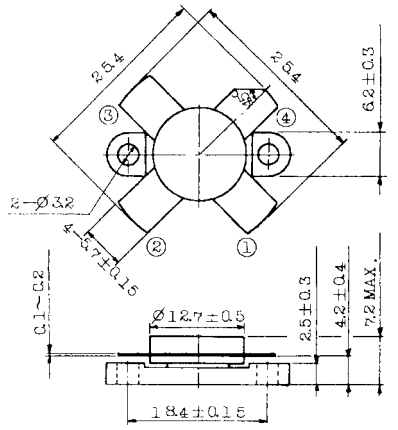
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2510

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

Unit in mm

- Specified 28V, 28MHz Characteristics
- Output Power : P_O = 150W$_{PEP}$ (Min.)
- Power Gain : G_P = 12.2dB (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}	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

ELECTRICAL CHARACTERISTICS (Tc = 25°C)

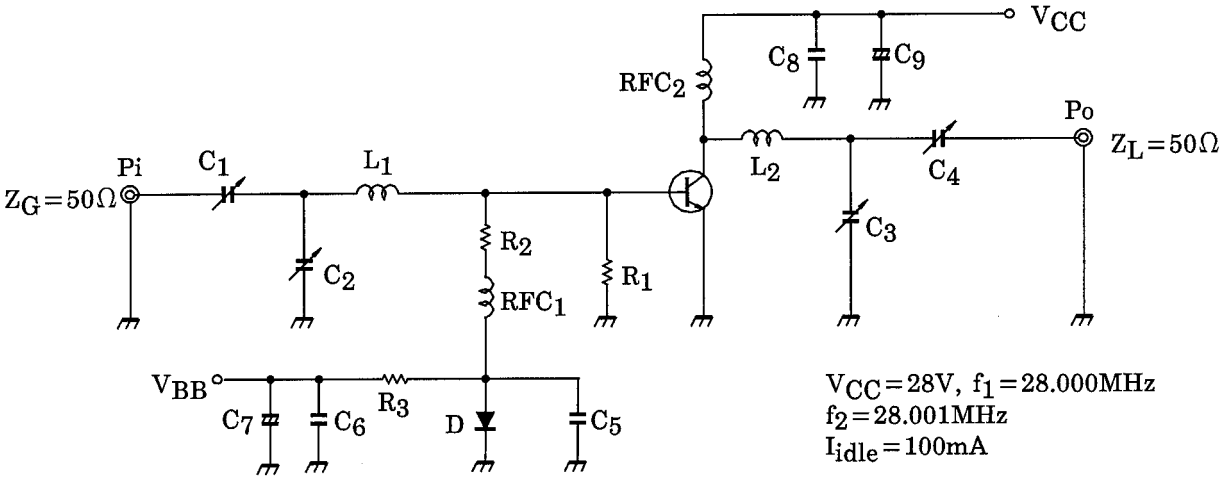
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR)\ CEO}$	I_C = 100mA, I_B = 0	35	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)\ CES}$	I_C = 100mA, V_{EB} = 0	55	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)\ EBO}$	I_E = 1mA, I_C = 0	4	—	—	V
DC 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 Po = 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} = 28V, f_1 = 28.000MHz, f_2 = 28.001MHz, Po = 150W_{PEP}	—	1.4 −j0.9	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	2.3 −j0.9	—	Ω

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

CAUTION

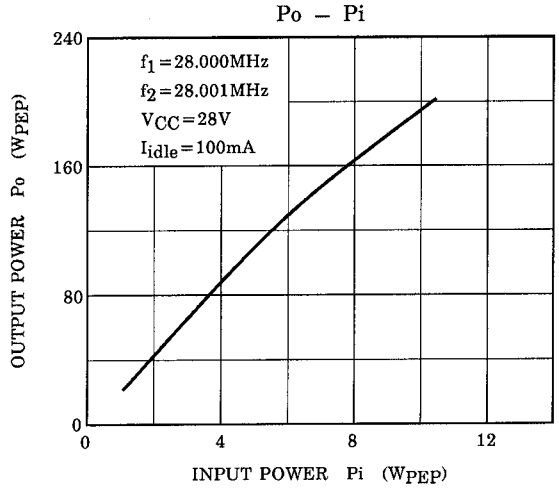
Beryllia Ceramics is used in this product. The dust or vapor can be dangerous to humans. Do not break, cut, crush or dissolve chemically. Dispose of this product properly according to law. Do not intermingle with normal industrial or domestic waste.

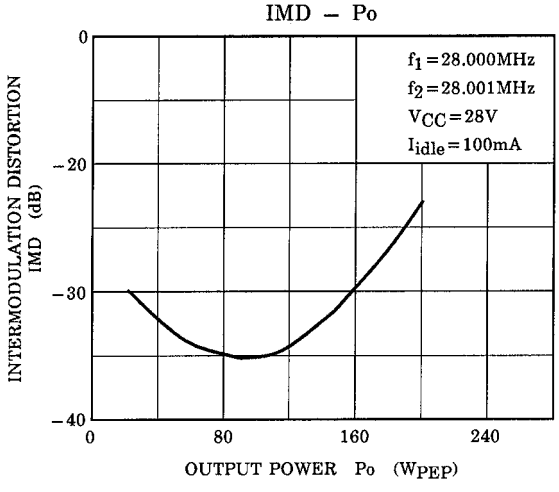
Fig. Pi TEST CIRCUIT



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

C_1, C_2	: 7~150pF	L_1	: ϕ0.8 ENAMEL COATED COPPER WIRE, 14ID, 4T, 4P
C3, C4	: 7~150pF 2KWV	L_2	: ϕ1.2 ENAMEL COATED COPPER WIRE, 14ID, 3 1/2T, 3P
C_5, C6	: 0.022μF	RFC_1	: ϕ0.8 ENAMEL COATED COPPER WIRE, 10ID, 9T (Ferrite Core TDK K2)
C_7	: 47μF 10WV		
C_8	: 0.04μF	RFC_2	: ϕ0.8 ENAMEL COATED COPPER WIRE, 14ID, 20T
C_9	: 100μF 50WV	R_1	: 10Ω (1W)
		R_2	: 2Ω (1/2W)
		R_3	: 10Ω (5W)
		D	: 1S1555





CAUTION

These are only typical curves and devices are not necessarily guaranteed at these curves.