

# 2SC2988

## Silicon NPN Epitaxial Planar Type

### RF Power Amplifier

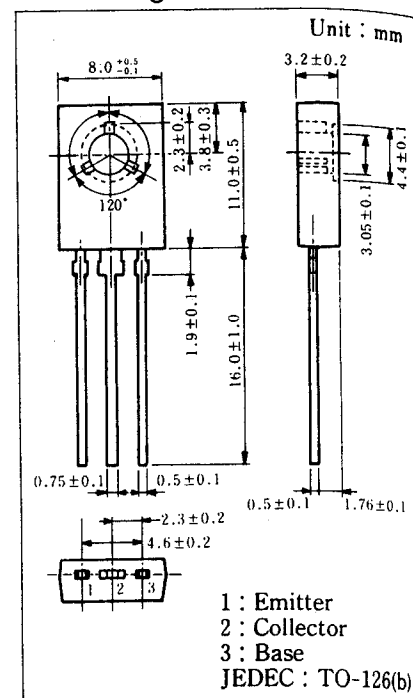
#### ■ Features

- Power output 1.8W on VHF band ( $f=175\text{MHz}$ )
- High gain 10dB

#### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Collector-base voltage	$V_{\text{CBO}}$	36	V
Collector-emitter voltage	$V_{\text{CEO}}$	16	V
Emitter-base voltage	$V_{\text{EBO}}$	3	V
Peak collector current	$I_{\text{CP}}$	1	A
Collector current	$I_{\text{C}}$	0.5	A
Collector power dissipation ( $T_c=25^\circ\text{C}$ )	$P_{\text{C}}$	5	W
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 ~ +150	$^\circ\text{C}$

#### ■ Package Dimensions

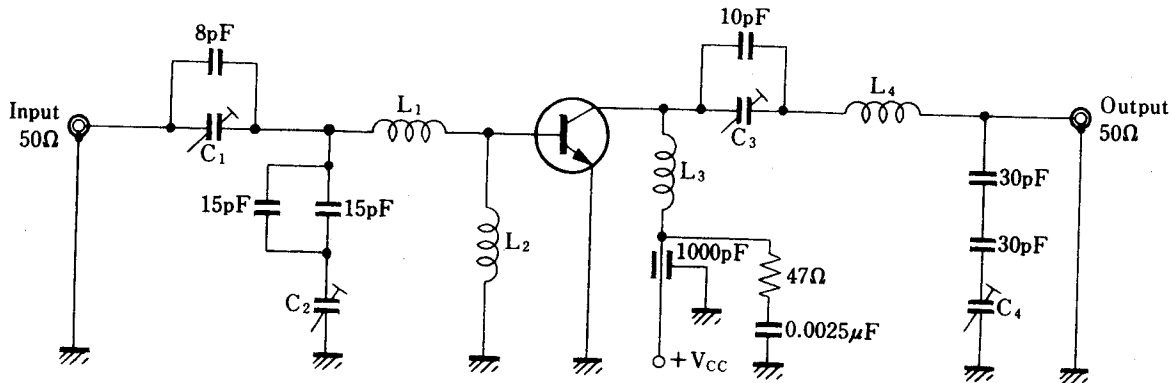


#### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{\text{CBO}}$	$V_{\text{CB}}=20\text{V}, I_{\text{E}}=0$			10	$\mu\text{A}$
Emitter cutoff current	$h_{\text{FE}}$	$V_{\text{CE}}=13.5\text{V}, I_{\text{C}}=200\text{mA}^*$	20	50		
Transition frequency	$f_{\text{T}}$	$V_{\text{CB}}=10\text{V}, I_{\text{E}}=-100\text{mA}^*, f=200\text{MHz}$	600	1000		MHz
Collector output capacitance	$C_{\text{ob}}$	$V_{\text{CB}}=10\text{V}, I_{\text{E}}=0, f=1\text{MHz}$		6	10	pF
Overall efficiency characteristics	$P_{\text{O}}$	$V_{\text{CC}}=13.5\text{V}, P_{\text{in}}=0.2\text{W}, f=175\text{MHz}$	1.8	2.2		W
Output power	$\eta_{\text{c}}$	$V_{\text{CC}}=13.5\text{V}, P_{\text{in}}=0.2\text{W}, f=175\text{MHz}$		50		%

