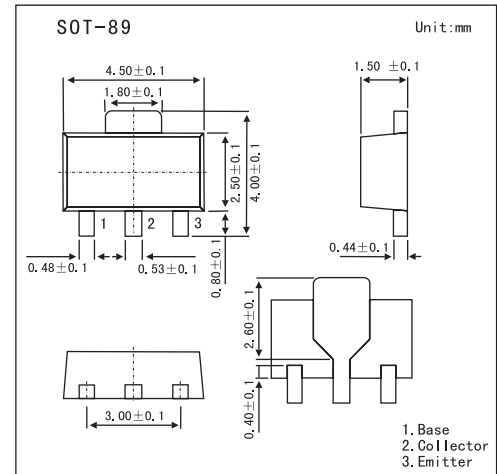


## NPN Epitaxial Planar Silicon Transistor

## 2SD1997

## ■ Features

- Contains diode between collector and emitter.
- Low saturation voltage.
- Large current capacity.
- Small-sized package making it easy to provide highdensity, small-sized hybrid ICs.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	40	V
Collector-emitter voltage	$V_{CEO}$	30	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	3	A
Collector current (pulse)	$I_{CP}$	5	A
Collector dissipation	$P_C$	1.5	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	Testconditons	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 30\text{V}$ , $I_E = 0$			1.0	$\mu\text{A}$
DC current Gain	$h_{FE}$	$V_{CE} = 2\text{V}$ , $I_C = 0.5\text{A}$	70			
		$V_{CE} = 2\text{V}$ , $I_C = 2\text{A}$	50			
Gain bandwidth product	$f_T$	$V_{CE} = 2\text{V}$ , $I_C = 0.5\text{A}$		100		MHz
Output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$		40		pF
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\text{A}$ , $I_B = 50\text{mA}$		0.12	0.3	V
Base-emitter on state voltage	$V_{BE(ON)}$	$I_{CE} = 2\text{V}$ , $I_C = 1\text{A}$	1	2	5	V
Collector-to-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$ , $I_E = 0$	40			V
Collector-to-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\mu\text{A}$ , $R_{BE} = \infty$	40			V
		$I_C = 10\text{mA}$ , $R_{BE} = \infty$	3			
Diode forward voltage	$V_F$	$I_F = 0.5\text{A}$			1.5	V
Base-emitter resistance	$R_{BE}$			0.8		$\text{k}\Omega$
Base resistance	$R_1$		120	160	200	$\Omega$

## ■ Marking

Marking	DO