

# 2SC2851

## Silicon NPN epitaxial planer type

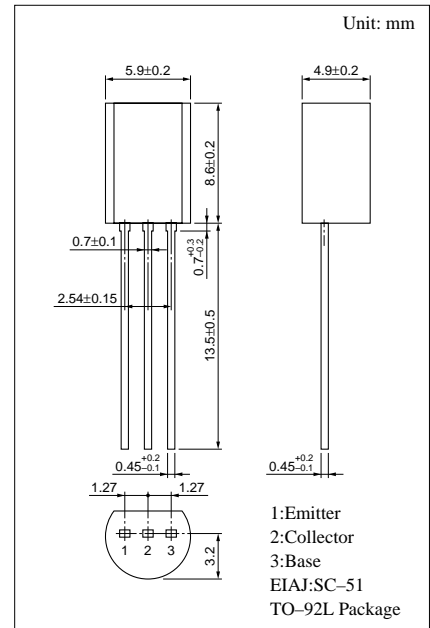
For high-frequency power amplification

### Features

- High transition frequency  $f_T$ .
- Output of 0.6W is obtained in the VHF band ( $f = 175\text{MHz}$ ).

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

Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	36	V
Collector to emitter voltage	$V_{CEO}$	16	V
Emitter to base voltage	$V_{EBO}$	3	V
Peak collector current	$I_{CP}$	0.5	A
Collector current	$I_C$	0.3	A
Collector power dissipation	$P_C$	1	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$

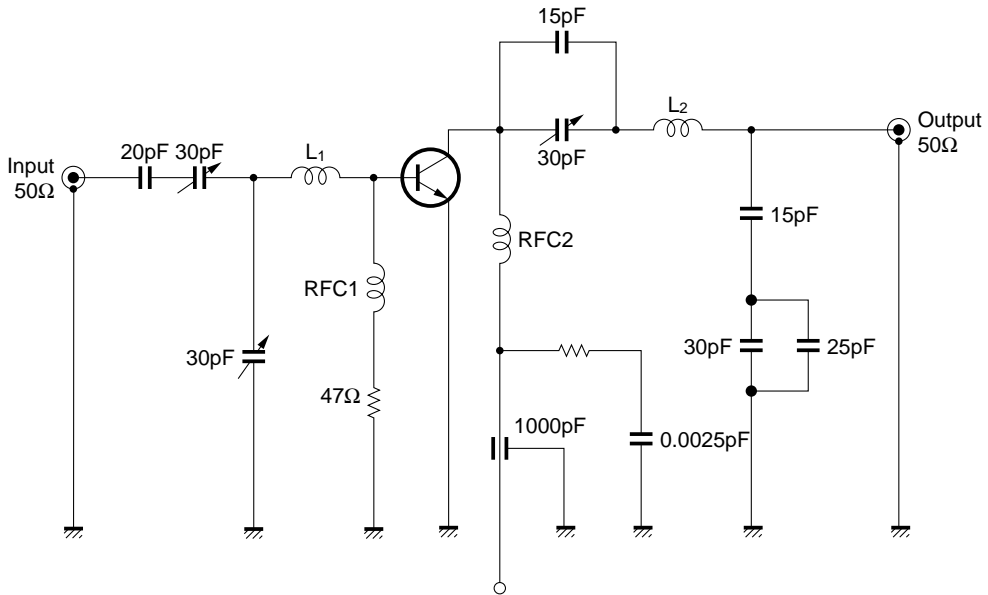


### Electrical Characteristics ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 20\text{V}, I_E = 0$			10	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 13.5\text{V}, I_C = 100\text{mA}$	20	50		
Transition frequency	$f_T$	$V_{CB} = 10\text{V}, I_E = -100\text{mA}, f = 200\text{MHz}$	1.5	2		GHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$		4	8	pF
High-frequency output	$P_O^*$	$V_{CC} = 13.5\text{V}, P_i = 0.03\text{W}, f = 175\text{MHz}$	0.6	0.9		W
Overall efficiency	$\eta$	$V_{CC} = 13.5\text{V}, P_i = 0.03\text{W}, f = 175\text{MHz}$		60		%

\*Refer to the  $P_O$  measurement circuit

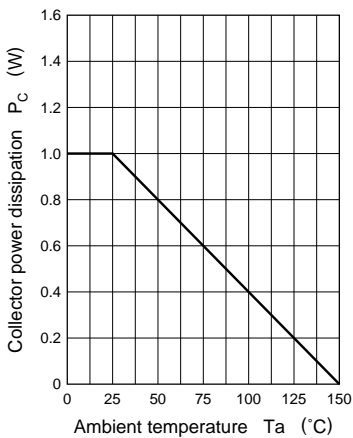
The high-frequency output measurement circuit at 175MHz



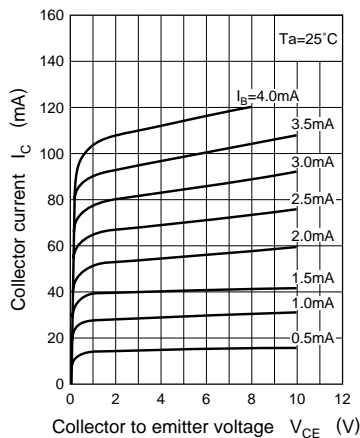
Circuit constants

- $L_1$ :  $\phi 2\text{mm}$  silver plated copper wire, 0.5T,  $D = 15$
- $L_2$ :  $\phi 1.5\text{mm}$  silver plated copper wire, 2T,  $D = 15$
- RFC1:  $\phi 1.0\text{mm}$  enameled, 15T,  $D = 7$
- RFC2:  $\phi 1.5\text{mm}$  silver plated copper wire, 5T,  $D = 8$

$P_C - T_a$



$I_C - V_{CE}$



$I_C - V_{BE}$