\*パルス測定

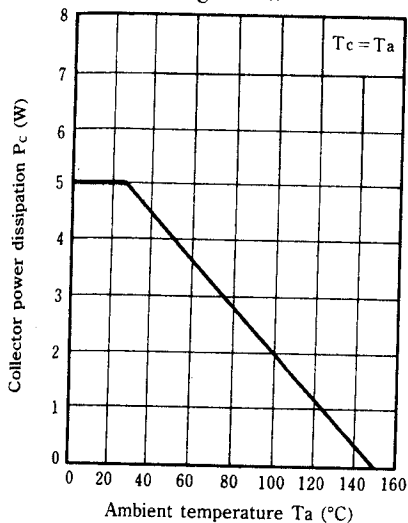
### Measurement circuit for output power



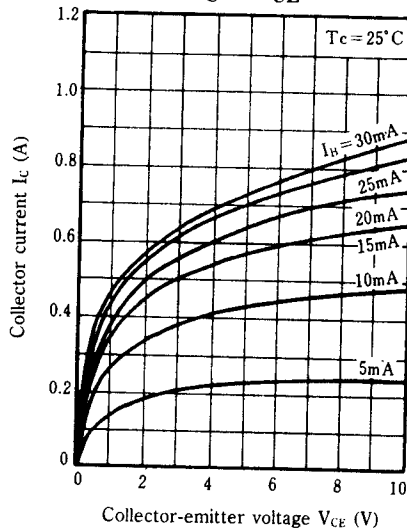
Circuit Constant

- C<sub>1</sub> : 40pF
- C<sub>2</sub> : 30pF
- C<sub>3</sub> : 30pF
- C<sub>4</sub> : 30pF
- L<sub>1</sub> : Ag/Cu, 2mm φ, L=18mm
- L<sub>2</sub> : Ag/Cu, 1mm φ, 7.5t, ID=8mm
- L<sub>3</sub> : Ag/Cu, 1mm φ, 1.5t, ID=7.5mm
- L<sub>4</sub> : Ag/Cu, 1.5mm φ, 2t+10mm×2, ID=11mm, Pitch 5

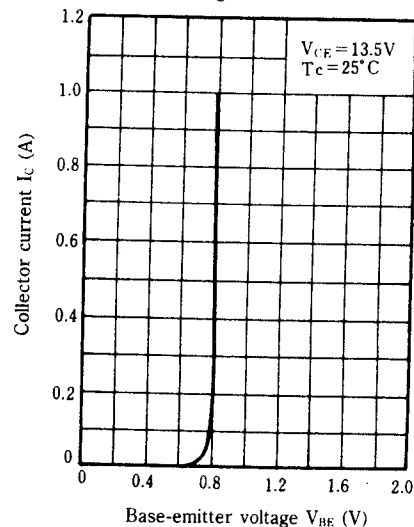
### P<sub>C</sub> - T<sub>a</sub>



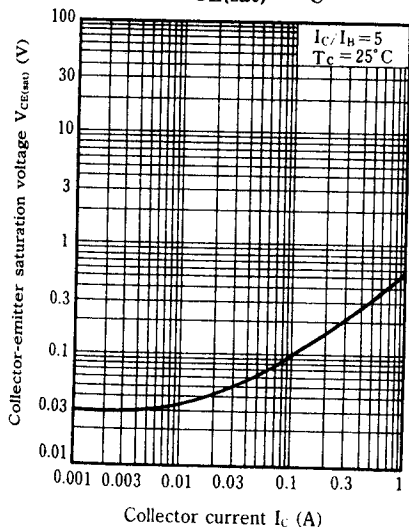
### I<sub>C</sub> - V<sub>CE</sub>



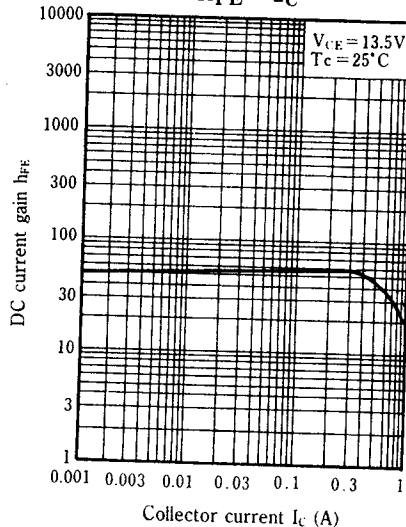
### I<sub>C</sub> - V<sub>BE</sub>



### V<sub>CE(sat)</sub> - I<sub>C</sub>



### h<sub>FE</sub> - I<sub>C</sub>



### C<sub>ob</sub> - V<sub>CB</sub>

