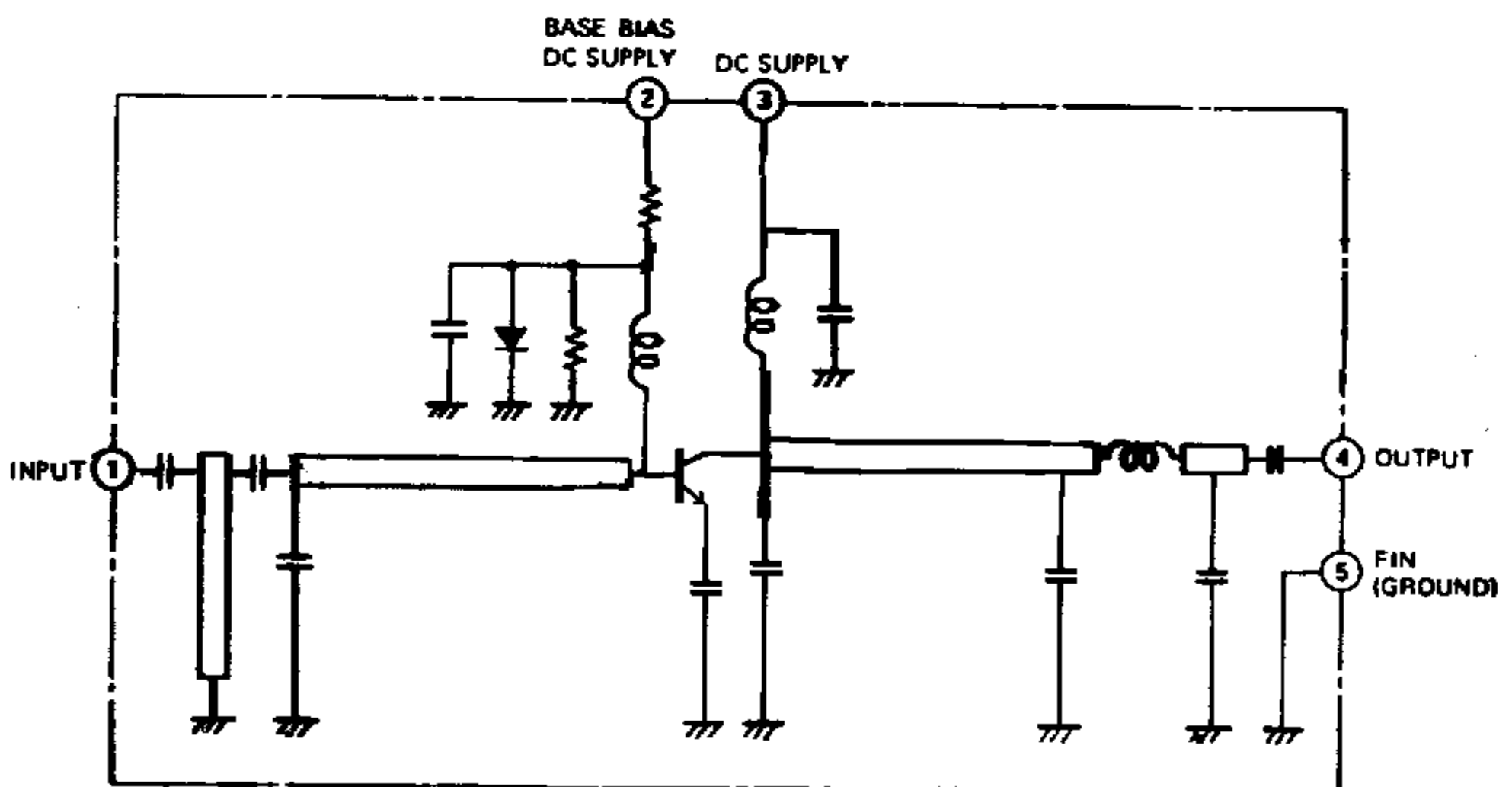
Dimensions in mm



PIN:

