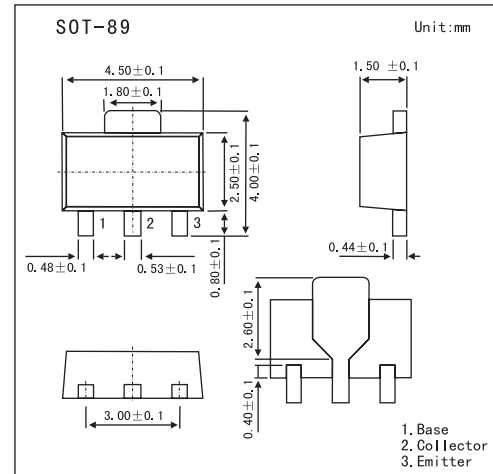


## Silicon NPN epitaxial planar type

### 2SD965

#### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Satisfactory operation performances at high efficiency with the lowvoltage power supply.



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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	20	V
Emitter-base voltage	$V_{EBO}$	7	V
Collector current	$I_C$	5	A
Peak collector current	$I_{CP}$	8	A
Collector power dissipation	$P_C$	0.75	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-emitter voltage	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	20			V
Emitter-base voltage	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$	7			V
Collector-base cutoff current	$I_{CBO}$	$V_{CB} = 10 \text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Collector-emitter cutoff current	$I_{CEO}$	$V_{CE} = 10 \text{ V}, I_B = 0$			1	$\mu\text{A}$
Emitter-base cutoff current	$I_{EBO}$	$V_{EB} = 7 \text{ V}, I_C = 0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = 2 \text{ V}, I_C = 0.5 \text{ A}$	230		600	
		$V_{CE} = 2 \text{ V}, I_C = 2 \text{ A}$	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 \text{ A}, I_B = 0.1 \text{ A}$			1	V
Collector output capacitance	$C_{ob}$	$V_{CB} = 20 \text{ V}, I_E = 0, f = 1 \text{ MHz}$			50	pF
Transition frequency	$f_T$	$V_{CB} = 6 \text{ V}, I_E = -50 \text{ mA}, f = 200 \text{ MHz}$		150		MHz

#### ■ $h_{FE}$ Classification

Marking	Q	R
$h_{FE}$	230~380	340~600