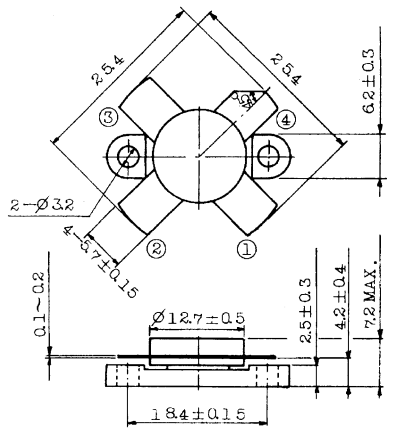
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2290

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 : η_C = 35% (Min.)
- Intermodulation Distortion: IMD = −30dB (Max.)



JEDEC	—
EIAJ	—
TOSHIBA	2−13B1A

Weight: 5.2g

MAXIMUM RATINGS (Tc = 25°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	°C
Storage Temperature Range	T_{stg}	−65~175	°C

ELECTRICAL CHARACTERISTICS (Tc = 25°C)

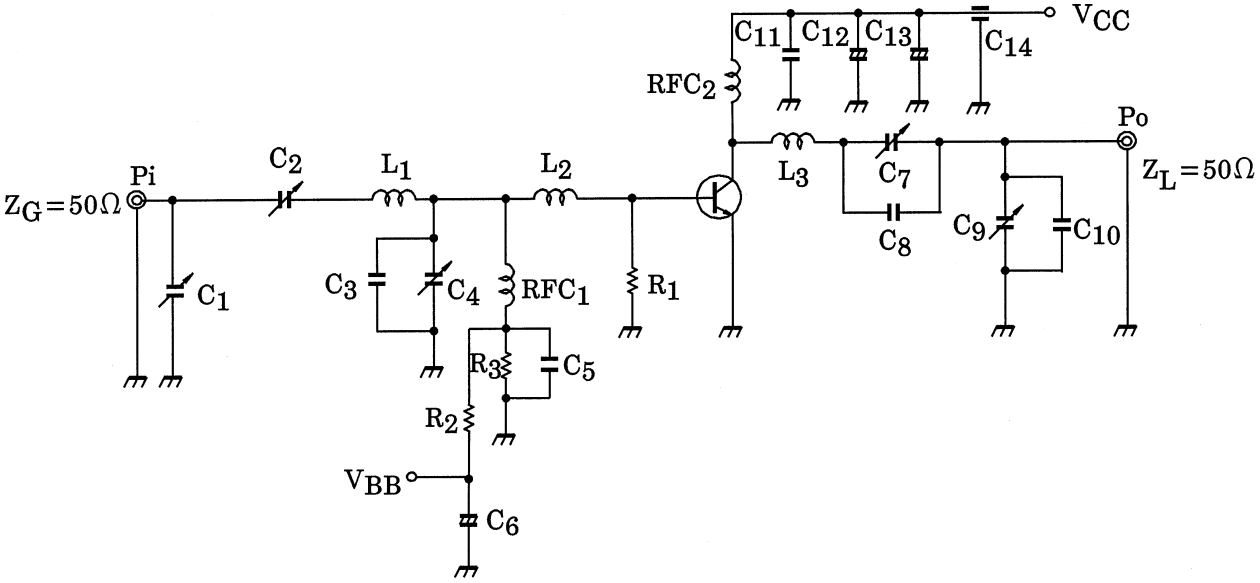
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR)\ CEO}$	I_C = 100mA, I_B = 0	18	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)\ CES}$	I_C = 100mA, V_{EB} = 0	45	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)\ EBO}$	I_E = 1mA, I_C = 0	4	—	—	V
DC 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 Po = 60W_{PEP} (Fig.)	11.8	13.8	—	dB
Input Power	Pi		—	2.5	4	W_{PEP}
Collector Efficiency	η_C		35	—	—	%
Intermodulation Distortion	IMD		—	—	−30	dB
Series Equivalent Input Impedance	Z_{in}	V_{CC} = 12.5V, f_1 = 28.000MHz, f_2 = 28.001MHz Po = 60W_{PEP}	—	1.02 −j0.17	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	0.86 −j0.21	—	Ω

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

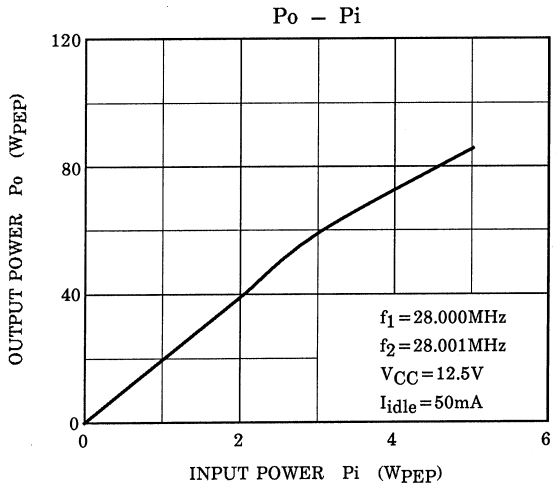
CAUTION

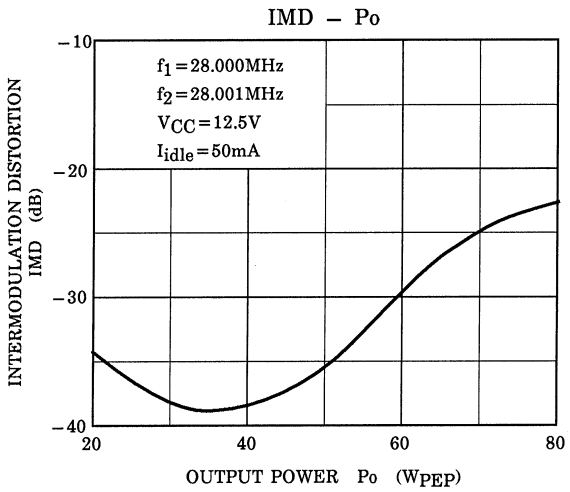
Beryllia Ceramics is used in this product. The dust or vapor can be dangerous to humans. Do not break, cut, crush or dissolve chemically. Dispose of this product properly according to law. Do not intermingle with normal industrial or domestic waste.

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.