

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

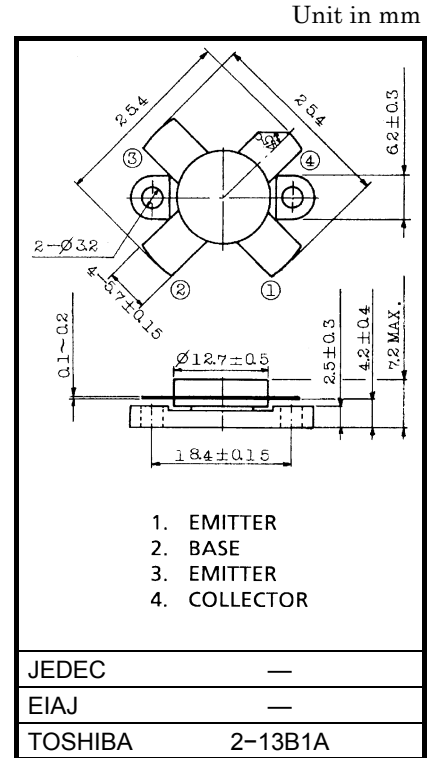
2SC2510A

2~30MHz SSB LINEAR POWER AMPLIFIER APPLICATIONS
(28V SUPPLY VOLTAGE USE)

- Specified 28V, 28MHz Characteristics
- Output Power : $P_o = 150W_{PEP}$ (Min.)
- Power Gain : $G_p = 12.2dB$ (Min.)
- Collector Efficiency : $\eta_C = 35%$ (Min.)
- Intermodulation Distortion: $IMD = -30dB$ (Max.)

ABSOLUTE MAXIMUM RATINGS (Tc = 25°C)

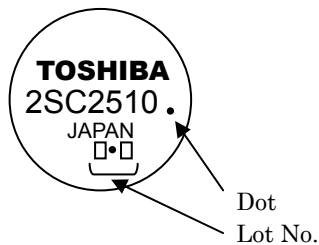
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CES}	60	V
Collector-Emitter Voltage	V_{CEO}	35	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	A
Collector Power Dissipation	P_C	250	W
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_{stg}	-65~175	°C



Weight: 5.2g

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).

