

2SC3933

Silicon NPN planer type

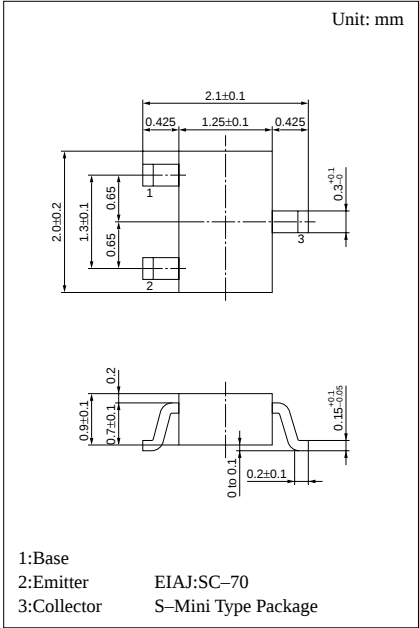
For UHF amplification/mixing

■ Features

- High power gain PG.
- High transition frequency f_T .
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	20	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ +150	°C



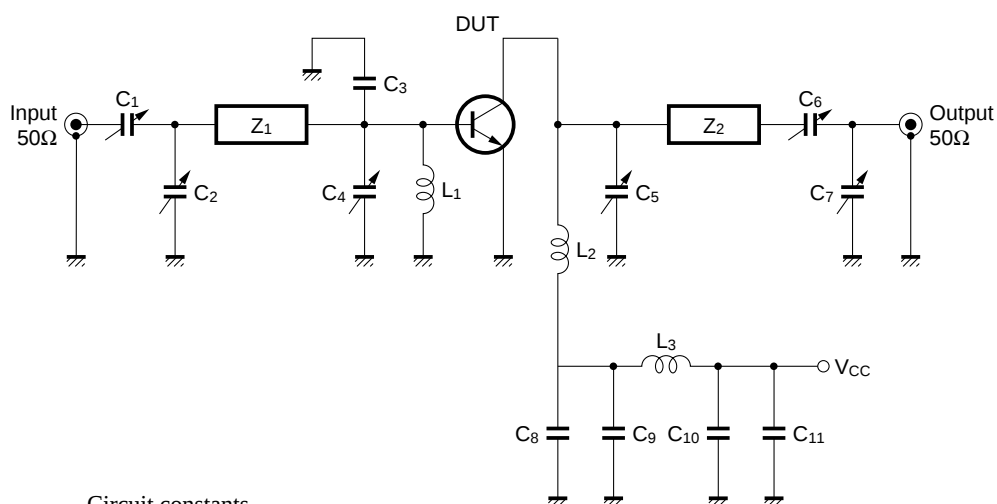
Marking symbol : 1T

■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 25V, I_E = 0$			1	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 3V, I_C = 0$			10	μA
Forward current transfer ratio	h_{FE1}	$V_{CB} = 10V, I_E = -3mA$	40		200	
	h_{FE2}	$V_{CB} = 10V, I_E = -10mA$	40		200	
	h_{FE3}	$V_{CB} = 10V, I_E = -100\mu A$	60			
Transition frequency	f_T	$V_{CB} = 10V, I_E = -3mA, f = 200MHz$	750	1100	1400	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$		0.7		pF
Common emitter reverse transfer capacitance	C_{rb}	$V_{CB} = 10V, I_E = 0, f = 1MHz$		0.15		pF
Power gain	PG*	$V_{CC} = 11V, V_{AGC} = 3V, f = 800MHz$	14			dB
Noise figure	NF*	$V_{CC} = 11V, V_{AGC} = 3V, f = 800MHz$			5	dB

*PG, NF Refer to the measurement circuit

The high-frequency output measurement circuit



Circuit constants

$C_1, C_2, C_4 \sim C_7 : \sim 20\text{pF}$

$C_3 : 5\text{pF}$

$C_8, C_{10} : 100\text{pF}$

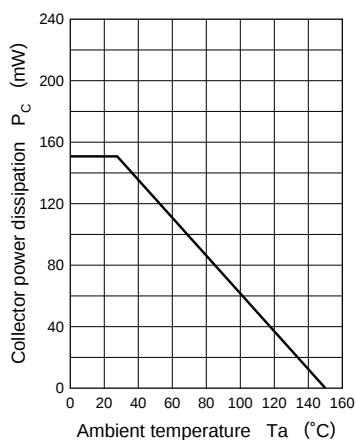
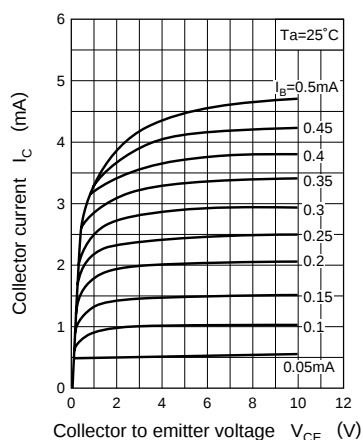
$C_9, C_{11} : 1000\text{pF}$

$L_1, L_2 : \phi 0.6\text{mm polyurethane, } 2\text{T, } D = 5$

$L_3 : \phi 0.6\text{mm polyurethane, } 2\text{T, } D = 5$

$Z_1 : \text{copper board, } 2.75\text{mm} \times 20\text{mm}$

$Z_2 : \text{copper board, } 2.75\text{mm} \times 20\text{mm}$

 $P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$ 