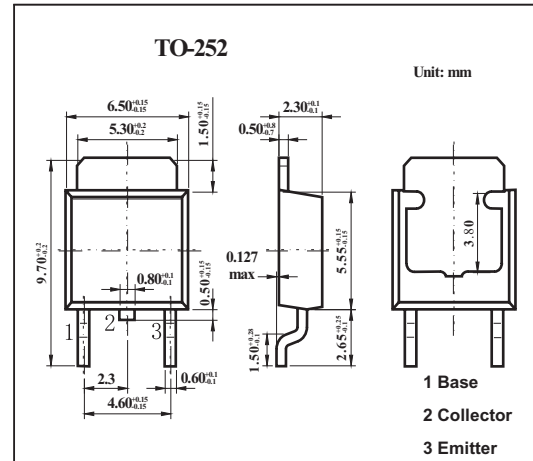


## Silicon PNP Epitaxial Planar Type

## 2SB933

## ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$ .
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$ .
- Large collector current  $I_c$ .

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	-130	V
Collector-emitter voltage	$V_{CE0}$	-80	V
Emitter-base voltage	$V_{EB0}$	-7	V
Collector current	$I_c$	-5	A
Peak collector current	$I_{CP}$	-10	A
Collector power dissipation	$P_C$	1.3	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter voltage	$V_{CE0}$	$I_c = -10\text{mA}, I_B = 0$	-80			V
Collector-base cutoff current	$I_{CB0}$	$V_{CB} = -100\text{V}, I_E = 0$			-10	$\mu\text{A}$
Emitter-base cutoff current	$I_{EB0}$	$V_{EB} = -5\text{V}, I_c = 0$			-50	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = -2\text{V}, I_c = -2\text{A}$	90		260	V
		$V_{CE} = -2\text{V}, I_c = -0.1\text{A}$	45			
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_c = -4\text{A}, I_B = -0.2\text{A}$			-1.5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = -4\text{A}, I_B = -0.2\text{A}$			-0.5	V
Transition frequency	$f_T$	$V_{CE} = -10\text{V}, I_c = -0.5\text{A}, f = 10\text{MHz}$		30		MHz
Turn-on time	$t_{on}$	$I_c = -2\text{A}, I_{B1} = -0.2\text{A}, I_{B2} = 0.2\text{A}, V_{CC} = -50\text{V}$		0.13		$\mu\text{s}$
Storage time	$t_{stg}$			0.5		$\mu\text{s}$
Fall time	$t_f$			0.13		$\mu\text{s}$

■  $h_{FE}$  Classification

Rank	Q	P
$h_{FE}$	90~180	130~260