- ① INPUT
- ② BASE BIAS DC SUPPLY
- ③ DC SUPPLY
- ④ OUTPUT

EQUIVALENT CIRCUIT



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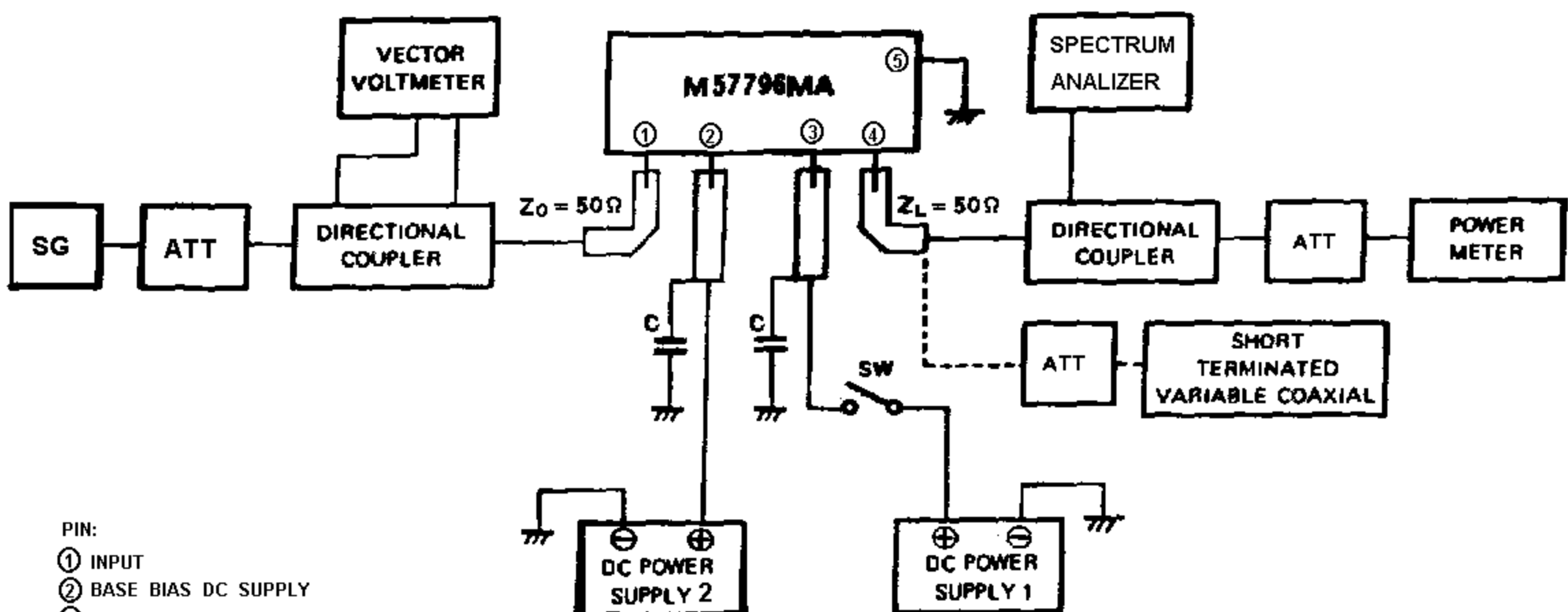
ABSOLUTE MAXIMUM RATINGS (Tc = 25 C unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
Vcc	Supply voltage		16	V
Vbb	Base bias voltage		6	V
Icc	Total current		3	A
Pin	Input power	$Z_0 = Z_L = 50 \Omega$	300	mW
Po	Output power	$Z_0 = Z_L = 50 \Omega$	10	W
Tc (op)	Operation case temperature		-30 ~ +110	°C
Tstg	Storage temperature		-40 ~ +110	°C

ELECTRICAL CHARACTERISTICS (Tc = 25 C unless otherwise noted)

