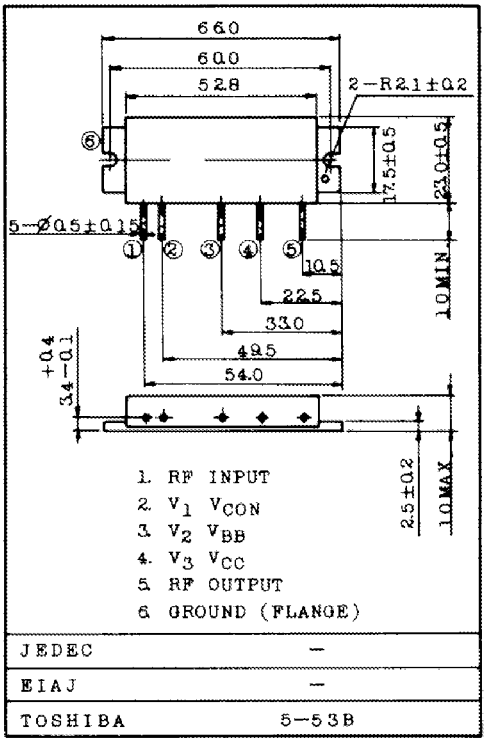
RF Power Amplifier Module

VHF Power Amplifier Module (SSB/HAM FM)

Unit in mm



Features

- Output Power : $P_o \geq 17W$
- Minimum Gain : $G_p = 19.2dB$
- Efficiency : $\eta_T \geq 40\%$
- 50Ω Input/Output Impedance
- Guaranteed Stability

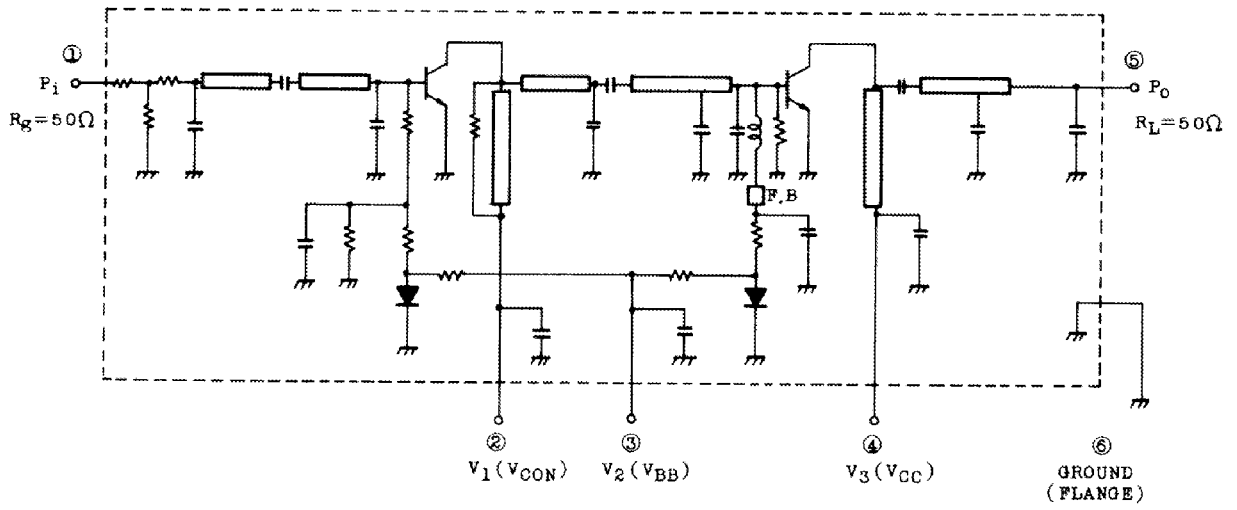
Absolute Maximum Ratings (Tc = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
DC Supply Voltage	V_{CC}	16	V
DC Supply Voltage	V_{CON}	16	V
RF Input Power	P_i	300	mW
Operating Case Temperature Range	Tc(OP)	-30 ~ 100	°C
Storage Temperature Range	T_{stg}	-40 ~ 110	°C

