

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2290A

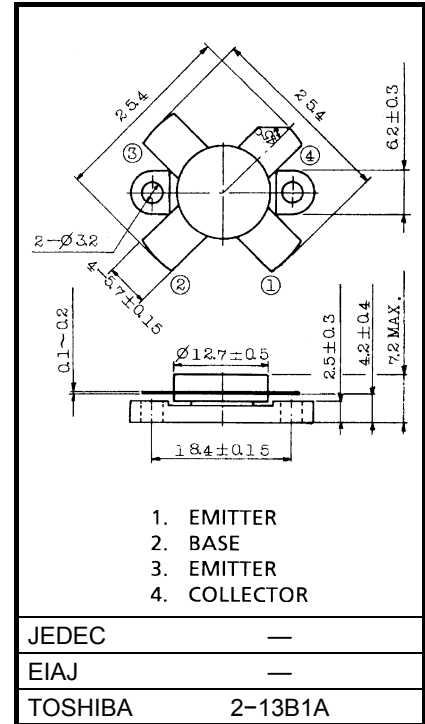
2~30MHz SSB LINEAR POWER AMPLIFIER APPLICATIONS
(LOW SUPPLY VOLTAGE USE)

Unit in mm

- Specified 12.5V, 28MHz Characteristics
- Output Power : $P_o = 60W_{PEP}$ (Min.)
- Power Gain : $G_p = 11.8dB$ (Min.)
- Collector Efficiency : $\eta_C = 35%$ (Min.)
- Intermodulation Distortion: $IMD = -30dB$ (Max.)

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

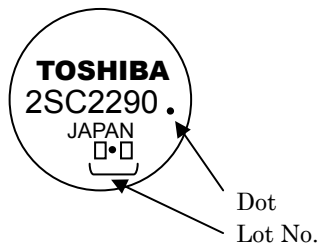
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	45	V
Collector-Emitter Voltage	V_{CES}	45	V
Collector-Emitter Voltage	V_{CEO}	18	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	A
Collector Power Dissipation	P_C	175	W
Junction Temperature	T_j	175	$^\circ C$
Storage Temperature Range	T_{stg}	-65~175	$^\circ C$



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

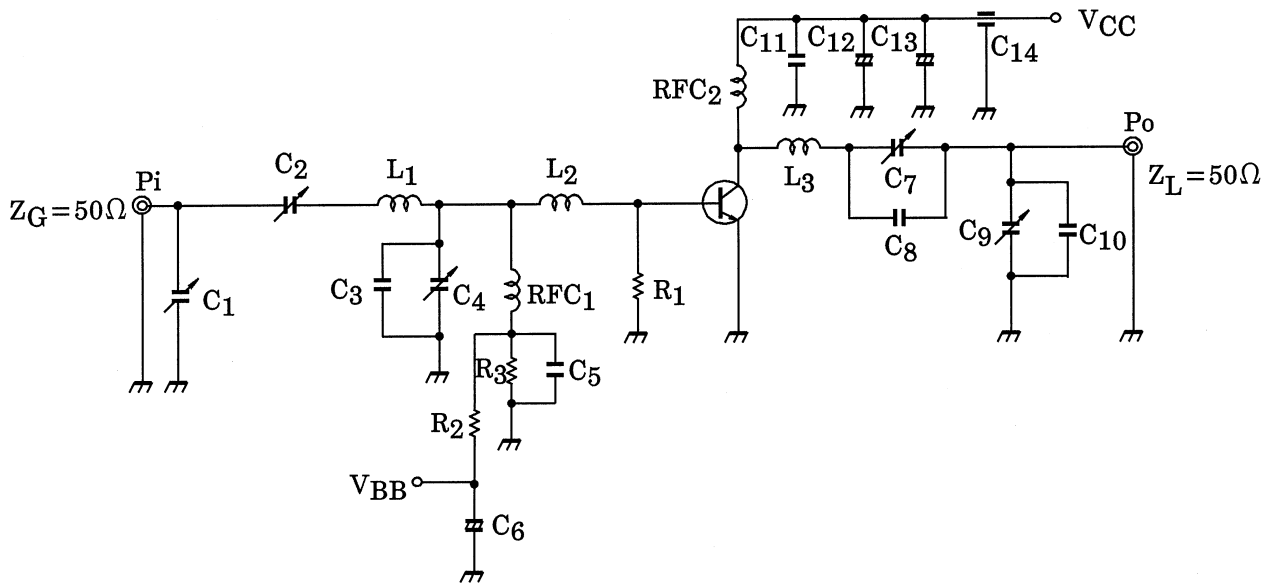


ELECTRICAL CHARACTERISTICS (T_c = 25°C)

