

## DESCRIPTION

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

## FEATURES

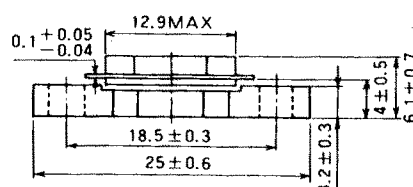
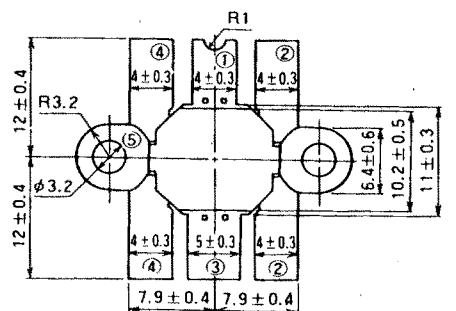
- High power output and high gain :  $P_o \geq 80W$ ,  $G_{pe} \geq 7.2dB$ ,  
@  $V_{cc} = 12.5V$ ,  $f = 175MHz$ ,  $P_{in} = 15W$
- Emitter ballasted construction.
- Load mismatch : Ability to withstand more than 8 : 1 load  
VSWR when operated at  $V_{cc} = 15.2V$ ,  $P_o = 80W$ ,  
 $f = 175MHz$ ,
- High reliability due to gold metalization die.
- Flange type ceramic package.
- Equivalent input/output series impedance :  
 $Z_{in} = 0.64 + j0.41\Omega$  @  $P_o = 80W$ ,  $V_{cc} = 12.5V$ ,  $f = 175MHz$   
 $Z_{out} = 0.87 + j0.13\Omega$

## 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<sub>c</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V <sub>CB0</sub>	Collector-base voltage		35	V
V <sub>EB0</sub>	Emitter-base voltage		4	V
V <sub>CEO</sub>	Collector-emitter voltage	R <sub>BE</sub> = ∞	17	V
I <sub>c</sub>	Collector current		25	A
P <sub>c</sub>	Collector dissipation		170	W
T <sub>j</sub>	Junction temperature		175	°C
T <sub>stg</sub>	Storage temperature		- 55 to 175	°C

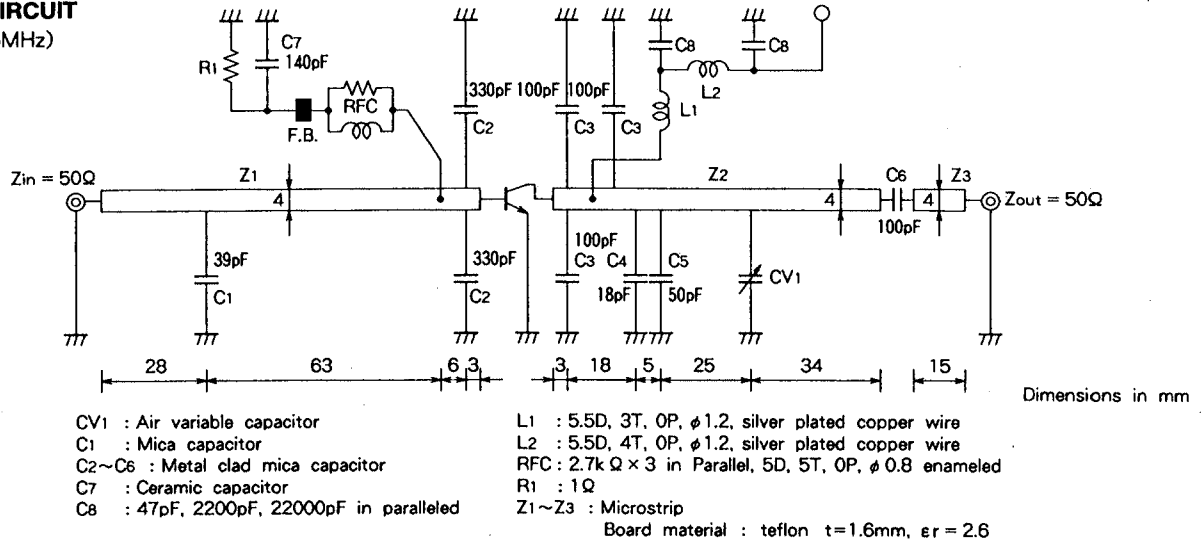
Note. Above parameters are guaranteed independently.

## ELECTRICAL CHARACTERISTICS (T<sub>c</sub> = 25°C unless otherwise noted)

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

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

**TEST CIRCUIT**  
( $f = 175\text{MHz}$ )



**TYPICAL PERFORMANCE DATA**