Symbol	Parameter	Test condition	Limits			Unit
			Min	Typ	Max	
Po	Output power	Vcc = 12.5V, Vbb = 5V, f = 144 ~ 148MHz Pin = 200mW, $Z_0 = Z_L = 50 \Omega$	7	8		W
	Total efficiency		50	55		%
	2nd harmonic				-20	dB
	3rd harmonic				-30	dB
	Input VSWR				2.5	-
	Output VSWR			1.5		-
	Load VSWR tolerance	Vcc = 13.2V, Vbb = 5V, f = 144 ~ 148MHz Po = 7W, $\rho_L \geq 20$ (All phase) $Z_0 = 50 \Omega$				-

TEST BLOCK DIAGRAM



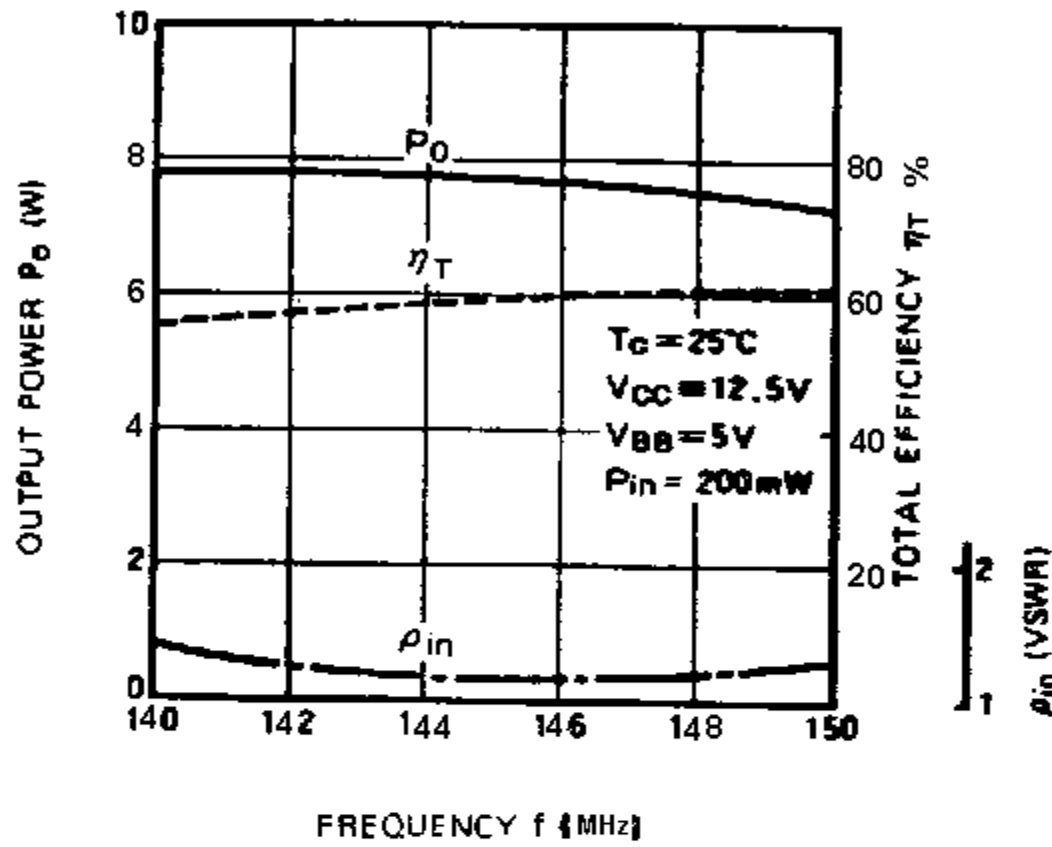
C: 4700, 22uF IN PARALLEL
BOARD MATERIAL
1.6mm THICK EPOXY-GLASS

