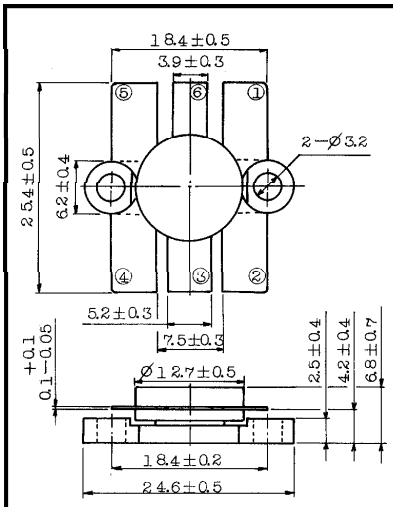
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC3147

VHF BAND POWER AMPLIFIER APPLICATIONS

Unit in mm

- Output Power : Po = 50W (Min.)
  (f = 175MHz, V_{CC} = 12.5V, η_C = 70% (Typ.)
- High Efficiency : η_C = 70% (Typ.)



1. EMITTER 4. EMITTER
2. EMITTER 5. EMITTER
3. BASE 6. COLLECTOR

JEDEC	—
EIAJ	—
TOSHIBA	2-13C1A

Weight : 5.5g

MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	36	V
Collector-Emitter Voltage	V_{CEO}	16	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	14	A
Collector Power Dissipation	P_C	150	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-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 20mA, I_E = 0	36	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 50mA, I_B = 0	16	—	—	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 = 5A *	10	—	—	—
Collector Output Capacitance	C_{ob}	V_{CB} = 12.5V, I_E = 0 f = 1MHz	—	—	330	pF
Output Power	Po	V_{CC} = 12.5V, f = 175MHz Pi = 10W, $\eta_C \geqq$ 60%	50	60	—	W
Series Equivalent Input Impedance	Z_{in}	V_{CC} = 12.5V f = 175MHz, Po = 50W	—	1.1 +j3.0	—	Ω
Series Equivalent Output Impedance	Z_{out}		—	1.5 +j2.5	—	Ω

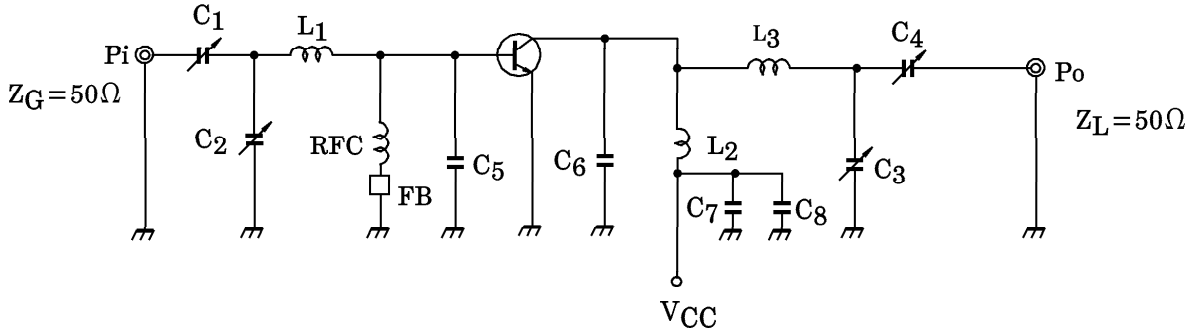
* Pulse Test : Pulse Width ≦ 100μs, Duty Cycle ≦ 3%

CAUTION

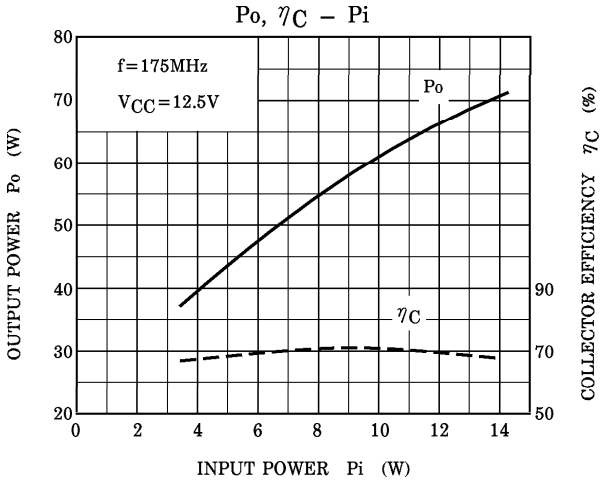
Beryllia Ceramics is used in this product. The dust or vapor can be dangerous to humans. Do not break, cut, crush or dissolve chemically. Dispose of this properly according to law. Do not intermingle with normal industrial or domestic waste.

961001EAA2

Fig. Po TEST CIRCUIT



C_1~C_4	:	~20pF
C_5	:	156pF (39pF×4) CERAMIC CONDENSER
C_6	:	132pF (33pF×4) CERAMIC CONDENSER
C_7	:	0.01μF CERAMIC CONDENSER
C_8	:	10μF
L_1, L_3	:	ϕ1.5mm SILVER PLATED COPPER WIRE, 10 ID, 1T
L_2	:	ϕ1.5mm SILVER PLATED COPPER WIRE, 10 ID, 2T
RFC	:	ϕ1mm ENAMEL COATED COPPER WIRE, 6 ID, 10T
FB	:	FERRITE BEAD



CAUTION

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