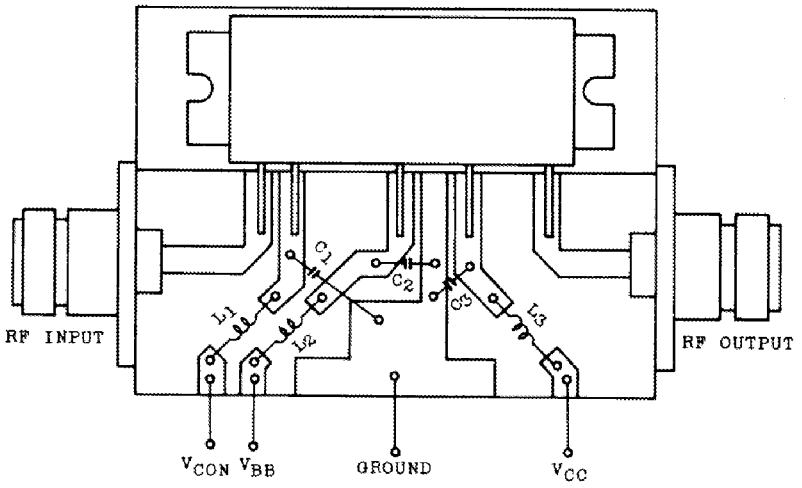
Electrical Characteristics (Tc = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Frequency Range	f_{range}	–	430	–	450	MHz
Output Power	P_o	P_i = 200mW V_{CC} = 12.5V, V_{CON} = 12.5V $Z_g = Z_1 = 50\Omega$	17	22	–	W
Power Gain	G_P		19.2	20.4	–	dB
Total Efficiency	η_T		40	50	–	%
Input VSWR	$VSWR_{in}$		–	1.5	2	–
Harmonics	HRM		–	-30	-25	dB
Load Mismatch	–	V_{CC} = 15V, V_{CON} = 12.5V P_o = 18W, V_{BB} = 9V VSWR Load 20:1 all phase	No Degradation			–
Stability	–	V_{CC} = 12.5V, P_i = 200mW V_{CON} = 0 ~ 12.5V, V_{BB} = 9V VSWR Load 3:1 all phase	All spurious output than 60dB below desired signal			–
Intermodulation Distortion Ratio	IMD	f_1 = 440.000MHz, f_2 = 440.002MHz $V_{CC} = V_{CON}$ = 12.5V, V_{BB} = 9V $P_o = 13W_{PEP}$	–	-32	–	dB

