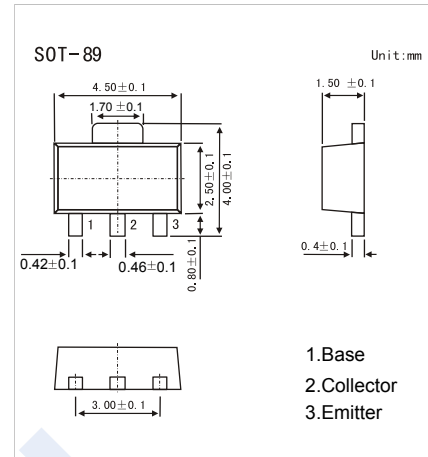
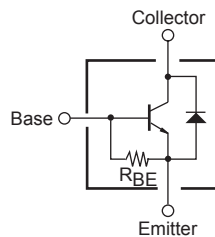


NPN Transistors

2SD1999

■ Features

- Low saturation voltage.
- Large current capacity.
- Complementary to 2SB1325

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	25	V
Collector - Emitter Voltage	V_{CEO}	20	
Emitter - Base Voltage	V_{EBO}	6	
Collector Current - Continuous	I_C	4	A
Collector Current - Pulse	I_{CP}	6	
Collector Power Dissipation	P_C	1.5	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100 \mu\text{A}$, $I_E = 0$	25			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 10 \text{ mA}$, $R_{BE} = \infty$	20			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 20 \text{ V}$, $I_E = 0$			1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 \text{ A}$, $I_B = 150 \text{ mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3 \text{ A}$, $I_B = 150 \text{ mA}$			1.5	
DC current gain	$h_{FE(1)}$	$V_{CE} = 2 \text{ V}$, $I_C = 500 \text{ mA}$	70			
	$h_{FE(2)}$	$V_{CE} = 2 \text{ V}$, $I_C = 3 \text{ A}$	50			
Diode forward voltage	V_F	$I_F = 0.5 \text{ A}$			1.5	V
Base-to-emitter resistance	R_{BE}			1.5		$\text{K}\Omega$
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}$, $f = 1 \text{ MHz}$		45		pF
Transition frequency	f_T	$V_{CE} = 2 \text{ V}$, $I_C = 500 \text{ mA}$		200		MHz

■ Marking

Marking	DN
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2SD1999

■ Typical Characteristics

