SILICON NPN EPITAXIAL PLANAR TYPE

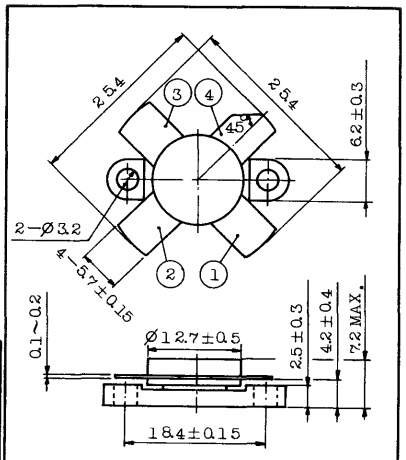
2SC2652

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

FEATURES

- Specified 50V, 28MHz Characteristics
  - : Output Power : P_O=200W$_{PEP}$
  - : Minimum Gain : G_{pe}=13dB
  - : Efficiency : η_C=35% (Min.)
  - : Intermodulation Distortion : IMD=-30dB(Max.)
- 100% Tested for Load Mismatch Stress at All Phase Angles with 30:1 VSWR
  @ V_{CC}=50V, P_O=150W$_{PEP}$, f=28MHz

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-13B1A

Weight : 5.2g

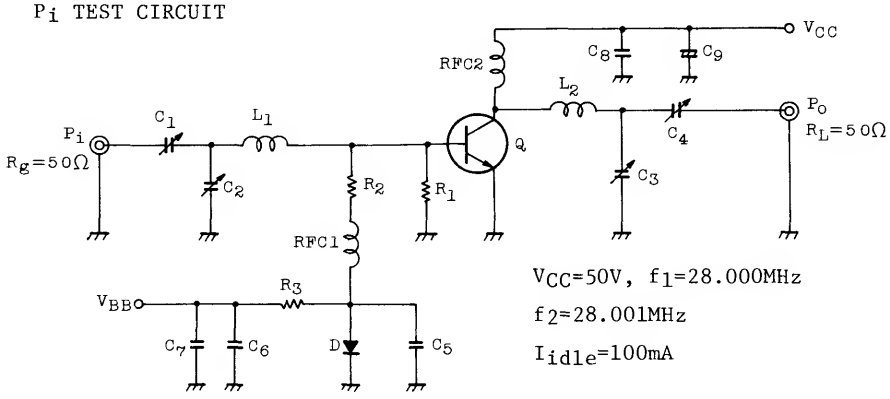
MAXIMUM RATINGS (Ta=25 ℃)

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 (Tc=25 ℃)	P_C	300	W
Junction Temperature	T_j	175	℃
Storage Temperature Range	T_{stg}	-65～175	℃

ELECTRICAL CHARACTERISTICS (Ta=25 ℃)

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_{CE}=5V, I_C=10A	10	-	150	
Collector Output Capacitance	C_{ob}	V_{CB}=50V, I_E=0, f=1MHz	-	300	-	pF
Power Gain	G_{pe}	V_{CC}=50V, f=28MHz	13.0	15.2	-	dB
Input Power	P_i	2-Tone, Δf=1kHz	-	6	10	W$_{PEP}$
Collector Efficiency	η_C	Iidle=100mA, P_O=200W$_{PEP}$	35	-	-	%
Intermodulation Distortion	IMD	(Fig.)	-	-	-30	dB
Series Equivalent Input Impedance	Z_{IN}	V_{CC}=50V, f=28MHz	-	1.15 -j1.15	-	Ω
Series Equivalent Output Impedance	Z_{OUT}	Δf=1kHz, P_O=200W$_{PEP}$	-	5.4 -j2.0	-	Ω

Fig. P_i TEST CIRCUIT



V_{CC}=50V, 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 : 0.044μF

C_9 : 100μF 50WV

Q : 2SC2652

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