MITSUBISHI RF POWER MODULE
M57796MA

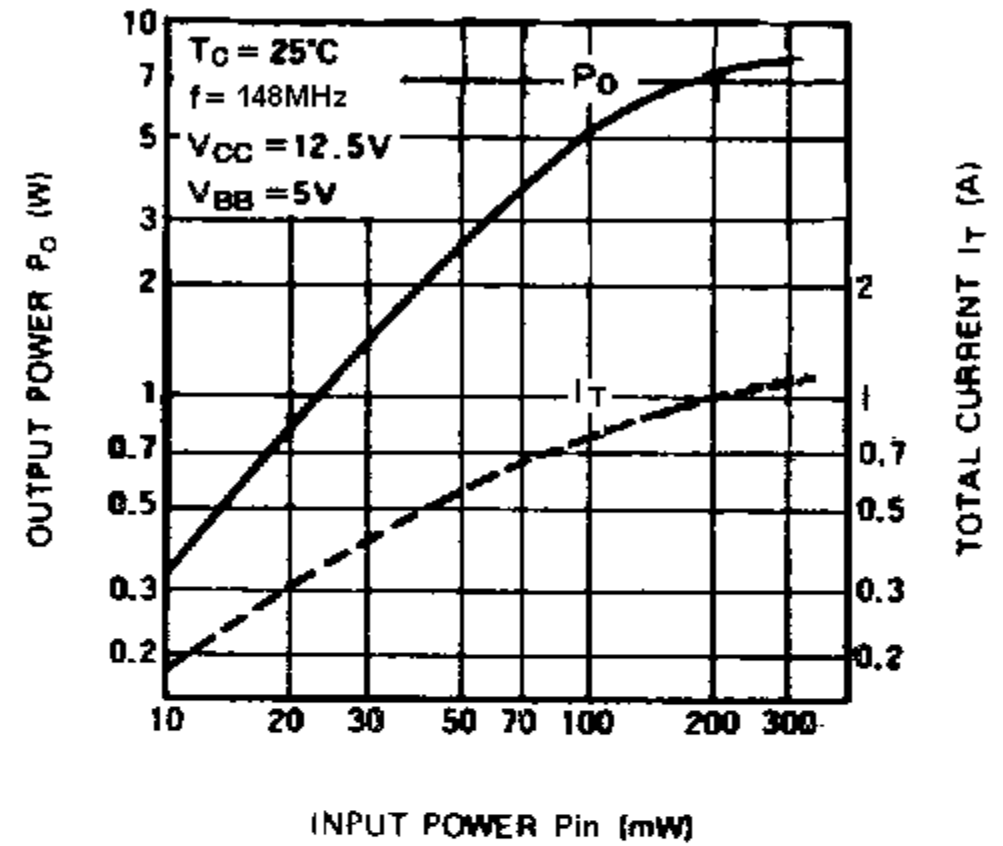
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TYPICAL PERFORMANCE DATA

