

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC2879A

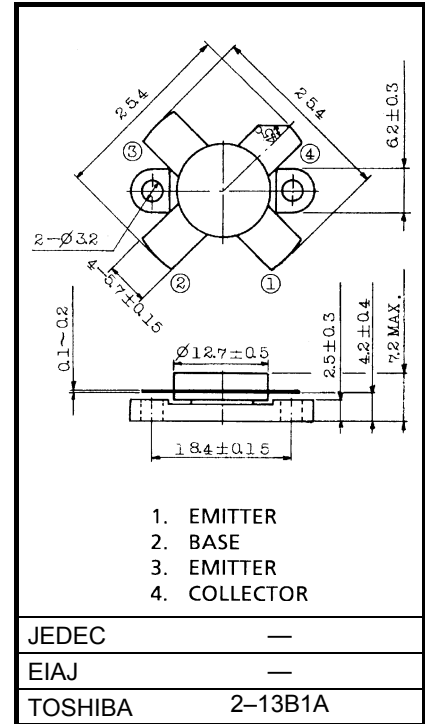
2~30MHz SSB LINEAR POWER AMPLIFIER APPLICATIONS  
(LOW SUPPLY VOLTAGE USE)

Unit in mm

- 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)

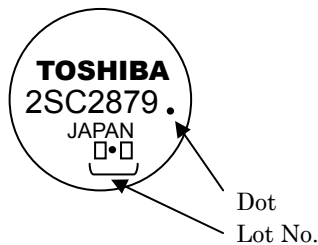
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	45	V
Collector-Emitter Voltage	$V_{CES}$	45	V
Collector-Emitter Voltage	$V_{CEO}$	18	V
Emitter-Base Voltage	$V_{EBO}$	4	V
Collector Current	$I_C$	25	A
Collector Power Dissipation	$P_C$	250	W
Junction Temperature	$T_j$	175	°C
Storage Temperature Range	$T_{stg}$	-65~175	°C



Weight: 5.2g

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).

