

# 2SC5125

NPN EPITAXIAL PLANAR TYPE

### DESCRIPTION

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

### FEATURES

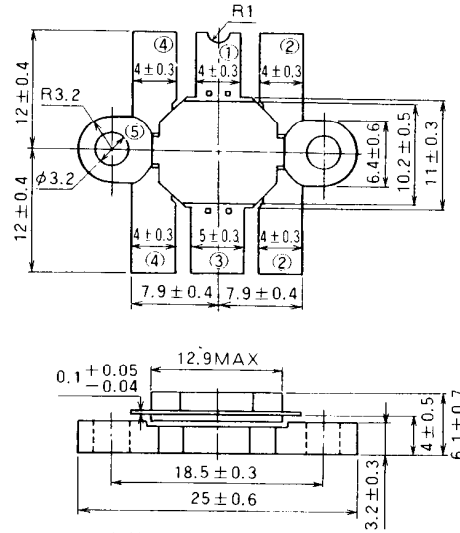
- High power output and high gain :  $P_o \geq 80W$ ,  $G_{pe} \geq 7.2dB$ ,  
@  $V_{cc} = 12.5V$ ,  $f = 175MHz$ ,  $P_{in} = 15W$
- Emitter ballasted construction.
- Load mismatch : Ability to withstand more than 8 : 1 load VSWR when operated at  $V_{cc} = 15.2V$ ,  $P_o = 80W$ ,  
 $f = 175MHz$ .
- 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 ( $T_c = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CBO}$	Collector-base voltage		35	V
$V_{EBO}$	Emitter-base voltage		4	V
$V_{CEO}$	Collector-emitter voltage	$R_{BE} = \infty$	17	V
$I_c$	Collector current		25	A
$P_c$	Collector dissipation		170	W
$T_j$	Junction temperature		175	$^\circ C$
$T_{stg}$	Storage temperature		- 55 to 175	$^\circ C$

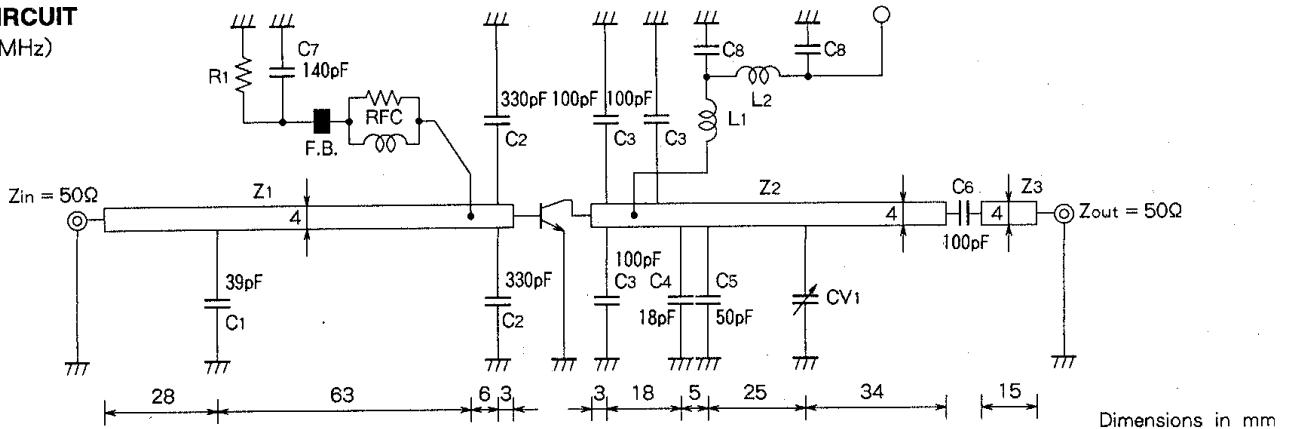
Note. Above parameters are guaranteed independently.

### ELECTRICAL CHARACTERISTICS ( $T_c = 25^\circ C$ 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	$I_c = 100mA$ , $R_{BE} = \infty$	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
$\eta_c$	Collector efficiency		60		%

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

**TEST CIRCUIT**  
(f = 175MHz)



- 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  $\Omega$
- Z1~Z3 : Microstrip
- Board material : teflon t=1.6mm,  $\epsilon_r$  = 2.6

**TYPICAL PERFORMANCE DATA**