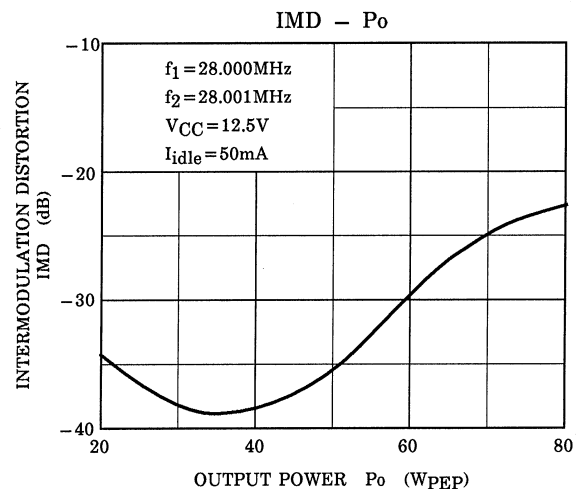
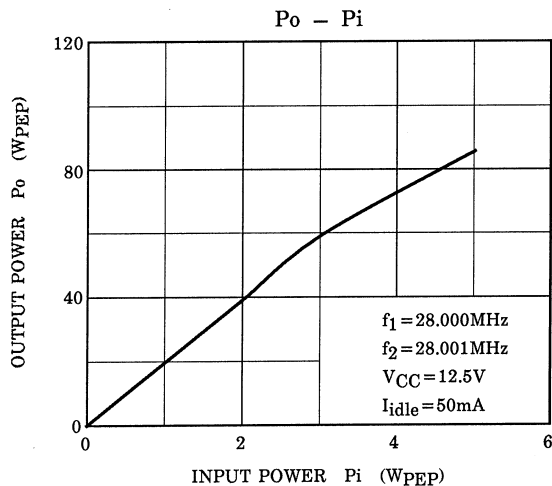
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	V _{(BR) CEO}	I _C = 100mA, I _B = 0	18	—	—	V
Collector-Emitter Breakdown Voltage	V _{(BR) CES}	I _C = 100mA, V _{EB} = 0	45	—	—	V
Emitter-Base Breakdown Voltage	V _{(BR) EBO}	I _E = 1mA, I _C = 0	4	—	—	V
DC Current Gain	h _{FE}	V _{CE} = 5V, I _C = 10A *	10	—	150	—
Collector Output Capacitance	C _{ob}	V _{CB} = 12.5V, I _E = 0 f = 1MHz	—	—	500	pF
Power Gain	G _p	V _{CC} = 12.5V, f ₁ = 28.000MHz, f ₂ = 28.001MHz I _{idle} = 50mA P _o = 60W _{PEP} (Fig.)	11.8	13.8	—	dB
Input Power	P _i		—	2.5	4	W _{PEP}
Collector Efficiency	η _C		35	—	—	%
Intermodulation Distortion	IMD		—	—	-30	dB
Series Equivalent Input Impedance	Z _{in}		—	1.02	—	Ω
Series Equivalent Output Impedance	Z _{out}	—	0.86	—	Ω	
				-j0.17		
				-j0.21		

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

Fig. Pi TEST CIRCUIT



- | | |
|---|--|
| C ₁ , C ₂ , C ₄ , C ₇ : 7~150pF | L ₁ : φ0.8 ENAMEL COATED COPPER WIRE, 9ID, 6T |
| C ₃ : 250pF | L ₂ : φ1 SILVER PLATED COPPER WIRE, 9ID, 2T |
| C ₅ : 0.4μF | L ₃ : φ1.5 ENAMEL COATED COPPER WIRE, 9ID, 5T |
| C ₆ : 100μF 10WV | RFC ₁ : φ0.8 ENAMEL COATED COPPER WIRE, 9ID, 20T |
| C ₈ : 150pF | RFC ₂ : φ1.5 ENAMEL COATED COPPER WIRE, 12ID, 15T |
| C ₉ : 10~200pF | R ₁ : 5.6Ω (1/2W) |
| C ₁₀ : 600pF | R ₂ : 5Ω (5W) |
| C ₁₁ : 0.4μF | R ₃ : 1.5Ω (10W) |
| C ₁₂ , C ₁₃ : 22μF 35WV | |
| C ₁₄ : 1000pF | |
- (FEED THROUGH)



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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