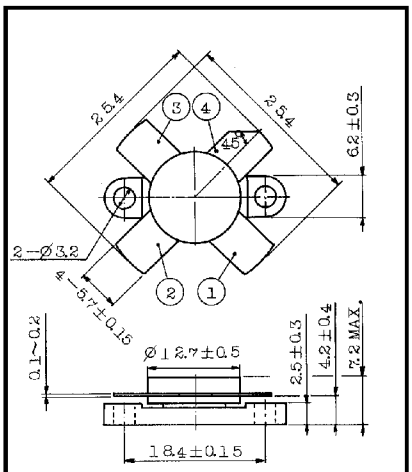
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2652

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

Unit in mm

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



1. EMITTER
2. BASE
3. EMITTER
4. COLLECTOR

JEDEC	—
EIAJ	—
TOSHIBA	2-13B1A

Weight : 5.2g

MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	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	°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	$V_{(BR)CEO}$	$I_C = 100mA$, $I_B = 0$	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	$V_{CC} = 50V$, $f_1 = 28.000MHz$, $f_2 = 28.001MHz$, $I_{idle} = 100mA$, $Po = 200W_{PEP}$.(Fig.)	13.0	15.2	—	dB
Input Power	Pi		—	6	10	W_{PEP}
Collector Efficiency	η_C		35	—	—	%
Intermodulation Distortion	IMD		—	—	−30	dB
Series Equivalent Input Impedance	Z_{in}	$V_{CC} = 50V$, $f = 28MHz$, $\Delta f = 1kHz$, $Po = 200W_{PEP}$	—	1.15 −j1.15	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	5.4 −j2.0	—	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 propely according to law. Do not intermingle with normal industrial or domestic waste.

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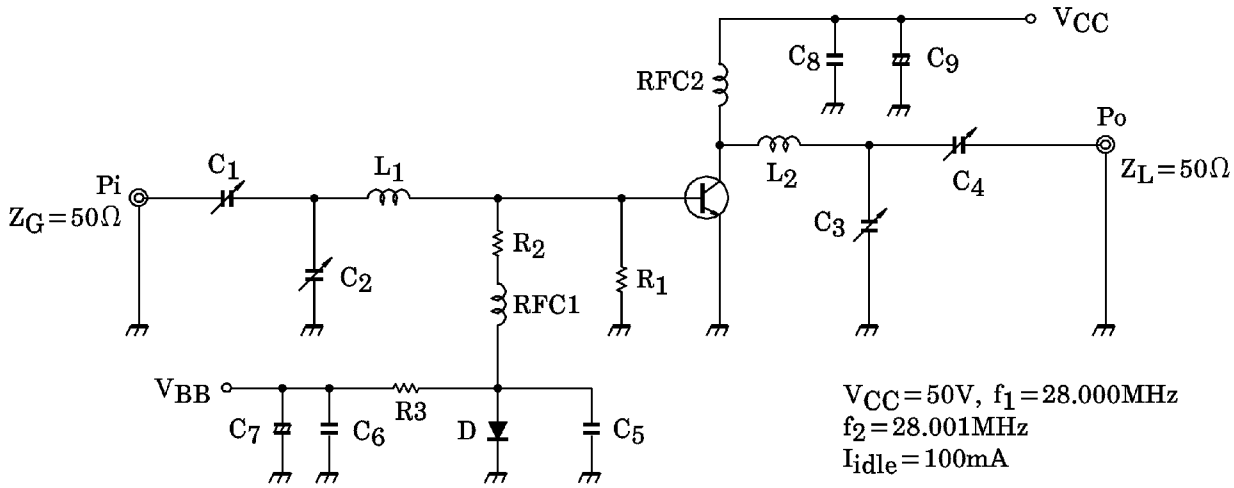
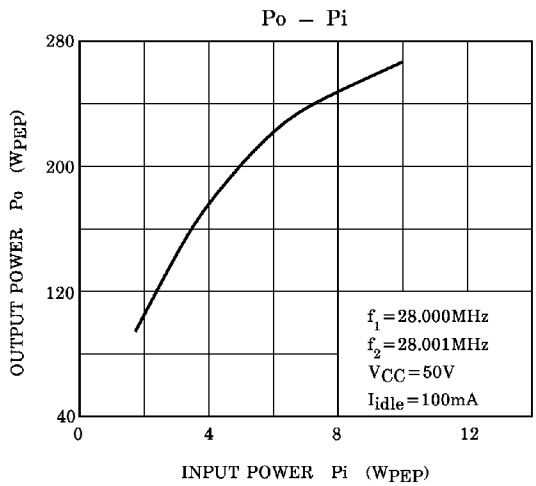
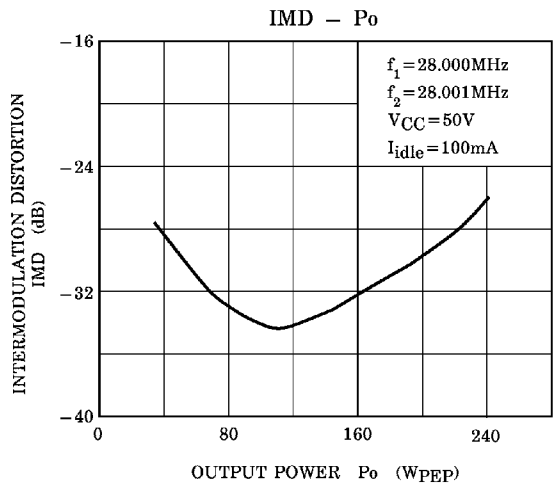
● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

Fig. Pi TEST CIRCUIT



C_1, C_2	:	7~150pF	L_1	:	ϕ0.8 ENAMEL COATED COPPER WIRE, 14ID, 4T, 4P
C_3, C_4	:	7~150pF 2KWV	L_2	:	ϕ1.2 ENAMEL COATED COPPER WIRE, 14ID, 3 1/2T, 3P
C_5, C_6	:	0.022μF	RFC_1	:	ϕ0.8 ENAMEL COATED COPPER WIRE, 10ID, 9T
C_7	:	47μF 10WV			(Ferrite Core TDK K2)
C_8	:	0.044μF	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.

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