

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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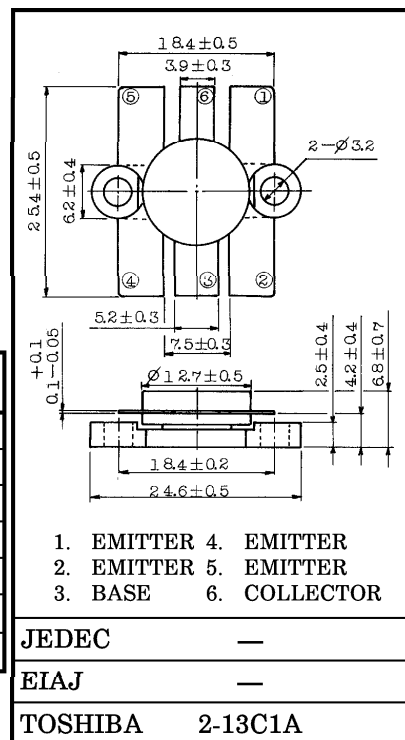
VHF BAND POWER AMPLIFIER APPLICATIONS

Unit in mm

- Output Power : $P_o = 80W$ (Min.)
($f = 175MHz$, $V_{CC} = 12.5V$, $P_i = 18W$)

MAXIMUM RATINGS ($T_c = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	36	V
Collector-Emitter Voltage	V_{CEO}	16	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	A
Collector Power Dissipation	P_C	220	W
Junction Temperature	T_j	175	$^\circ C$
Storage Temperature Range	T_{stg}	-65~175	$^\circ C$



ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 20mA, I_E = 0$	36	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50mA, I_B = 0$	16	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	4	—	—	V
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 10A$ *	10	—	—	
Collector Output Capacitance	C_{ob}	$V_{CB} = 12.5V, I_E = 0$ $f = 1MHz$	—	—	320	pF
Output Power	P_o	(Fig.)	80	90	—	W
Power Gain	G_p	$V_{CC} = 12.5V, f = 175MHz$	6.4	6.8	—	dB
Collector Efficiency	η_C	$P_i = 18W$	60	70	—	%
Series Equivalent Input Impedance	Z_{in}	$V_{CC} = 12.5V$ $f = 175MHz, P_o = 80W$	—	1.0 +j1.5	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	1.2 +j1.8	—	Ω

* Pulse Test : Pulse Width $\leq 100\mu s$, Duty Cycle $\leq 3\%$

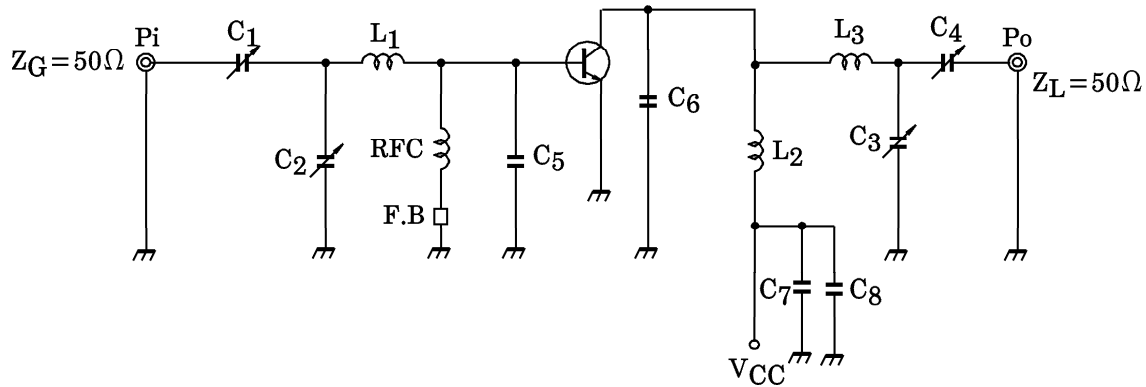
CAUTION

Beryllia Ceramics is used in this product. The dust or vapor can be dangerous to humans. Do not break, cut, crush or dissolve chemically. Dispose of this properly according to law. Do not intermingle with normal industrial or domestic waste.

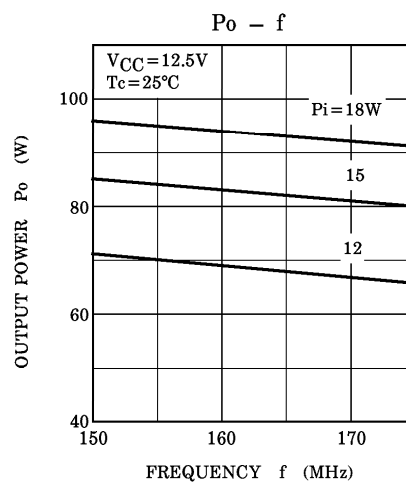
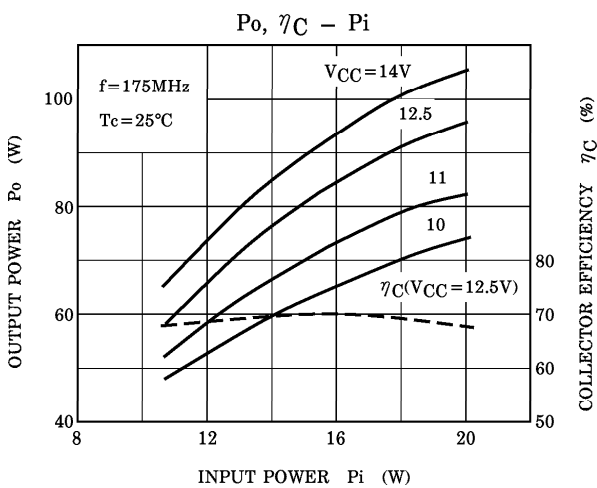
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Fig. P_o TEST CIRCUIT



- C₁~C₄ : ~20pF
- C₅ : 156pF (39pF×4) CERAMIC CONDENSER
- C₆ : 132pF (33pF×4) CERAMIC CONDENSER
- C₇ : 0.01μF CERAMIC CONDENSER
- C₈ : 10μF
- L₁, L₃ : φ1.5mm SILVER PLATED COPPER WIRE, 10ID, 1T
- L₂ : φ1.5mm SILVER PLATED COPPER WIRE, 10ID, 2T
- RFC : φ1mm ENAMEL COATED COPPER WIRE, 6ID, 10T
- FB : FERRITE BEAD



CAUTION

These are only typical curves and devices are not necessarily guaranteed at these curves.

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