

## S9012 PNP Transistors

### General description

SOT-23 Plastic-Encapsulate Transistors

### SOT-23

#### FEATURES

- Complementary to S9013
- Power Dissipation of 300mW
- High Stability and High Reliability

#### MECHANICAL DATA

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

1. BASE  
2. EMITTER  
3. COLLECTOR



**Marking: 2T1**

### Maximum Ratings & Thermal Characteristics T<sub>A</sub> = 25°C unless otherwise noted

Characteristic	Symbol	Rating	Unit
Collector-Base voltage	V <sub>CBO</sub>	-40	Vdc
Collector-Emitter Voltage	V <sub>CEO</sub>	-30	Vdc
Emitter-Base voltage	V <sub>EBO</sub>	-5.0	Vdc
Collector Current-Continuous	I <sub>C</sub>	-500	mAdc
Base-Current	I <sub>B</sub>	-50	mAdc
Collector Power Dissipation	P <sub>C</sub>	300	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ 150	°C

# S9012



## Electrical Characteristics

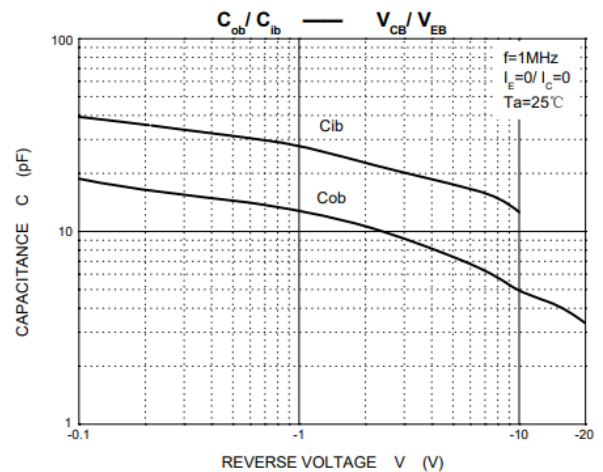
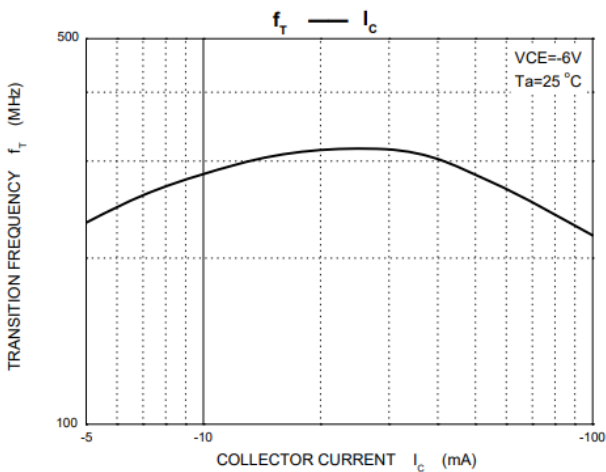
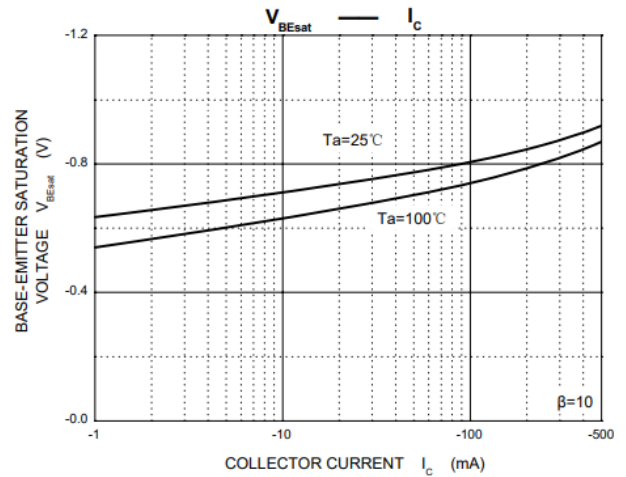
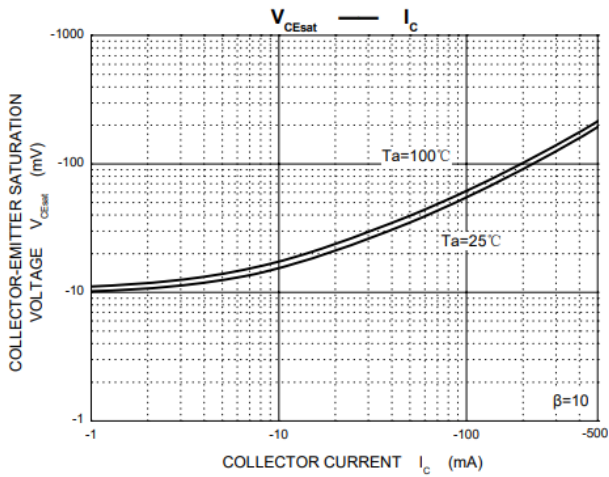
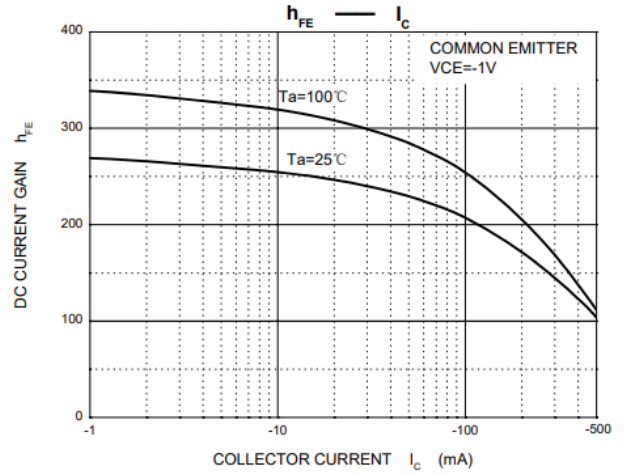
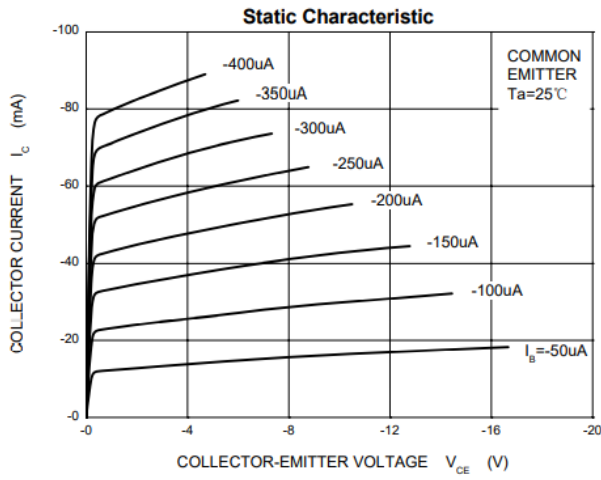
$T_A = 25^\circ\text{C}$  unless otherwise noted

