

TOSHIBA Transistor Silicon Npn Epitaxial Planar Type

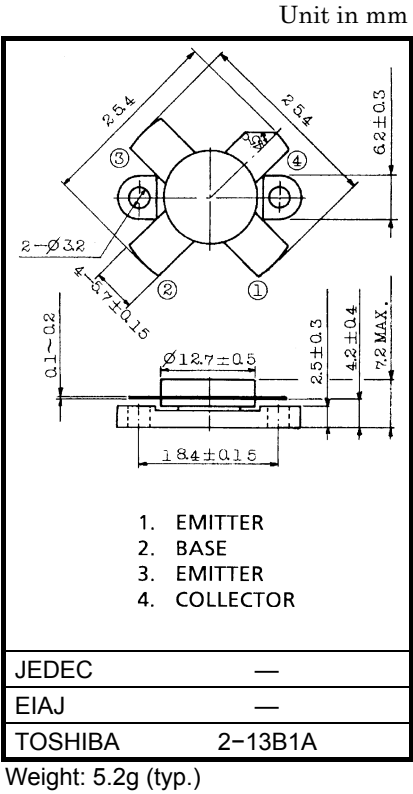
2SC2510A

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.)

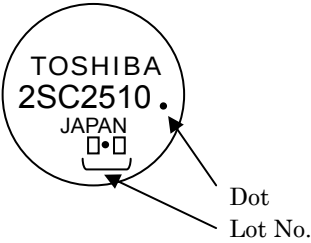
Absolute Maximum Ratings (Tc = 25°C)

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



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

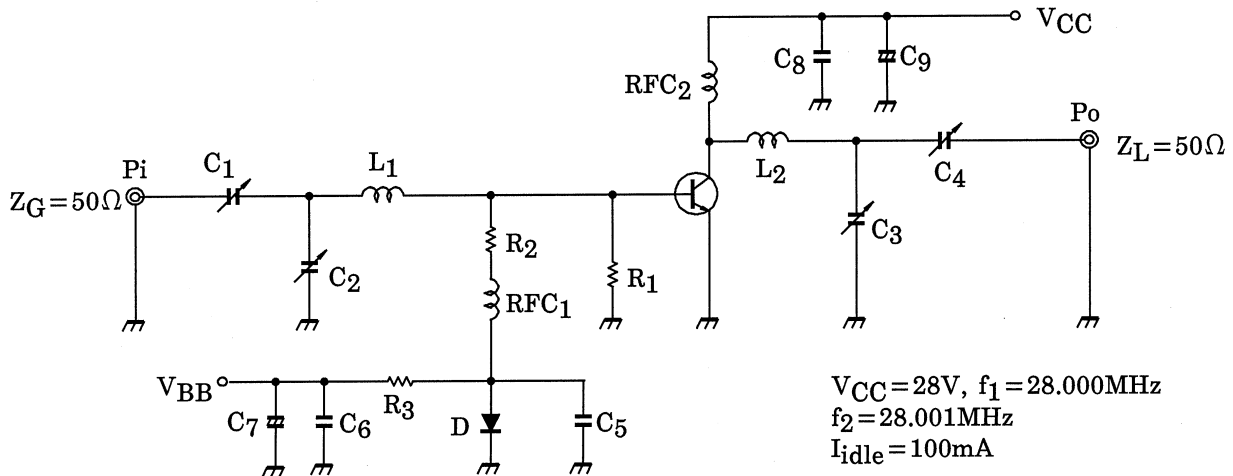


Electrical Characteristics (Tc = 25°C)

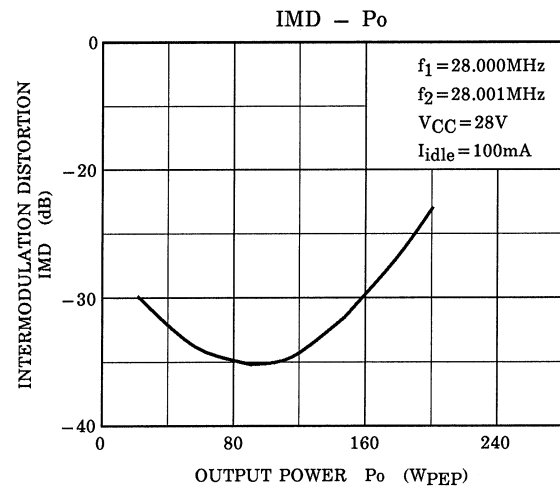
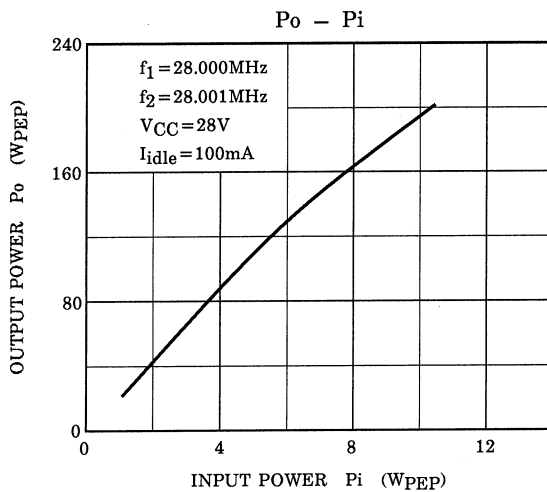
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR) CEO}$	$I_C = 100\text{mA}$, $I_B = 0$	35	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR) CES}$	$I_C = 100\text{mA}$, $V_{EB} = 0$	55	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR) EBO}$	$I_E = 1\text{mA}$, $I_C = 0$	4	—	—	V
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 10\text{A}$ *	10	—	—	
Collector Output Capacitance	C_{ob}	$V_{CB} = 28\text{V}$, $I_E = 0$ $f = 1\text{MHz}$	—	450	600	pF
Power Gain	G_p	$V_{CC} = 28\text{V}$, $f_1 = 28.000\text{MHz}$, $f_2 = 28.001\text{MHz}$ $I_{idle} = 100\text{mA}$ $P_o = 150W_{PEP}$ (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}	$V_{CC} = 28\text{V}$, $f_1 = 28.000\text{MHz}$, $f_2 = 28.001\text{MHz}$, $P_o = 150W_{PEP}$	—	1.4 -j0.9	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	2.3 -j0.9	—	Ω

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

Fig. Pi Test Circuit



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.

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