

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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# 2SC2782

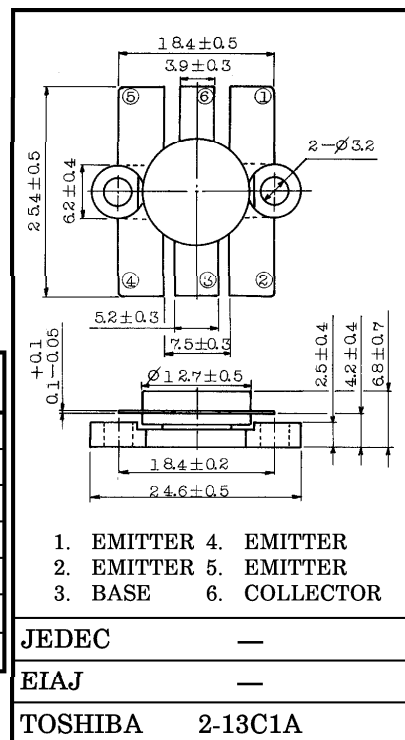
VHF BAND POWER AMPLIFIER APPLICATIONS

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 ( $T_c = 25^\circ C$ )

Weight : 5.5g

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	$\eta_C$	$P_i = 18W$	60	70	—	%
Series Equivalent Input Impedance	$Z_{in}$	$V_{CC} = 12.5V$	—	1.0 +j1.5	—	$\Omega$
Series Equivalent Output Impedance	$Z_{out}$	$f = 175MHz, P_o = 80W$	—	1.2 +j1.8	—	$\Omega$

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

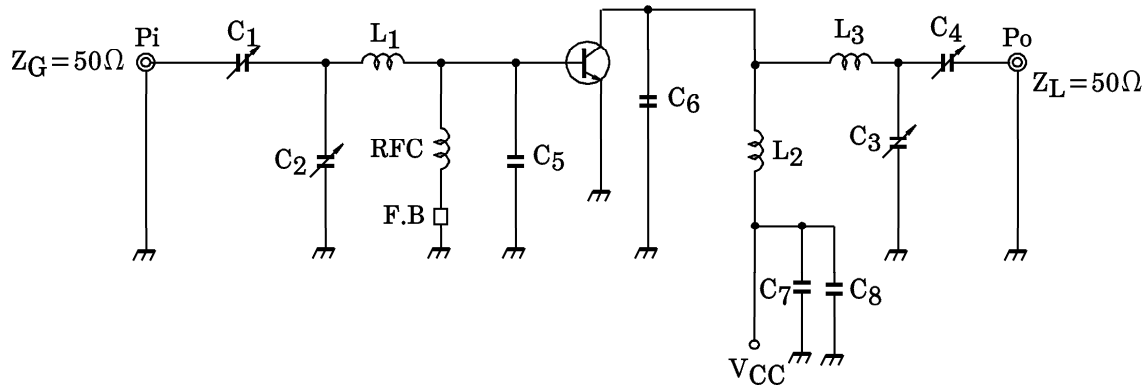
CAUTION

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.

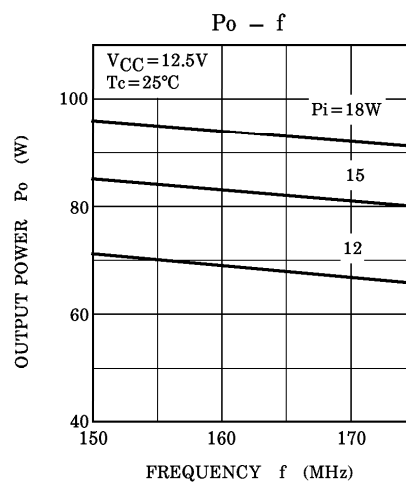
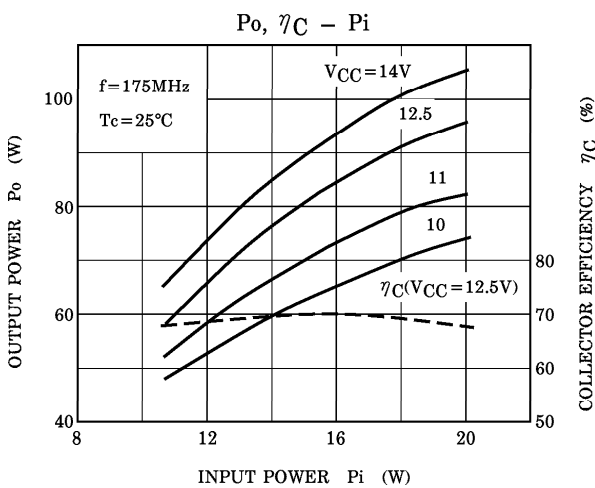
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Fig. P<sub>o</sub> TEST CIRCUIT



- C<sub>1</sub>~C<sub>4</sub> : ~20pF
- C<sub>5</sub> : 156pF (39pF×4) CERAMIC CONDENSER
- C<sub>6</sub> : 132pF (33pF×4) CERAMIC CONDENSER
- C<sub>7</sub> : 0.01μF CERAMIC CONDENSER
- C<sub>8</sub> : 10μF
- L<sub>1</sub>, L<sub>3</sub> : φ1.5mm SILVER PLATED COPPER WIRE, 10ID, 1T
- L<sub>2</sub> : 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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