

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC3147

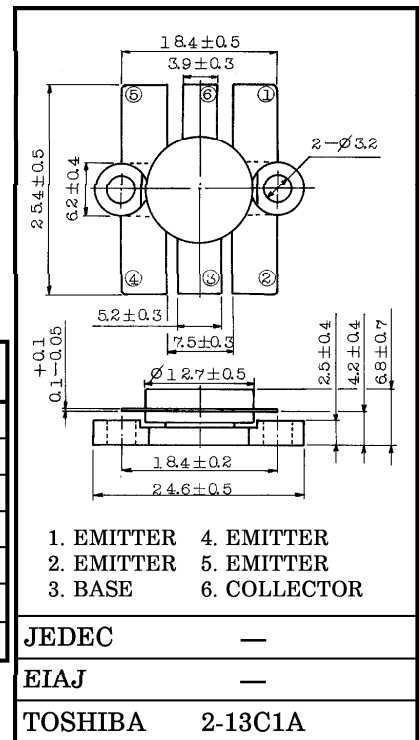
VHF BAND POWER AMPLIFIER APPLICATIONS

Unit in mm

- Output Power :  $P_o = 50W$  (Min.)  
( $f = 175MHz$ ,  $V_{CC} = 12.5V$ ,  $\eta_C = 70%$  (Typ.))
- High Efficiency :  $\eta_C = 70%$  (Typ.)

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	$I_C$	14	A
Collector Power Dissipation	$P_C$	150	W
Junction Temperature	$T_j$	175	$^\circ C$
Storage Temperature Range	$T_{stg}$	-65~175	$^\circ C$



Weight : 5.5g

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

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	$h_{FE}$	$V_{CE} = 5V$ , $I_C = 5A$ *	10	—	—	—
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 12.5V$ , $I_E = 0$ $f = 1MHz$	—	—	330	pF
Output Power	$P_o$	$V_{CC} = 12.5V$ , $f = 175MHz$ $P_i = 10W$ , $\eta_C \geq 60%$	50	60	—	W
Series Equivalent Input Impedance	$Z_{in}$	$V_{CC} = 12.5V$	—	1.1 +j3.0	—	$\Omega$
Series Equivalent Output Impedance	$Z_{out}$	$f = 175MHz$ , $P_o = 50W$	—	1.5 +j2.5	—	$\Omega$

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

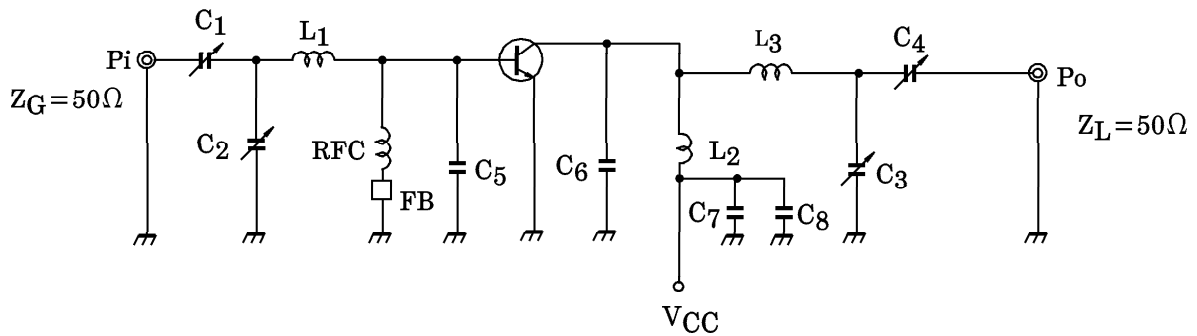
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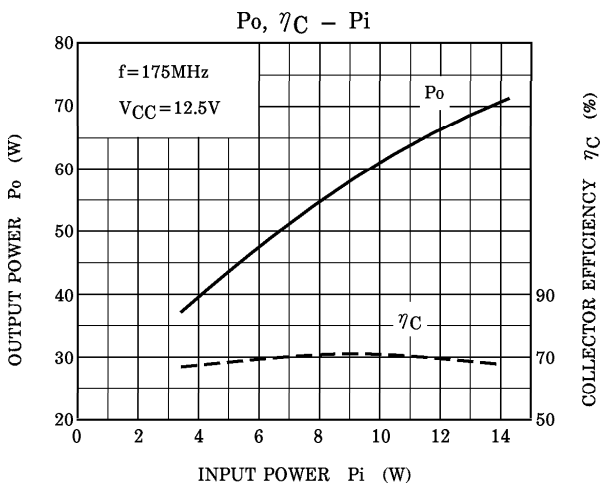
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Fig. P<sub>o</sub> TEST CIRCUIT



- 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, 10 ID, 1T
- L<sub>2</sub> : φ1.5mm SILVER PLATED COPPER WIRE, 10 ID, 2T
- RFC : φ1mm ENAMEL COATED COPPER WIRE, 6 ID, 10T
- FB : FERRITE BEAD



CAUTION

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

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