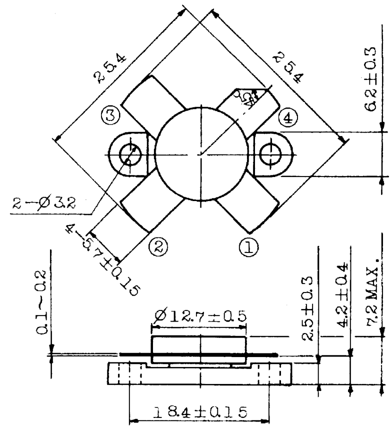
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2879A

2~30MHz SSB Linear Power Amplifier Applications (Low Supply Voltage Use)

Unit in mm



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

JEDEC	―
EIAJ	―
TOSHIBA	2–13B1A

Weight: 5.2g (typ.)

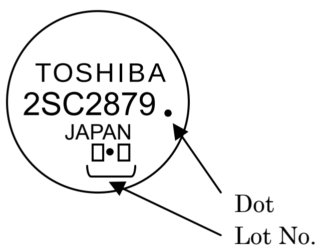
- Specified 12.5V, 28MHz Characteristics
- Output Power : $P_o = 100W_{PEP}$
- Power Gain : $G_p = 13dB$
- Collector Efficiency : $\eta_C = 35\%$ (Min.)
- Intermodulation Distortion : IMD = −24dB(Max.) (MIL Standard)

Absolute 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	25	A
Collector Power Dissipation	P_C	250	W
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_{stg}	−65~175	°C

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).

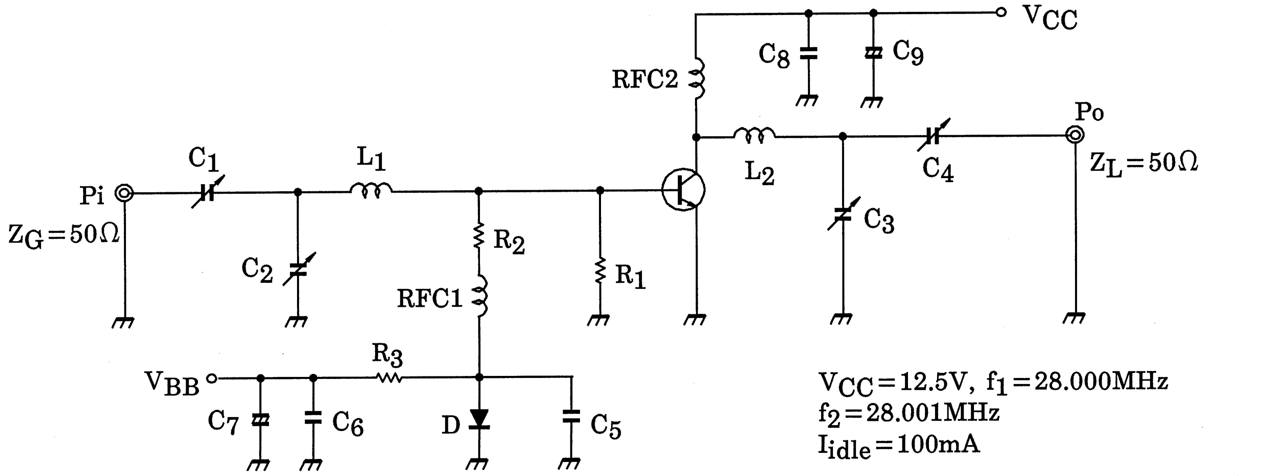
Marking



Electrical Characteristics (Tc = 25°C)

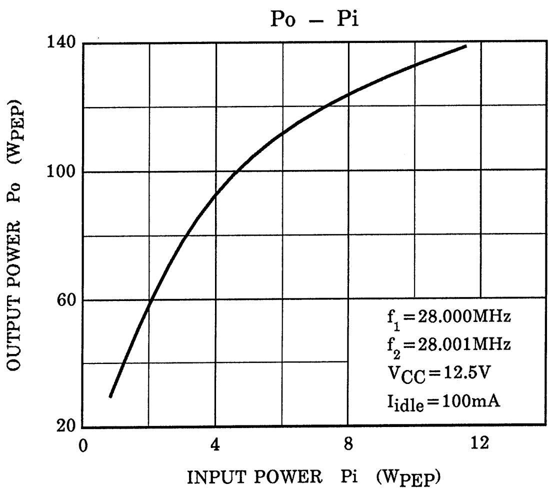
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR)\ CEO}$	I_C = 100mA, I_B = 0	18	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)\ CES}$	I_C = 100mA, V_{EB} = 0	45	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)\ EBO}$	I_E = 1mA, I_C = 0	4	—	—	V
DC 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	—	700	—	pF
Power Gain	G_p	V_{CC} = 12.5V, f_1 = 28.000MHz f_2 = 28.001MHz I_{idle} = 100mA Po = 100W_{PEP}.(Fig.)	13.0	15.2	—	dB
Input Power	Pi		—	6	10	W_{PEP}
Collector Efficiency	η_C		35	—	—	%
Intermodulation Distortion	IMD		—	—	−24	dB
Series Equivalent Input Impedance	Z_{in}	V_{CC} = 12.5V, f = 28MHz Δf = 1kHz, Po = 100W_{PEP}	—	1.45 −j0.95	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	1.45 −j1.0	—	Ω

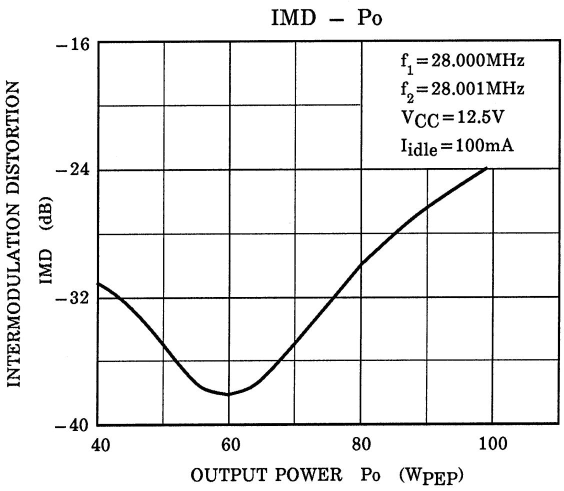
Fig. Pi Test Circuit



C_1, C_2 : 7~150pF
C_3, C_4 : 7~150pF 2KWV
C_5, C_6 : 0.022μF
C_7 : 47μF 10WV
C8 : 0.044μF
C9 : 100μF 50WV

L_1 : φ0.8 ENAMEL COATED COPPER WIRE, 14ID, 4T, 4P
L_2 : φ1.2 ENAMEL COATED COPPER WIRE, 14ID, 3 1/2T, 3P
RFC1 : φ0.8mm EMAMEL COATED COPPER WIRE, 10ID, 9T
(Ferrite Core TDK K2)
RFC2 : φ1.8mm ENAMEL COATED COPPER WIRE, 14ID, 20T
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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