

2SC2851

Silicon NPN epitaxial planer type

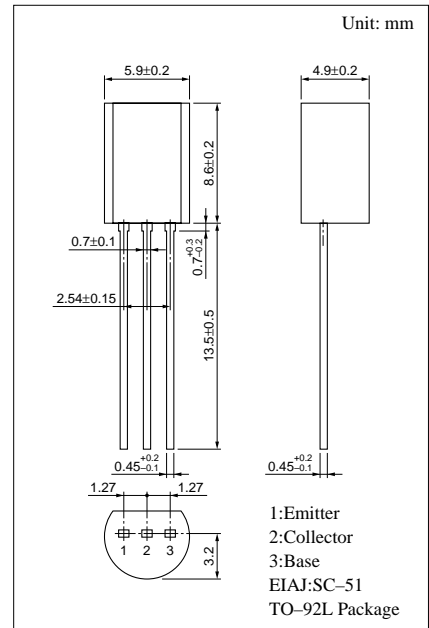
For high-frequency power amplification

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}	$-55 \sim +150$	$^\circ\text{C}$

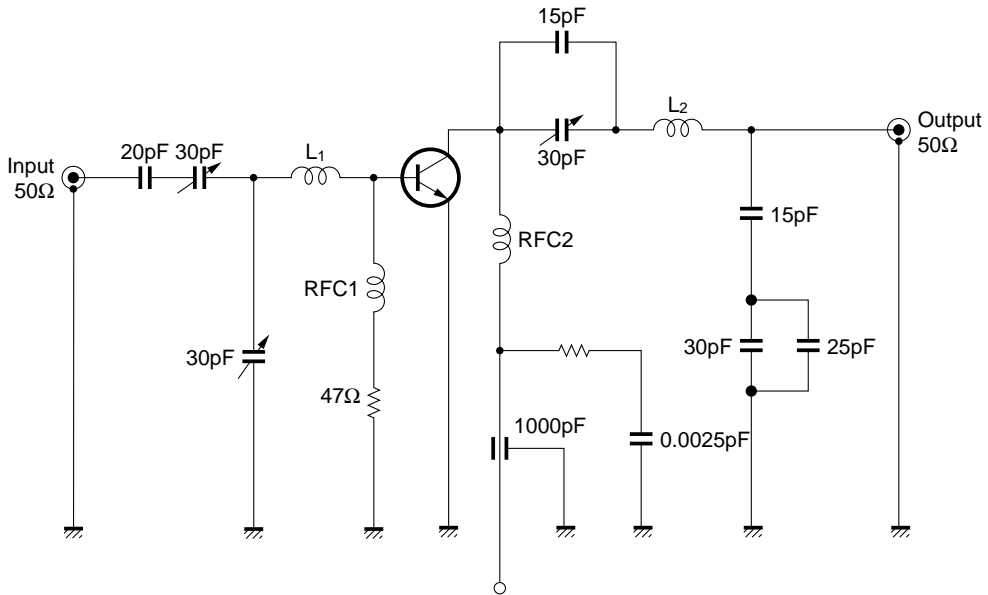


Electrical Characteristics ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 20\text{V}, I_E = 0$			10	μA
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	η	$V_{CC} = 13.5\text{V}, P_i = 0.03\text{W}, f = 175\text{MHz}$		60		%

*Refer to the P_O measurement circuit

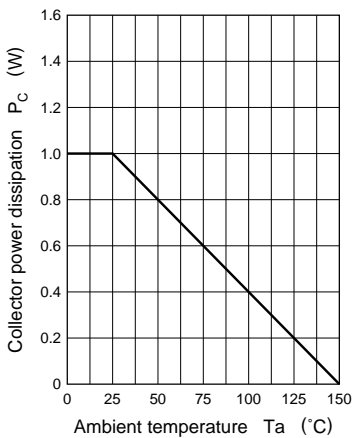
The high-frequency output measurement circuit at 175MHz



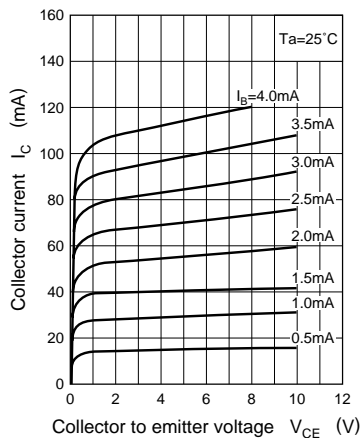
Circuit constants

- 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, $D = 8$

$P_C - T_a$



$I_C - V_{CE}$



$I_C - V_{BE}$

