SILICON NPN EPITAXIAL PLANAR TYPE

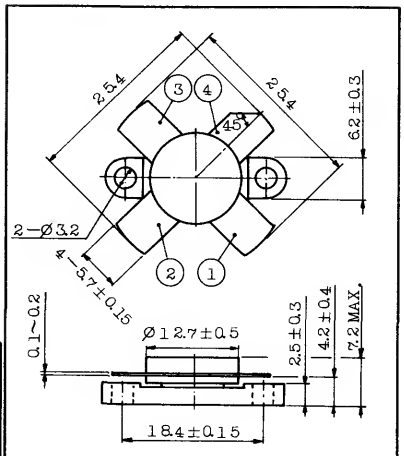
2SC2531

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

FEATURES:

. Specified 28V, 28MHz Characteristics
  : Output Power : P_O=150W_{PEP}
  : Minimum Gain : G_{pe}=12.2dB
  : Efficiency : η_C=35%(Min.)
  : Intermodulation Distortion : IMD=-30dB(Max.)

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2—13B1A

Weight : 5.2g

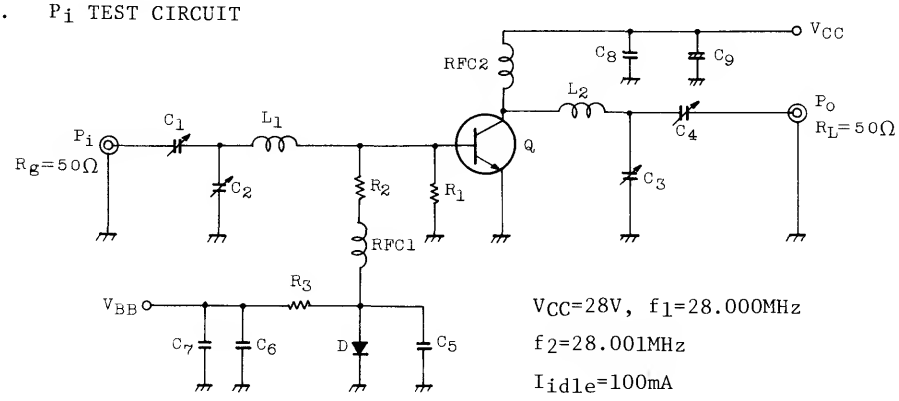
MAXIMUM RATINGS (Ta=25°C)

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 (Tc=25°C)	P_C	250	W
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_{stg}	-65 ~ 175	°C

ELECTRICAL CHARACTERISTICS (Ta=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_{BE}=0	60	-	-	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	Cob	V_{CB}=28V, I_E=0, f=1MHz	-	450	600	pF
Power Gain	G_{pe}	V_{CC}=28V, f=28MHz	12.2	13.3	-	dB
Input Power	P_i	2-Tone, Δf=1kHz	-	7	9	W_{PEP}
Collector Efficiency	η_C	I_{idle}=100mA, P_O=150W_{PEP}	35	-	-	%
Intermodulation Distortion	IMD	(Fig.)	-	-	-30	dB
Series Equivalent Input Impedance	Z_{IN}	V_{CC}=28V, f=28MHz	-	1.4 -j0.9	-	Ω
Series Equivalent Output Impedance	Z_{OUT}	Δf=1kHz, P_O=150W_{PEP}	-	2.3 -j0.9	-	Ω

Fig. P_i TEST CIRCUIT



V_{CC}=28V, f_1=28.000MHz

f_2=28.001MHz

I_{idle}=100mA

C_1,C_2 : 7～150pF

C_3,C_4 : 7～150pF 2KWV

C_5,C_6 : 0.022μF

C_7 : 47μF 10WV

C_8 : 0.04μF

C_9 : 100μF 50WV

Q : 2SC2510

L_1 : φ0.8 ENAMEL COATED COPPER WIRE, 14ID, 4T, 4P

L_2 : φ1.2 ENAMEL COATED COPPER WIRE, 14ID, 3½T, 3P

RFC1 : φ0.8 ENAMEL COATED COPPER WIRE, 10ID, 9T (Ferrite Core TDK K2)

RFC2 : φ0.8 ENAMEL COATED COPPER WIRE, 14ID, 20T

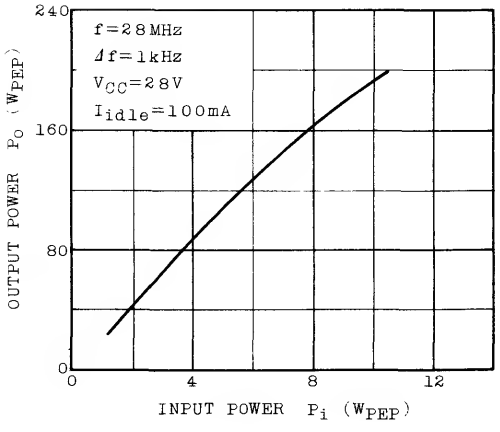
R_1 : 10Ω(1W)

R_2 : 2Ω (1/2W)

R_3 : 10Ω(5W)

D : 1S1555

P_O – P_i



IMD – P_O