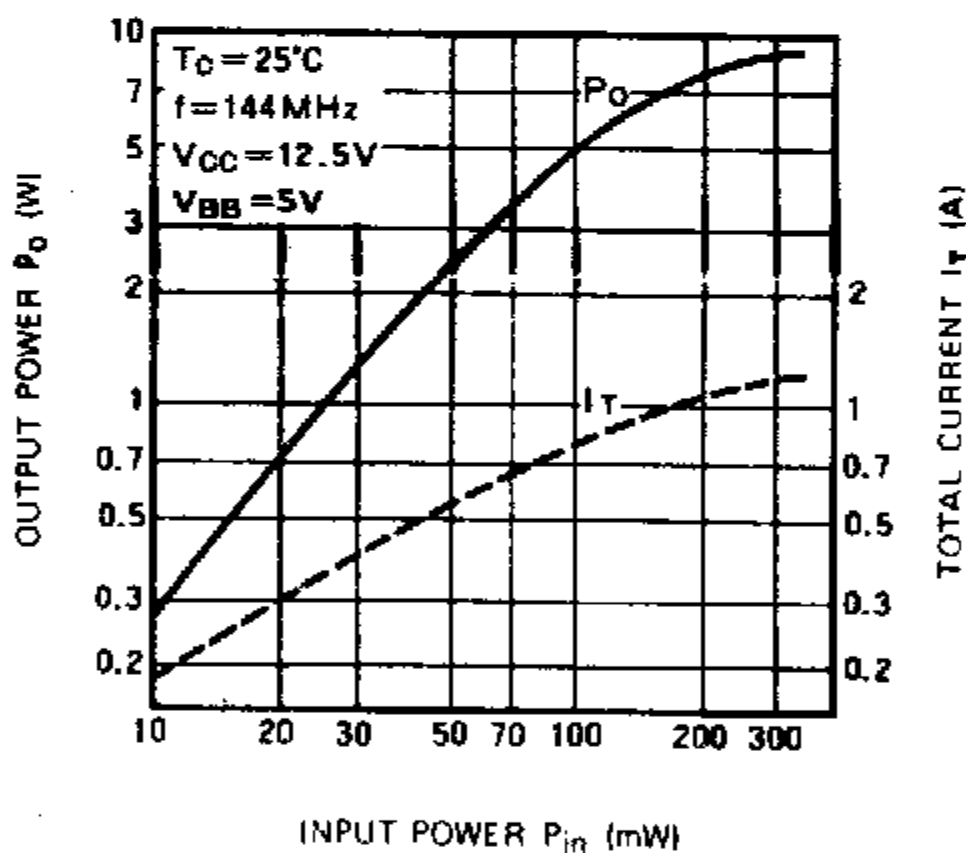
OUTPUT POWER, TOTAL EFFICIENCY, ρ_{in}
VS. FREQUENCY CHARACTERISTICS



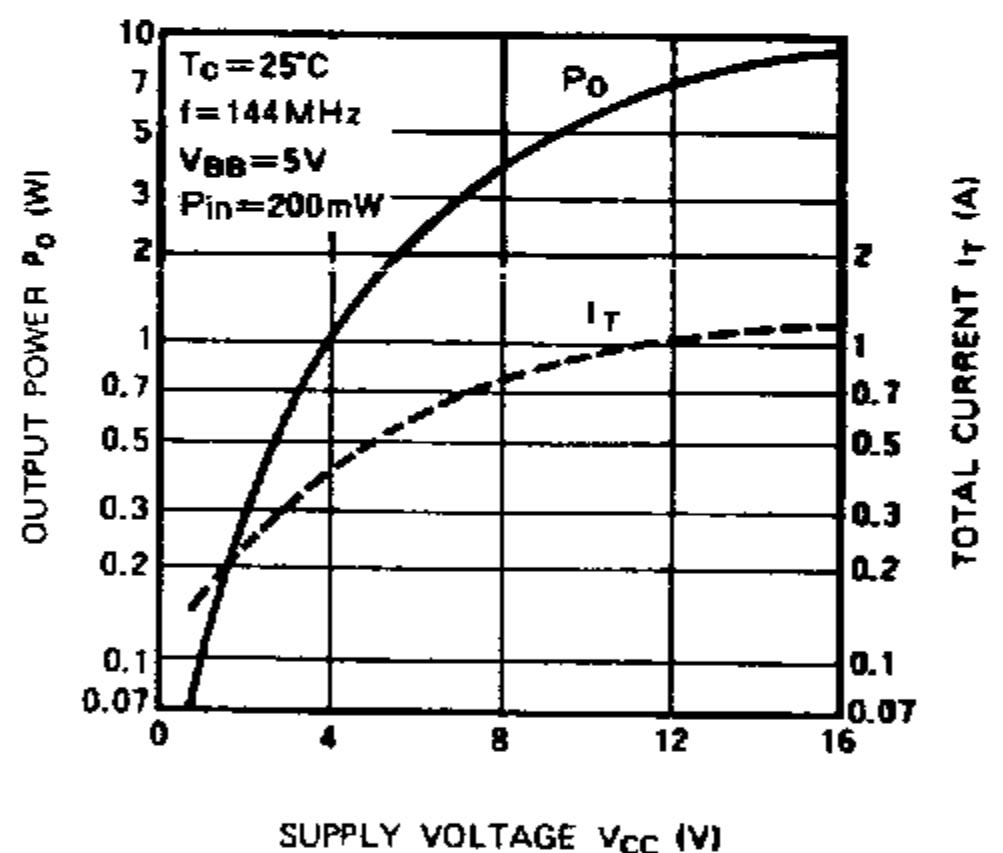
OUTPUT POWER, TOTAL CURRENT VS.
INPUT POWER CHARACTERISTICS



