

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2782A

VHF BAND POWER AMPLIFIER APPLICATIONS

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

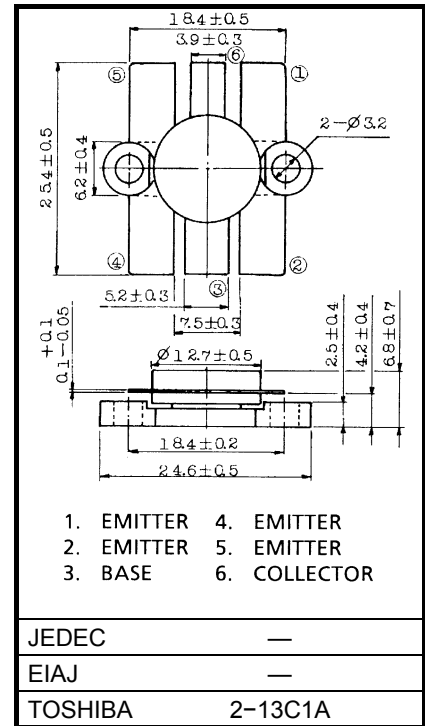
Unit in mm

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	$^\circ C$

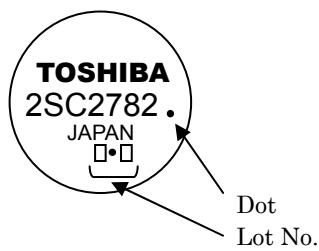
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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



Weight: 5.5g

MARKING

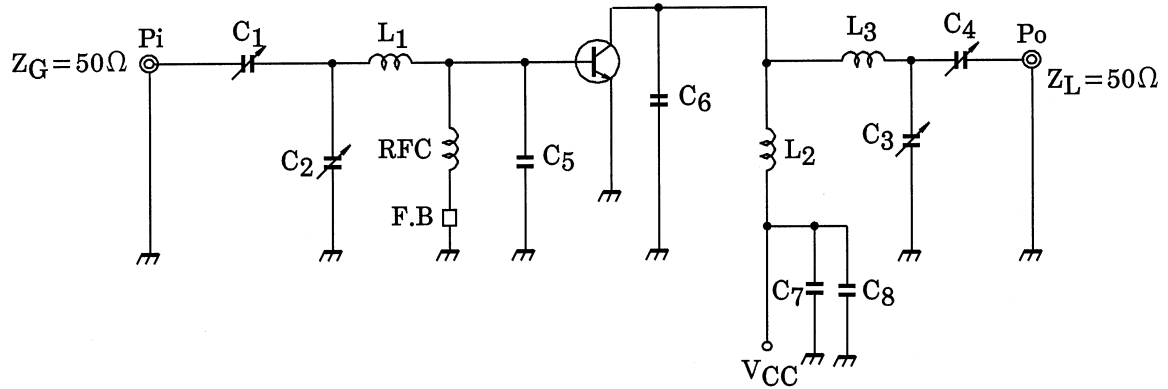


ELECTRICAL CHARACTERISTICS (T_c = 25°C)

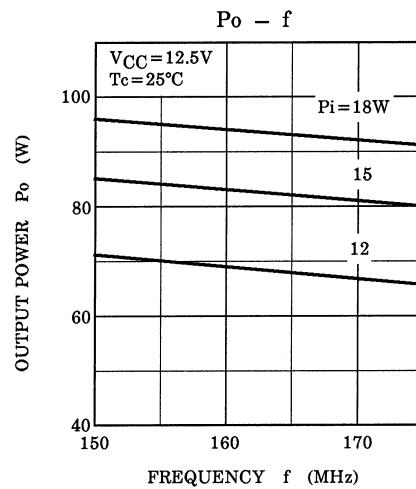
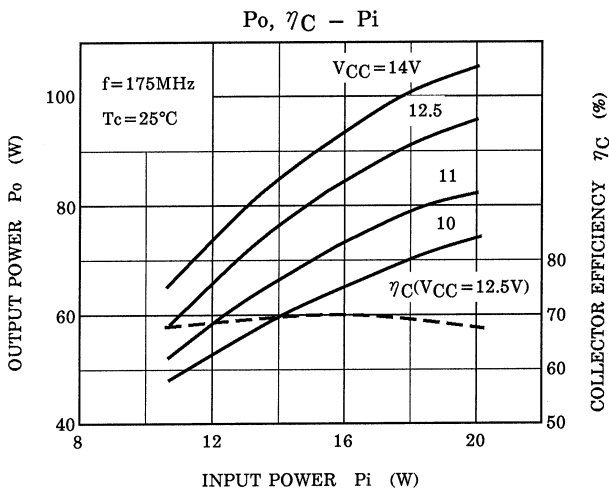
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Base Breakdown Voltage	V _(BR) CBO	I _C = 20mA, I _E = 0	36	—	—	V
Collector-Emitter Breakdown Voltage	V _(BR) CEO	I _C = 50mA, I _B = 0	16	—	—	V
Emitter-Base Breakdown Voltage	V _(BR) EBO	I _E = 1mA, I _C = 0	4	—	—	V
DC Current Gain	h _{FE}	V _{CE} = 5V, I _C = 10A *	10	—	—	
Collector Output Capacitance	C _{ob}	V _{CB} = 12.5V, I _E = 0 f = 1MHz	—	—	320	pF
Output Power	P _o	(Fig.) V _{CC} = 12.5V, f = 175MHz P _i = 18W	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} = 12.5V f = 175MHz, P _o = 80W	—	1.0 +j1.5	—	Ω
Series Equivalent Output Impedance	Z _{out}		—	1.2 +j1.8	—	Ω

* Pulse Test: Pulse Width ≤ 100μs, Duty Cycle ≤ 3%

Fig. Po TEST CIRCUIT



- C1~C4 : ~20pF
- C5 : 156pF (39pF×4) CERAMIC CONDENSER
- C6 : 132pF (33pF×4) CERAMIC CONDENSER
- C7 : 0.01μF CERAMIC CONDENSER
- C8 : 10μF
- L1, L3 : φ1.5mm SILVER PLATED COPPER WIRE, 10ID, 1T
- L2 : 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.

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
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