

DESCRIPTION

2SC5125 is a silicon NPN epitaxial planar type transistor specifically designed for high power amplifiers in VHF band.

FEATURES

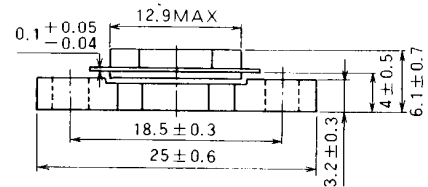
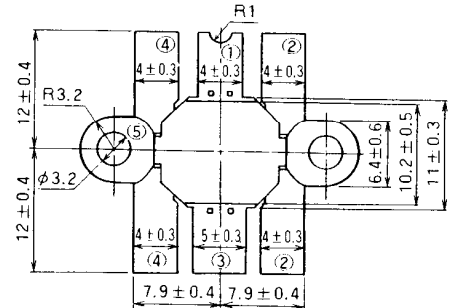
- High power output and high gain : $P_o \geq 80W$, $G_{pe} \geq 7.2dB$,
@ $V_{cc} = 12.5V$, $f = 175MHz$, $P_{in} = 15W$
- Emitter ballasted construction.
- Load mismatch : Ability to withstand more than 8 : 1 load
VSWR when operated at $V_{cc} = 15.2V$, $P_o = 80W$,
 $f = 175MHz$.
- High reliability due to gold metalization die.
- Flange type ceramic package.

APPLICATIONS

For output stage of 70W power amplifiers in VHF band.

OUTLINE DRAWING

Dimension in mm



PIN :

- (1) COLLECTOR
- (2) EMITTER (FLANGE)
- (3) BASE
- (4) EMITTER (FLANGE)
- (5) FIN (EMITTER)

T-40E

ABSOLUTE MAXIMUM RATINGS (T_c = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V _{CB0}	Collector-base voltage		35	V
V _{EB0}	Emitter-base voltage		4	V
V _{CE0}	Collector-emitter voltage	R _{BE} = ∞	17	V
I _c	Collector current		25	A
P _c	Collector dissipation		170	W
T _j	Junction temperature		175	°C
T _{stg}	Storage temperature		- 55 to 175	°C

Note. Above parameters are guaranteed independently.

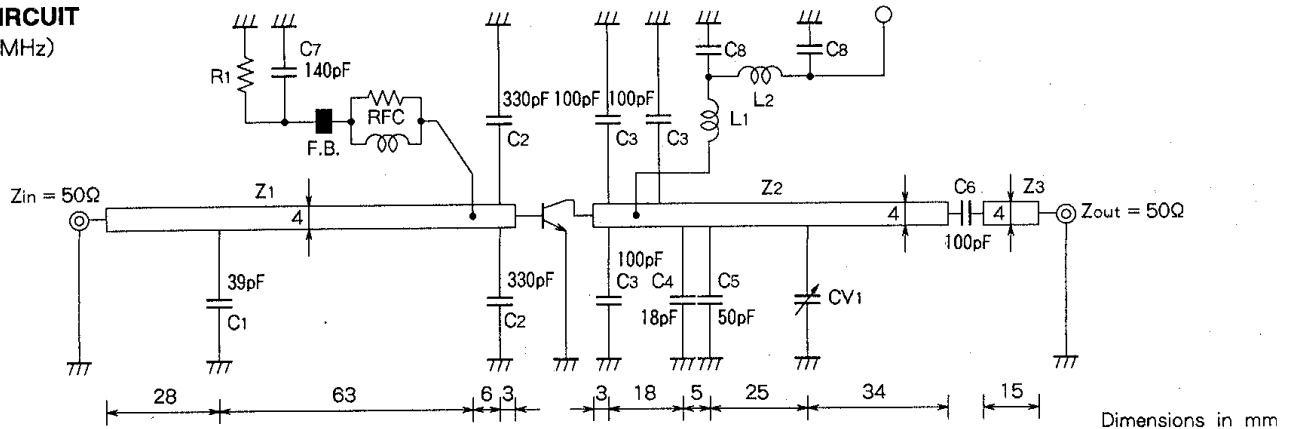
ELECTRICAL CHARACTERISTICS (T_c = 25°C unless otherwise noted)

Symbol	Parameter	Test conditions	Limits		Unit
			Min	Max	
V _{(BR)CBO}	Collector-base breakdown voltage	I _c = 20mA, I _E = 0	35		V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E = 20mA, I _c = 0	4		V
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _c = 100mA, R _{BE} = ∞	17		V
I _{CBO}	Collector cutoff current	V _{CB} = 15V, I _E = 0		5	mA
I _{EBO}	Emitter cutoff current	V _{EB} = 3V, I _c = 0		5	mA
h _{FE}	DC forward current gain	V _{CE} = 5V, I _c = 5A	10	180	—
P _o	Output power	V _{cc} = 12.5V, f = 175MHz, P _{in} = 15W	80		W
η _c	Collector efficiency		60		%

Note. Above parameters, ratings, limits and conditions are subject to change.

TEST CIRCUIT

($f = 175\text{MHz}$)



CV1 : Air variable capacitor
C1 : Mica capacitor
C2~C6 : Metal clad mica capacitor
C7 : Ceramic capacitor
C8 : 47pF, 2200pF, 22000pF in paralleled

L1 : 5.5D, 3T, 0P, $\phi 1.2$, silver plated copper wire
L2 : 5.5D, 4T, 0P, $\phi 1.2$, silver plated copper wire
RFC : 2.7k $\Omega \times 3$ in Parallel, 5D, 5T, 0P, $\phi 0.8$ enameled
R1 : 1 Ω
Z1~Z3 : Microstrip
Board material : teflon $t=1.6\text{mm}$, $\epsilon_r=2.6$

TYPICAL PERFORMANCE DATA

