

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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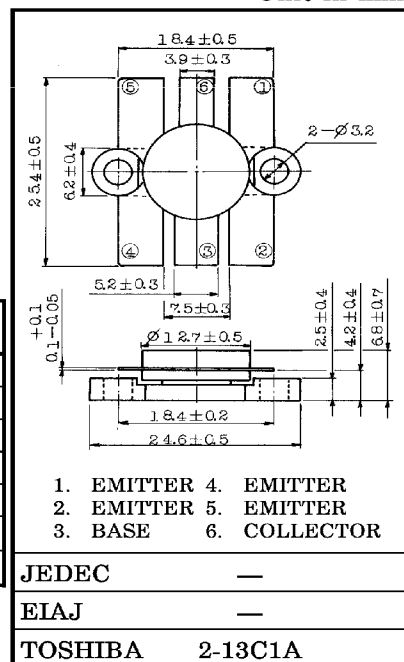
UHF BAND POWER AMPLIFIER APPLICATIONS

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_{CB0}	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

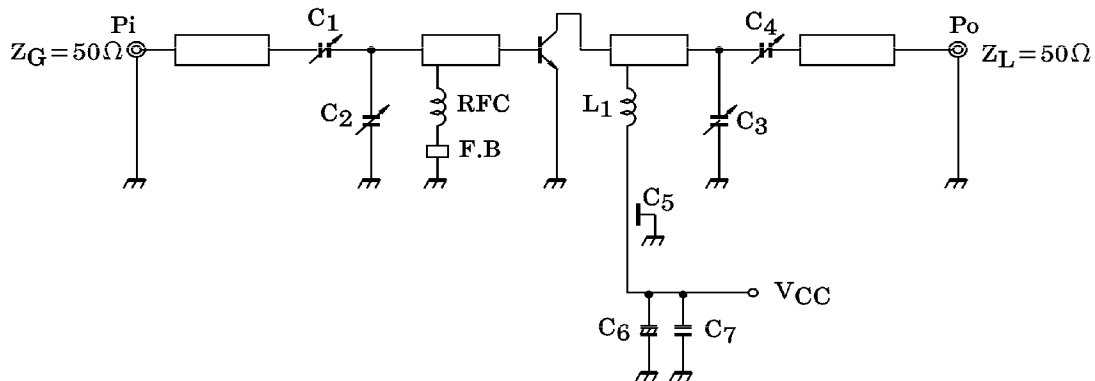
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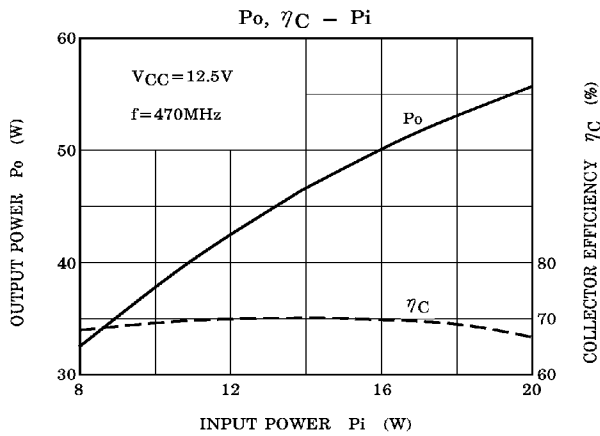
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Fig. Po TEST CIRCUIT



- 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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