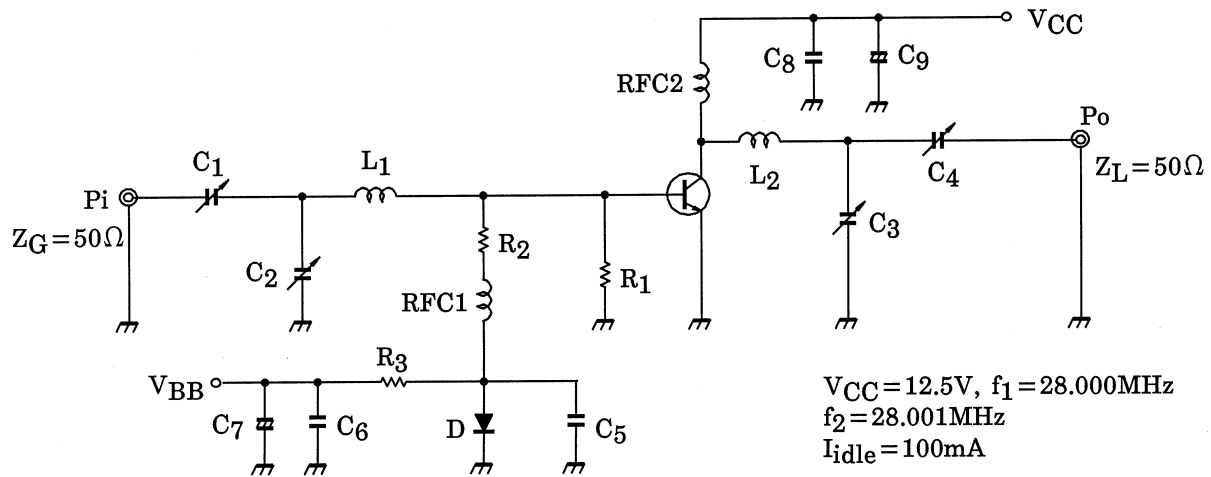
## MARKING



## ELECTRICAL CHARACTERISTICS (T<sub>c</sub> = 25°C)

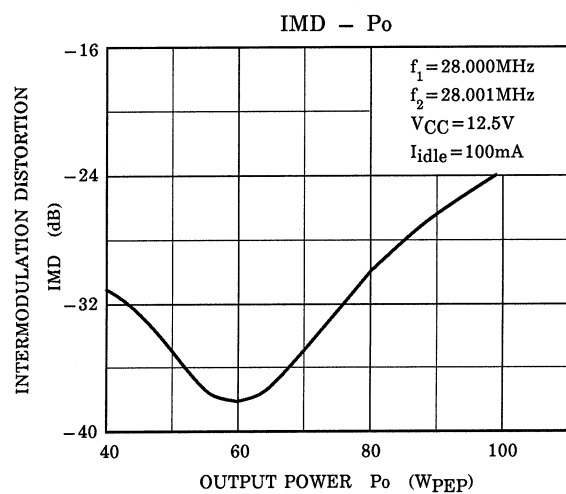
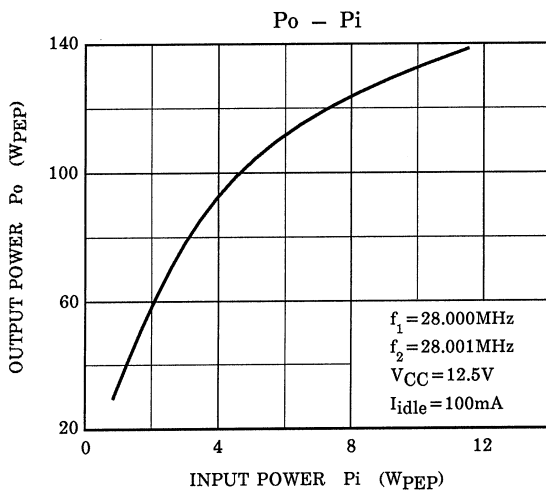
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	V <sub>(BR) CEO</sub>	I <sub>C</sub> = 100mA, I <sub>B</sub> = 0	18	—	—	V
Collector-Emitter Breakdown Voltage	V <sub>(BR) CES</sub>	I <sub>C</sub> = 100mA, V <sub>EB</sub> = 0	45	—	—	V
Emitter-Base Breakdown Voltage	V <sub>(BR) EBO</sub>	I <sub>E</sub> = 1mA, I <sub>C</sub> = 0	4	—	—	V
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10A	10	—	150	
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 12.5V, I <sub>E</sub> = 0 f = 1MHz	—	700	—	pF
Power Gain	G <sub>p</sub>	V <sub>CC</sub> = 12.5V, f <sub>1</sub> = 28.000MHz f <sub>2</sub> = 28.001MHz I <sub>idle</sub> = 100mA P <sub>o</sub> = 100W <sub>PEP</sub> (Fig.)	13.0	15.2	—	dB
Input Power	P <sub>i</sub>		—	6	10	W <sub>PEP</sub>
Collector Efficiency	η <sub>C</sub>		35	—	—	%
Intermodulation Distortion	IMD		—	—	-24	dB
Series Equivalent Input Impedance	Z <sub>in</sub>	V <sub>CC</sub> = 12.5V, f = 28MHz Δf = 1kHz, P <sub>o</sub> = 100W <sub>PEP</sub>	—	1.45 -j0.95	—	Ω
Series Equivalent Output Impedance	Z <sub>out</sub>		—	1.45 -j1.0	—	Ω

### Fig. Pi TEST CIRCUIT



$V_{CC} = 12.5V$ ,  $f_1 = 28.000MHz$   
 $f_2 = 28.001MHz$   
 $I_{idle} = 100mA$

- |                            |  |
|----------------------------|--|
| $C_1, C_2$ : 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 $\mu F$ | $RFC1$ : $\phi 0.8mm$ ENAMEL COATED COPPER WIRE, 10ID, 9T<br>(Ferrite Core TDK K2) |
| $C_7$ : 47 $\mu F$ 10WV    | $RFC2$ : $\phi 1.8mm$ ENAMEL COATED COPPER WIRE, 14ID, 20T                         |
| $C_8$ : 0.044 $\mu F$      | $R_1$ : 10 $\Omega$ (1W)   |
| $C_9$ : 100 $\mu F$ 50WV   | $R_2$ : 2 $\Omega$ (1/2W)  |
|                            | $R_3$ : 10 $\Omega$ (5W)   |
|                            | $D$ : 1S1555   |



### CAUTION

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

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20070701-EN GENERAL

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