SCHEMATIC

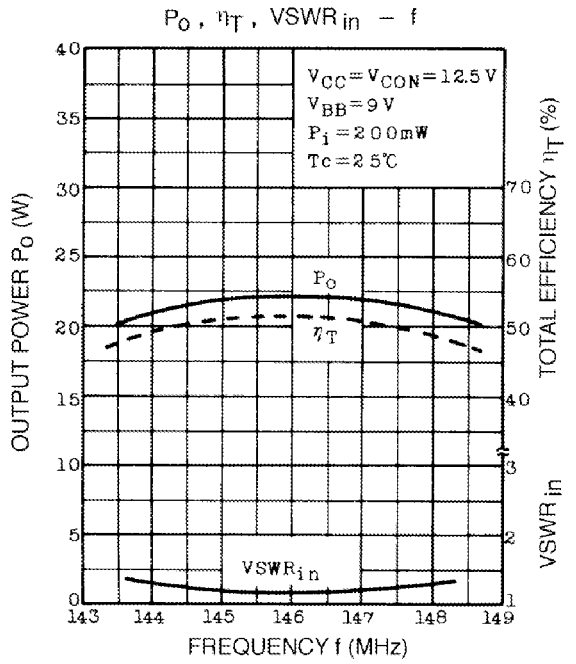


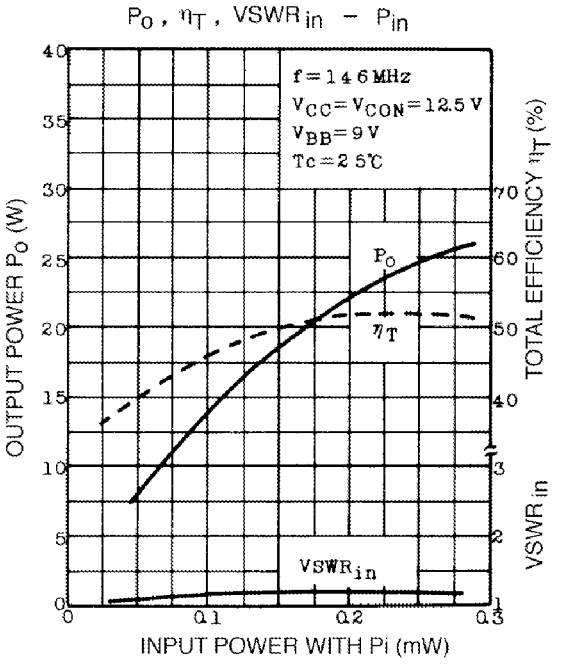
TEST MOUNT

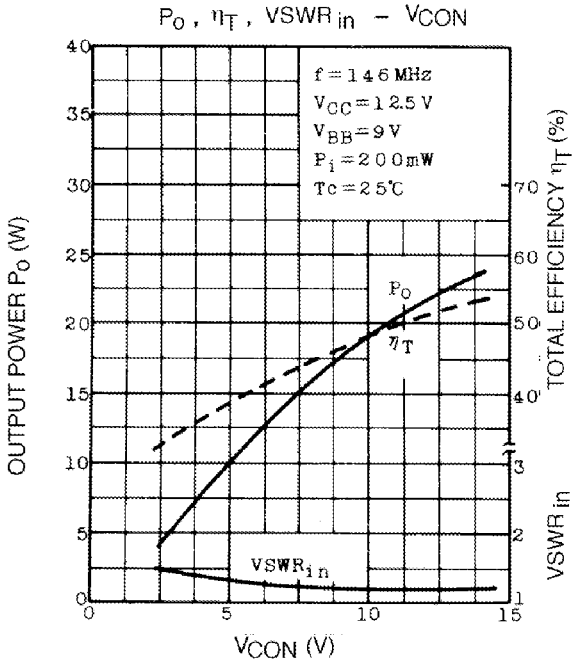


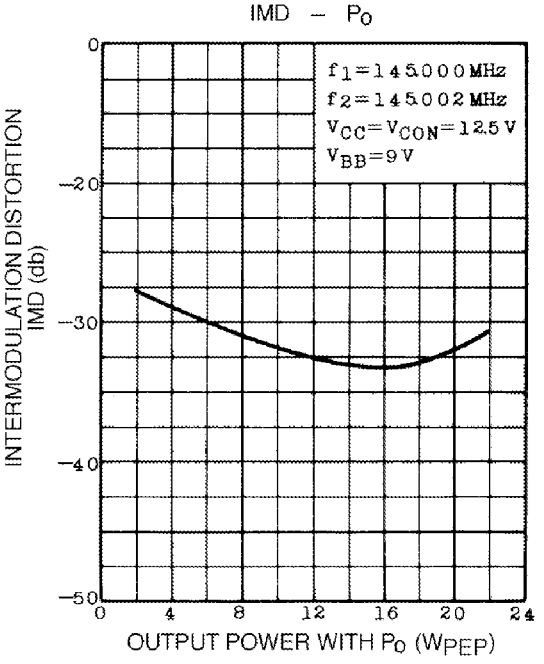
C_1, C_2, C_3 : 15000PF, 10μF PARALLEL

L_1, L_2, L_3: Ø0.8 PLATED WIRE 8T, 5ID , 8T, 5ID


P_O, η_T, $VSWR_{in}$ – f
$V_{CC}=V_{CON}=12.5V$
$V_{BB}=9V$
$P_i=200mW$
$Tc=25℃$
P_O
η_T
$VSWR_{in}$
OUTPUT POWER P_O (W)
TOTAL EFFICIENCY η_T (%)
VSWR in
FREQUENCY f (MHz)


P_O, η_T, $VSWR_{in}$ – P_{in}
f=146MHz
$V_{CC}=V_{CON}=12.5V$
$V_{BB}=9V$
$Tc=25℃$
P_O
η_T
$VSWR_{in}$
OUTPUT POWER P_O (W)
TOTAL EFFICIENCY η_T (%)
VSWR in
INPUT POWER WITH Pi (mW)


P_O, η_T, $VSWR_{in}$ – V_{CON}
f=146MHz
$V_{CC}=12.5V$
$V_{BB}=9V$
$P_i=200mW$
$Tc=25℃$
P_O
η_T
$VSWR_{in}$
OUTPUT POWER P_O (W)
TOTAL EFFICIENCY η_T (%)
VSWR in
V_{CON} (V)


IMD – P_O
$f_1=145.000MHz$
$f_2=145.002MHz$
$V_{CC}=V_{CON}=12.5V$
$V_{BB}=9V$
INTERMODULATION DISTORTION
IMD (db)
OUTPUT POWER WITH P_O (W_{PEP})