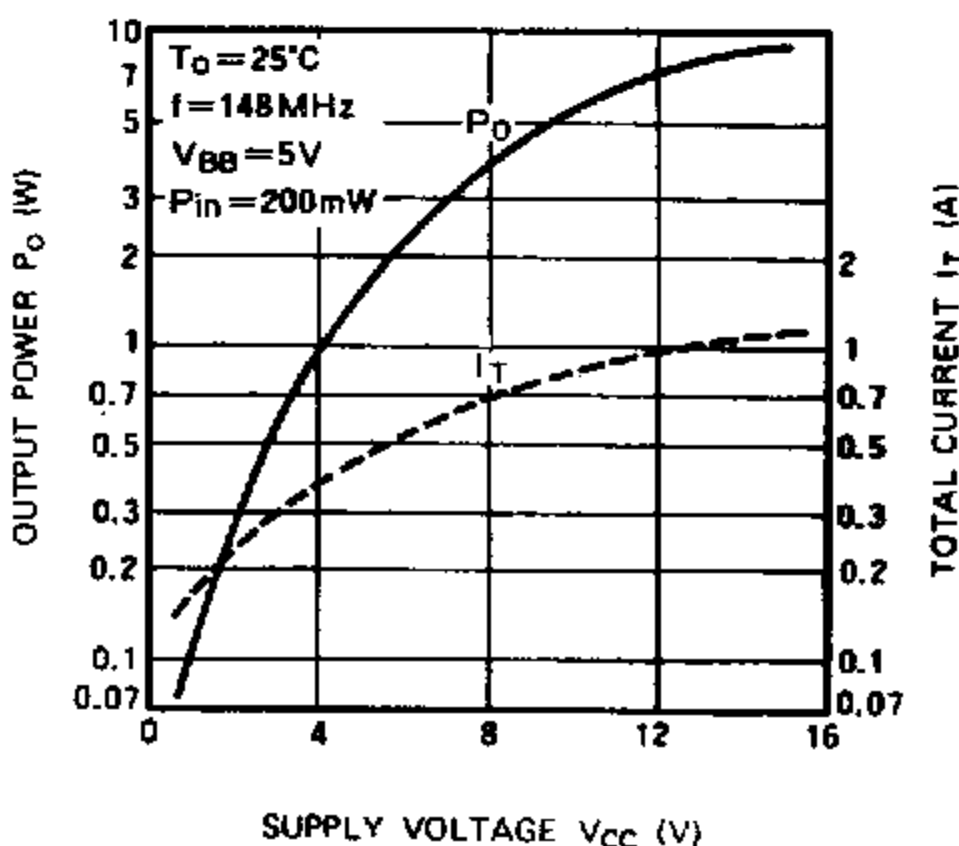
OUTPUT POWER, TOTAL CURRENT VS.
INPUT POWER



OUTPUT POWER, TOTAL CURRENT VS.
SUPPLY VOLTAGE CHARACTERISTICS



OUTPUT POWER, TOTAL CURRENT VS.
SUPPLY VOLTAGE CHARACTERISTICS



OUTPUT POWER, 2ND, 3RD HARMONICS
VS. FREQUENCY CHARACTERISTICS