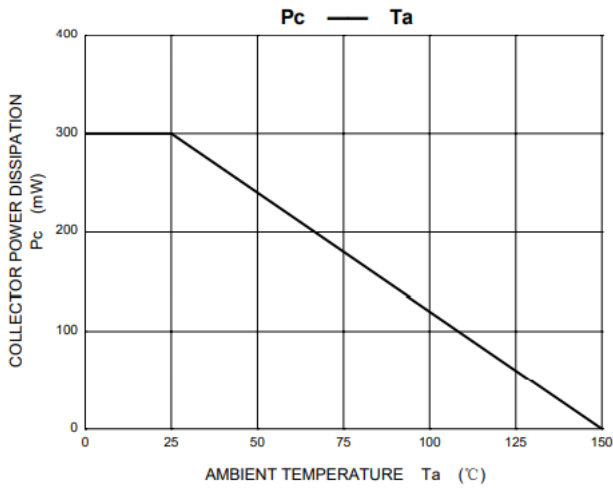
Characteristic	Symbol	Test Condition	Min	TYP	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -35\text{V}, I_E = 0$	—	—	-0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$	—	—	-0.1	$\mu\text{A}$
Collect-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}$	-40	—	—	V
Collect-Base Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1.0\text{mA}$	-30	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}$	-5	—	—	V
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -1\text{V}, I_C = -100\text{mA}$	70	—	400	—
	$h_{FE(2)}$	$V_{CE} = -6\text{V}, I_C = -400\text{mA}$	25	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$	—	—	-0.6	V
Base-Emitter Saturation Voltage	$V_{BE}$	$V_{CE} = -1\text{V}, I_C = -100\text{mA}$	—	-0.8	-1.0	V
Transition Frequency	$f_T$	$V_{CE} = -6\text{V}, I_C = -20\text{mA}$	150	300	—	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -6\text{V}, I_E = 0, f = 1\text{MHz}$	—	7.0	10	pF

### CLASSIFICATION OF $h_{FE(1)}$

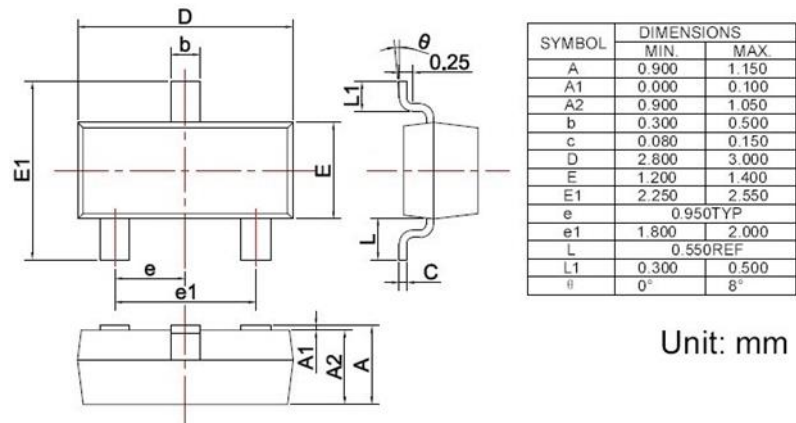
RANK	L	H	J
RANGE	120-200	200-350	300-400

## Typical characteristics

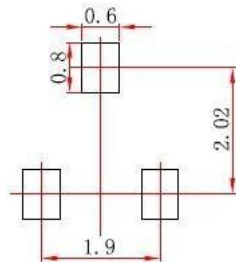




## SOT-23 PACKAGE OUTLINE Plastic surface mounted package



Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



- Note:
1. Controlling dimension: In millimeters.
  2. General tolerance:  $\pm 0.05$ mm.
  3. The pad layout is for reference purposes only.

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