

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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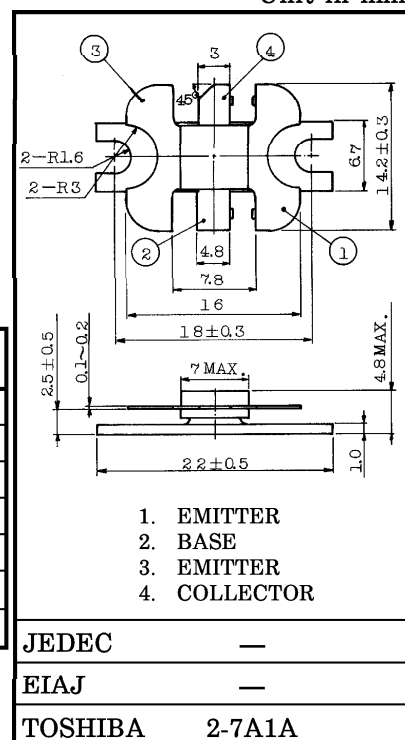
UHF BAND POWER AMPLIFIER APPLICATIONS

Unit in mm

- Output Power : $P_o = 12\text{W}$ (Min.)
($f = 470\text{MHz}$, $V_{CC} = 12.6\text{V}$, $P_i = 3\text{W}$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	17	V
Emitter-Base Voltage	V_{EBO}	3.5	V
Collector Current	I_C	2.8	A
Collector Power Dissipation	P_C	30	W
Junction Temperature	T_j	175	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-65 \sim 175$	$^\circ\text{C}$

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

Weight : 1.6g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 15\text{V}$, $I_E = 0$	—	—	1.5	mA
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 2\text{mA}$, $I_E = 0$	35	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	17	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 0.2\text{mA}$, $I_C = 0$	3.5	—	—	V
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 1.5\text{A}$ *	10	—	—	
Collector Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$ $f = 1\text{MHz}$	—	28	40	pF
Output Power	P_o	(Fig.)	12	—	—	W
Power Gain	G_p	$V_{CC} = 12.6\text{V}$, $f = 470\text{MHz}$	6	—	—	dB
Collector Efficiency	η_C	$P_i = 3\text{W}$	60	—	—	%
Series Equivalent Input Impedance	Z_{in}	$V_{CC} = 12.6\text{V}$, $f = 470\text{MHz}$	—	$1.2 + j4$	—	Ω
Series Equivalent Output Impedance	Z_{out}	$P_o = 12\text{W}$	—	$4 + j0.5$	—	Ω

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

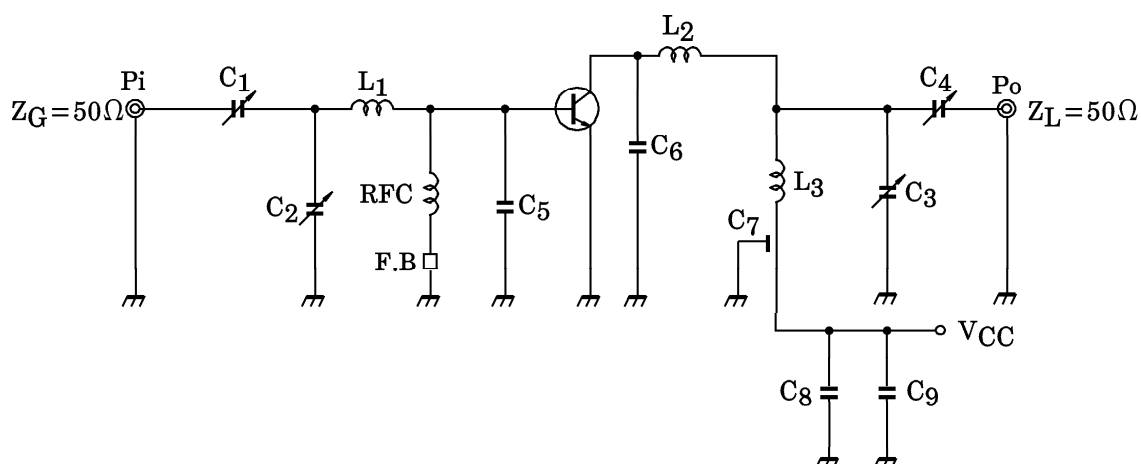
CAUTION

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 product properly according to law. Do not intermingle with normal industrial or domestic waste.

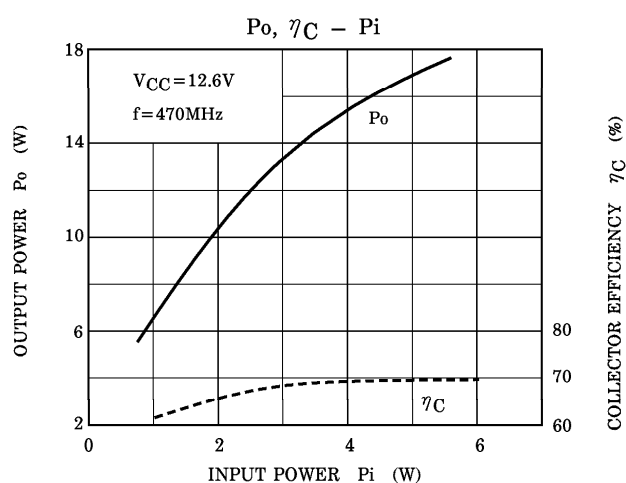
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Fig. P_o TEST CIRCUIT



C_1, C_2, C_3, C_4 : $\sim 20\text{pF}$
 C_5, C_6 : 10pF
 C_7 : $0.01\mu\text{F}$
 C_8 : $0.02\mu\text{F}$
 C_9 : $10\mu\text{F}$
 L_1, L_2 : $5 \times 20 \times 0.1\text{mm}$ COPPER PLATE
 L_3 : $\phi 1$ SILVER PLATED COPPER WIRE, 10ID, 2T
 RFC : $\phi 0.5$ ENAMEL COATED COPPER WIRE, 7ID, 10T
 F.B : FERRITE BEAD



CAUTION

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

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