

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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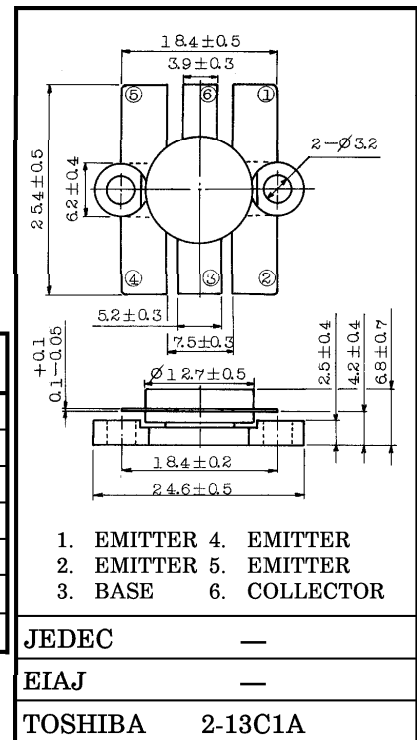
UHF BAND POWER AMPLIFIER APPLICATIONS

Unit in mm

- Output Power : $P_o = 40W$ (Min.)
($f = 470MHz$, $V_{CC} = 12.5V$, $P_i = 13W$)

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	8	A
Collector Power Dissipation	P_C	150	W
Junction Temperature	T_j	175	$^\circ C$
Storage Temperature Range	T_{stg}	-65~175	$^\circ C$



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

Weight : 5.5g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 15V, I_E = 0$	—	—	6	mA
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10mA, I_E = 0$	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}	$V_{CE} = 5V, I_C = 5A$ *	10	—	150	
Collector Output Capacitance	C_{ob}	$V_{CB} = 12.5V, I_E = 0$ $f = 1MHz$	—	110	150	pF
Output Power	P_o	(Fig.)	40	45	—	W
Power Gain	G_p	$V_{CC} = 12.5V, f = 470MHz$	4.88	5.4	—	dB
Collector Efficiency	η_C	$P_i = 13W$	60	65	—	%
Series Equivalent Input Impedance	Z_{in}	$V_{CC} = 12.5V$	—	3.0 +j3.2	—	Ω
Series Equivalent Output Impedance	Z_{out}	$f = 470MHz, P_o = 40W$	—	1.7 +j4.7	—	Ω

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

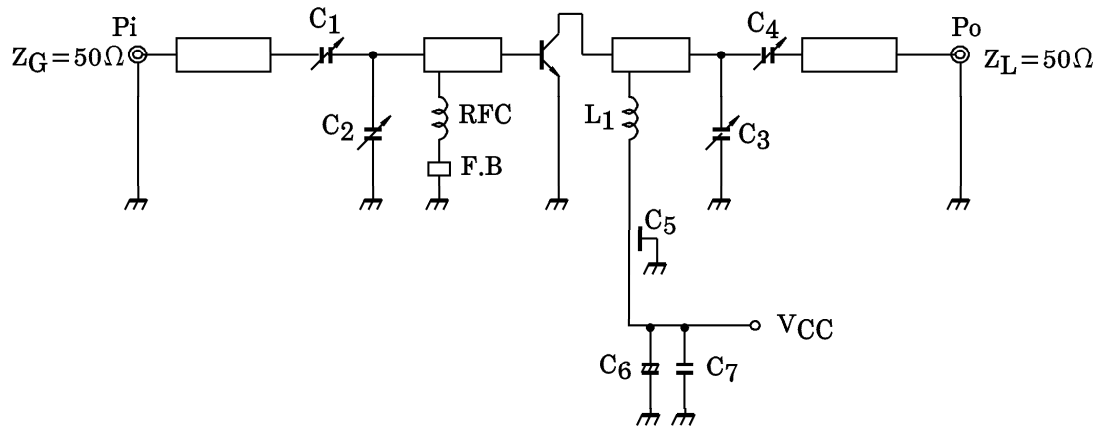
CAUTION

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.

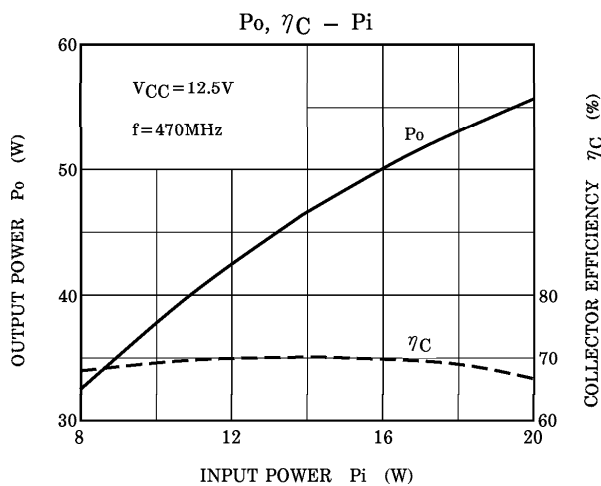
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Fig. P_o TEST CIRCUIT



- C₁~C₄ : ~20pF
- C₅ : 1000pF
- C₆ : 10μF
- C₇ : 0.1μF
- F·B : FERRITE BEADS
- L₁ : φ1 SILVER PLATED COPPER WIRE, 6ID, 3T
- RFC : φ1 ENAMEL COATED COPPER WIRE, 6ID, 10T
- BOARD : 1.6mm TEFLONGLASS ε_R=2.5



CAUTION

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

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