

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC2783

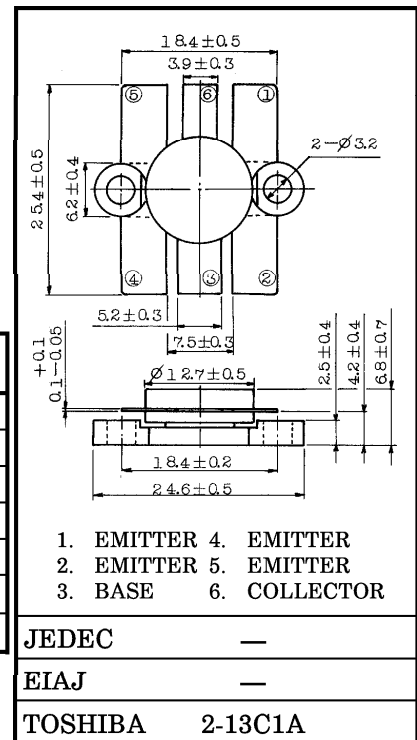
UHF BAND POWER AMPLIFIER APPLICATIONS

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	$\eta_C$	$P_i = 13W$	60	65	—	%
Series Equivalent Input Impedance	$Z_{in}$	$V_{CC} = 12.5V$	—	3.0 +j3.2	—	$\Omega$
Series Equivalent Output Impedance	$Z_{out}$	$f = 470MHz, P_o = 40W$	—	1.7 +j4.7	—	$\Omega$

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

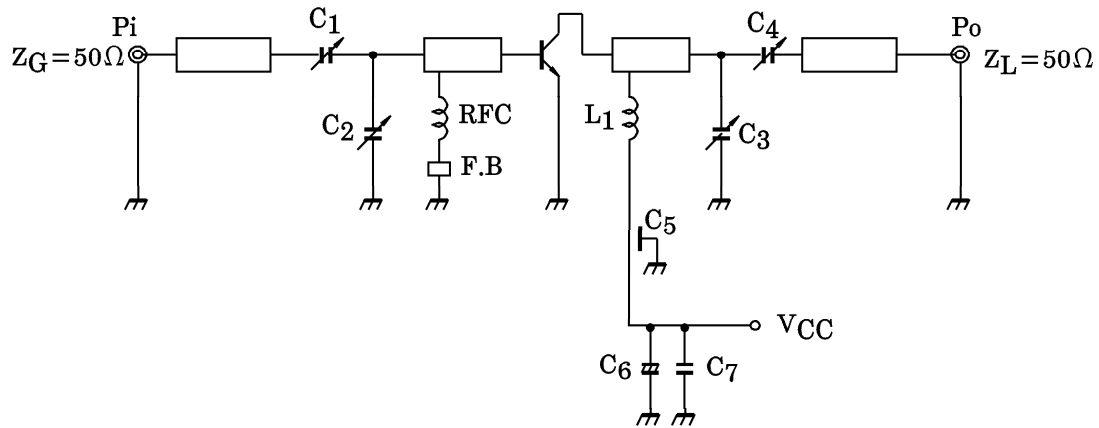
CAUTION

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.

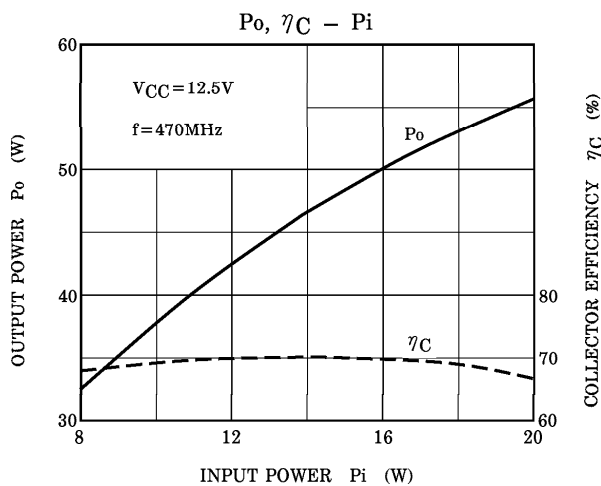
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Fig. P<sub>o</sub> TEST CIRCUIT



- C<sub>1</sub>~C<sub>4</sub> : ~20pF
- C<sub>5</sub> : 1000pF
- C<sub>6</sub> : 10μF
- C<sub>7</sub> : 0.1μF
- F·B : FERRITE BEADS
- L<sub>1</sub> : φ1 SILVER PLATED COPPER WIRE, 6ID, 3T
- RFC : φ1 ENAMEL COATED COPPER WIRE, 6ID, 10T
- BOARD : 1.6mm TEFLONGLASS ε<sub>R</sub>=2.5



**CAUTION**

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

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