

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2782A

VHF BAND POWER AMPLIFIER APPLICATIONS

- Output Power : $P_o = 80W$ (Min.)
($f = 175MHz$, $V_{CC} = 12.5V$, $P_i = 18W$)

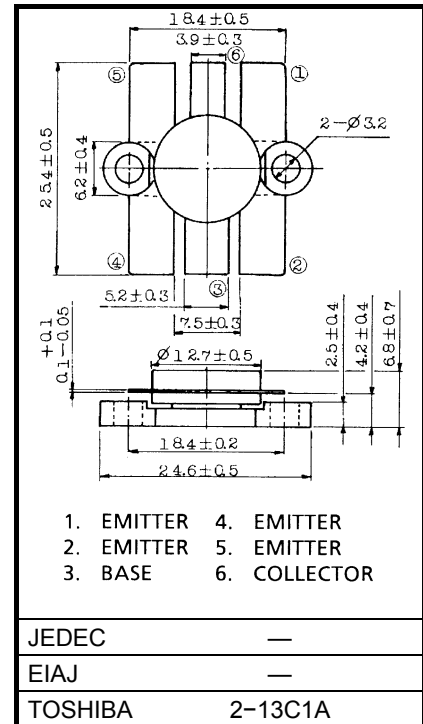
ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ C$)

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	$^\circ C$

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

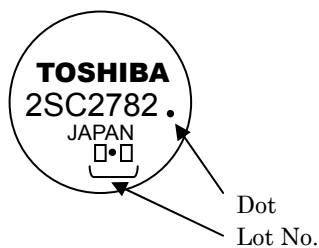
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit in mm



Weight: 5.5g

MARKING

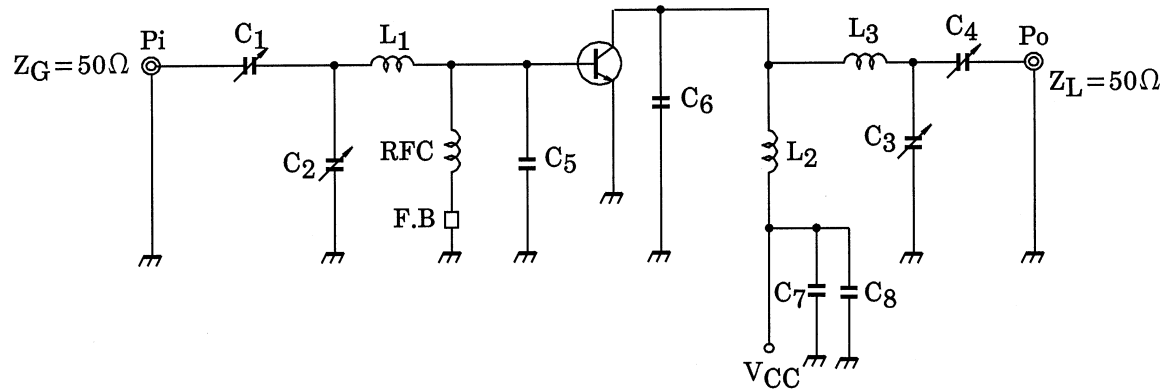


ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

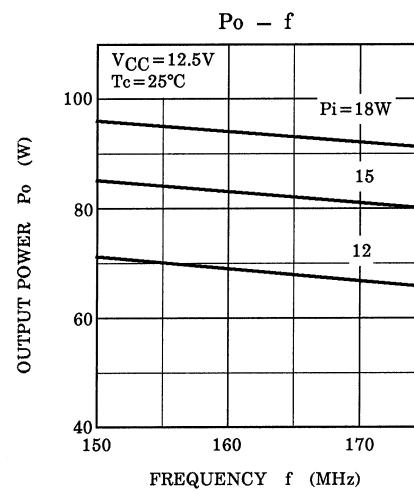
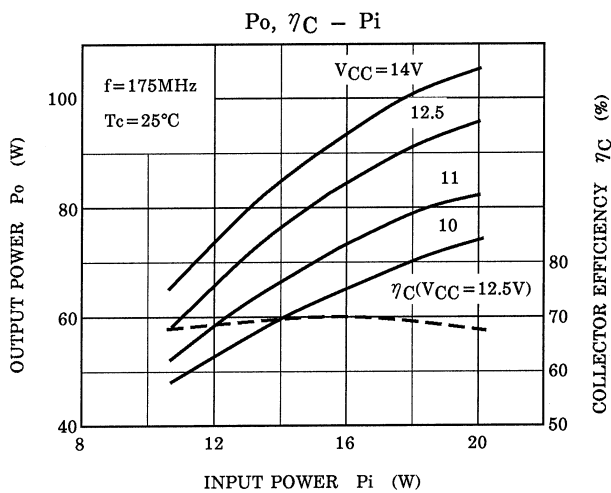
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Base Breakdown Voltage	$V_{(BR) CBO}$	$I_C = 20\text{mA}, I_E = 0$	36	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR) CEO}$	$I_C = 50\text{mA}, I_B = 0$	16	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR) EBO}$	$I_E = 1\text{mA}, I_C = 0$	4	—	—	V
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 10\text{A}^*$	10	—	—	
Collector Output Capacitance	C_{ob}	$V_{CB} = 12.5\text{V}, I_E = 0$ $f = 1\text{MHz}$	—	—	320	pF
Output Power	P_o	(Fig.) $V_{CC} = 12.5\text{V}, f = 175\text{MHz}$ $P_i = 18\text{W}$	80	90	—	W
Power Gain	G_p		6.4	6.8	—	dB
Collector Efficiency	η_C		60	70	—	%
Series Equivalent Input Impedance	Z_{in}	$V_{CC} = 12.5\text{V}$ $f = 175\text{MHz}, P_o = 80\text{W}$	—	1.0 $+j1.5$	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	1.2 $+j1.8$	—	Ω

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

Fig. Po TEST CIRCUIT



- $C_1 \sim C_4$: $\sim 20\text{pF}$
 C_5 : 156pF ($39\text{pF} \times 4$) CERAMIC CONDENSER
 C_6 : 132pF ($33\text{pF} \times 4$) CERAMIC CONDENSER
 C_7 : $0.01\mu\text{F}$ CERAMIC CONDENSER
 C_8 : $10\mu\text{F}$
 L_1, L_3 : $\phi 1.5\text{mm}$ SILVER PLATED COPPER WIRE, 10ID, 1T
 L_2 : $\phi 1.5\text{mm}$ SILVER PLATED COPPER WIRE, 10ID, 2T
RFC : $\phi 1\text{mm}$ 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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20070701-EN GENERAL

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