MARKING

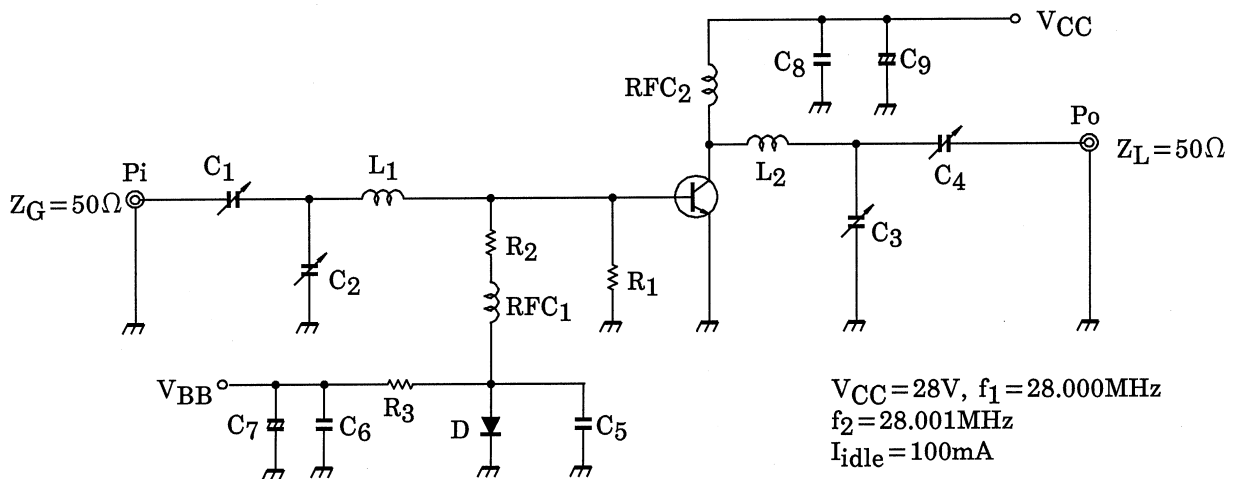


ELECTRICAL CHARACTERISTICS (T_c = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	V _{(BR) CEO}	I _C = 100mA, I _B = 0	35	—	—	V
Collector-Emitter Breakdown Voltage	V _{(BR) CES}	I _C = 100mA, V _{EB} = 0	55	—	—	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} = 28V, I _E = 0 f = 1MHz	—	450	600	pF
Power Gain	G _p	V _{CC} = 28V, f ₁ = 28.000MHz, f ₂ = 28.001MHz I _{idle} = 100mA P _o = 150W _{PEP} (Fig.)	12.2	13.3	—	dB
Input Power	P _i		—	7	9	W _{PEP}
Collector Efficiency	η _C		35	—	—	%
Intermodulation Distortion	IMD		—	—	-30	dB
Series Equivalent Input Impedance	Z _{in}		—	1.4 -j0.9	—	Ω
Series Equivalent Output Impedance	Z _{out}	—	2.3 -j0.9	—	Ω	

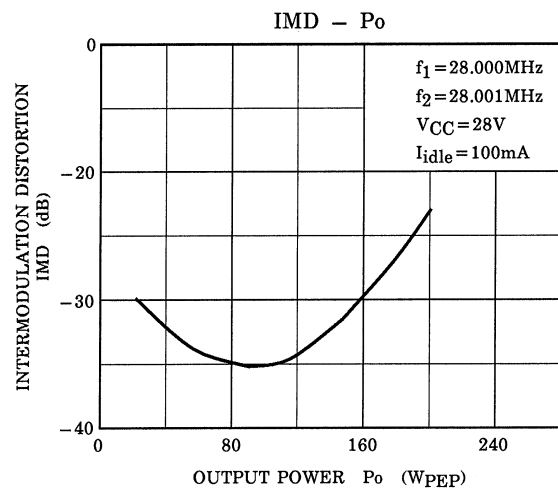
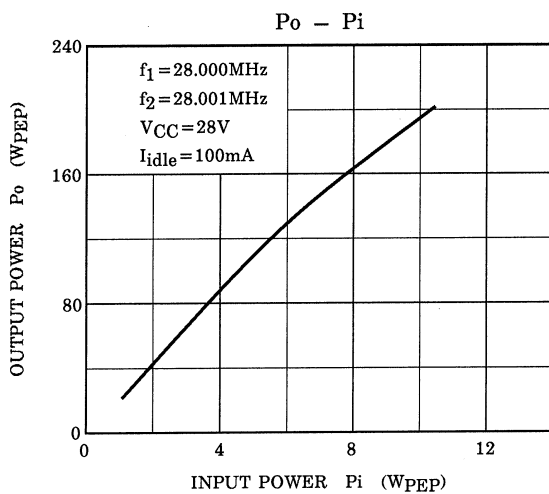
* Pulse Test: Pulse Width ≤ 100μs, Duty Cycle ≤ 3%

Fig. Pi TEST CIRCUIT



$V_{CC} = 28V$, $f_1 = 28.000MHz$
 $f_2 = 28.001MHz$
 $I_{idle} = 100mA$

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|----------------------------|---|
| C_1, C_2 : 7~150pF | L_1 : $\phi 0.8$ ENAMEL COATED COPPER WIRE, 14ID, 4T, 4P |
| C_3, C_4 : 7~150pF 2KWV | L_2 : $\phi 1.2$ ENAMEL COATED COPPER WIRE, 14ID, 3 1/2T, 3P |
| C_5, C_6 : 0.022 μ F | RFC_1 : $\phi 0.8$ ENAMEL COATED COPPER WIRE, 10ID, 9T
(Ferrite Core TDK K2) |
| C_7 : 47 μ F 10WV | RFC_2 : $\phi 0.8$ ENAMEL COATED COPPER WIRE, 14ID, 20T |
| C_8 : 0.04 μ F | R_1 : 10 Ω (1W) |
| C_9 : 100 μ F 50WV | R_2 : 2 Ω (1/2W) |
| | R_3 : 10 Ω (5W) |
| | D : 1S1555 |



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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