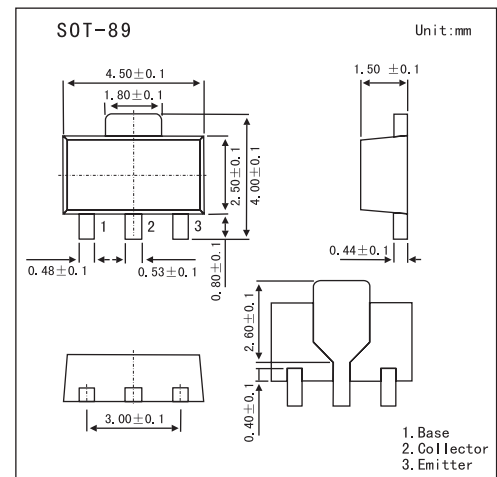


## NPN Epitaxial Planar Silicon Transistor

## 2SD1998

## ■ Features

- Low saturation voltage.
- Contains diode between collector and emitter.
- Contains bias resistance between collector and emitter.
- 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	Testconditions	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	$V_{CE(sat)}$	$I_C = 2\text{A}, I_B = 100\text{mA}$		0.2	0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{V}, I_B = 100\text{mA}$			1.5	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
		$I_C = 10\text{mA}, R_{BE} = \infty$	30			
Diode forward voltage	$V_F$	$I_F = 0.5\text{A}$			1.5	V
Base-emitter resistance	$R_{BE}$			0.8		k $\Omega$

## ■ Marking

Marking	DM
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