

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

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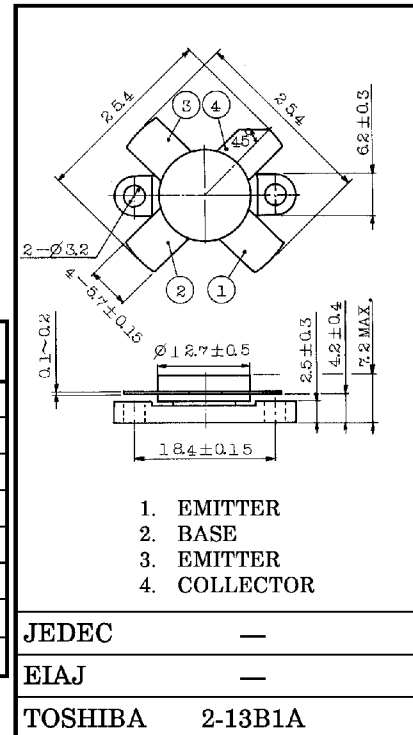
2~30MHz SSB LINEAR POWER AMPLIFIER APPLICATIONS
(50V SUPPLY VOLTAGE USE)

Unit in mm

- Specified 50V, 28MHz Characteristics
- Output Power : $P_o = 200W_{PEP}$
- Power Gain : $G_p = 13dB$ (Min.)
- Collector Efficiency : $\eta_C = 35%$ (Min.)
- Intermodulation Distortion : $IMD = -30dB$ (Max.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	85	V
Collector-Emitter Voltage	V_{CES}	85	V
Collector-Emitter Voltage	V_{CEO}	55	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	A
Collector Power Dissipation	P_C	300	W
Junction Temperature	T_j	175	$^\circ C$
Storage Temperature Range	T_{stg}	-65~175	$^\circ C$



ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ C$)

Weight : 5.2g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100mA, I_B = 0$	55	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 100mA, V_{BE} = 0$	85	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	4	—	—	V
DC Current Gain	h_{FE}	$V_{CB} = 5V, I_C = 10A *$	10	—	150	
Collector Output Capacitance	C_{ob}	$V_{CB} = 50V, I_E = 0$ $f = 1MHz$	—	300	—	pF
Power Gain	G_p	$V_{CC} = 50V,$ $f_1 = 28.000MHz$ $f_2 = 28.001MHz$	13.0	15.2	—	dB
Input Power	P_i	$I_{idle} = 100mA$	—	6	10	W_{PEP}
Collector Efficiency	η_C	$P_o = 200W_{PEP}$ (Fig.)	35	—	—	%
Intermodulation Distortion	IMD		—	—	-30	dB
Series Equivalent Input Impedance	Z_{in}	$V_{CC} = 50V, f = 28MHz$	—	1.15	—	Ω
Series Equivalent Output Impedance	Z_{out}	$\Delta f = 1kHz, P_o = 200W_{PEP}$	—	-j1.15	—	Ω
				5.4	—	Ω
				-j2.0	—	Ω

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

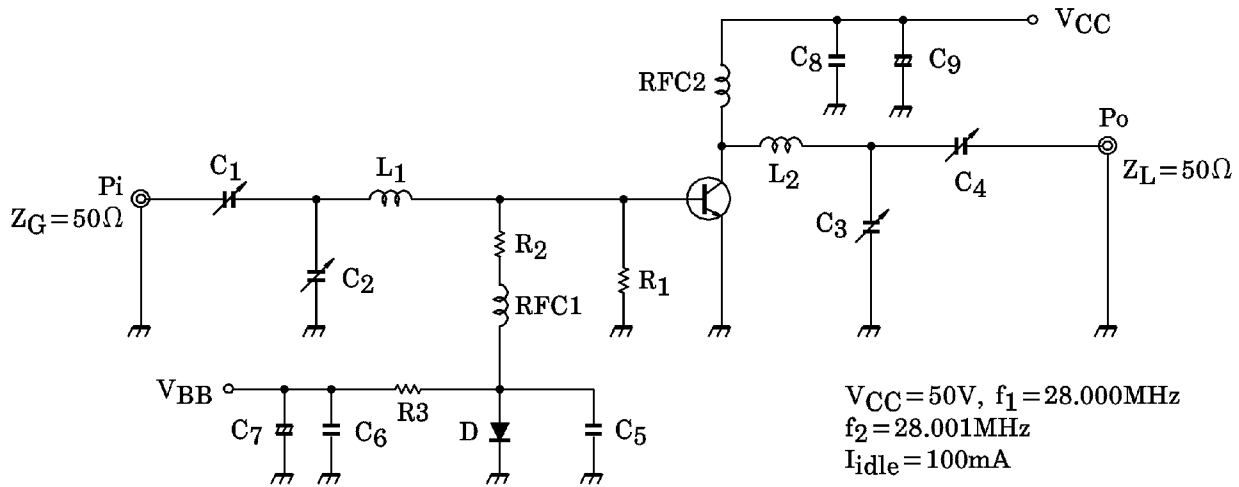
CAUTION

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 properly according to law. Do not intermingle with normal industrial or domestic waste.

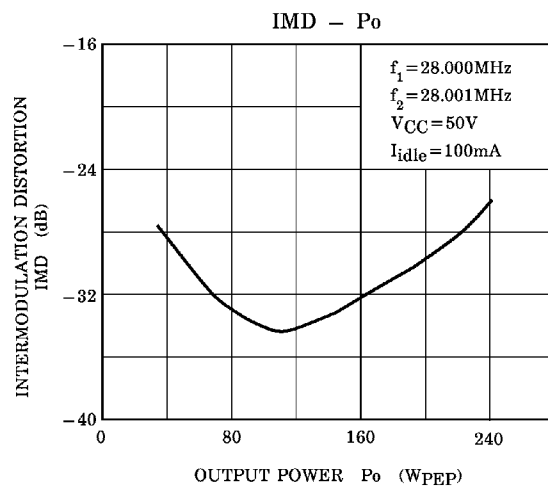
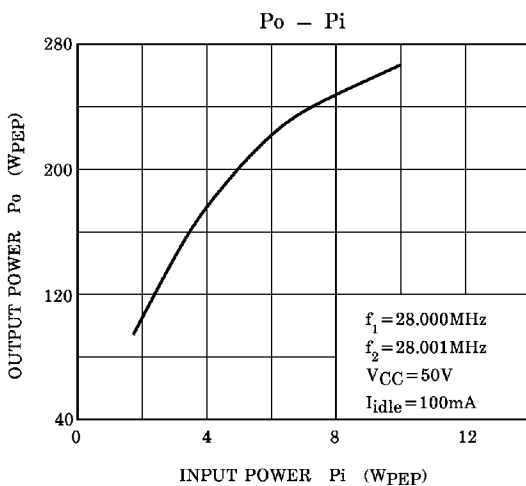
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Fig. Pi TEST CIRCUIT



- | | |
|----------------------------|---|
| 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 : 0.044 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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