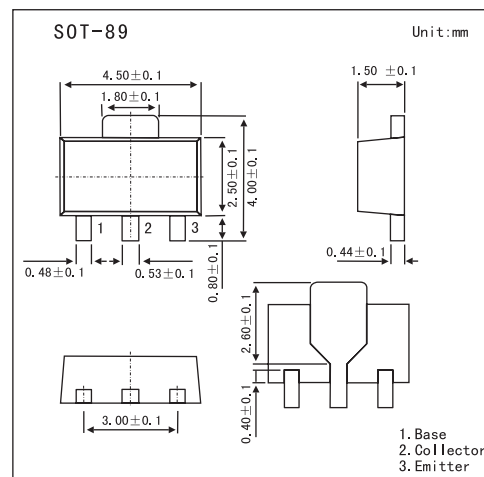


NPN Silicon Epitaxia

2SD1005

■ Features

- World standard miniature package: SOT-89.
- High collector to base voltage: $V_{CBO} > 100V$.
- Excellent dc current gain linearity: $h_{FE}=80TYP.$ ($V_{CE}=2V, I_C=500mA$).

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	100	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	1	A
Collector current (pulse) *	I_C	1.5	A
Total power dissipation at $25^\circ C$ ambient temperature *	P_T	2	W
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

*1. $PW \leq 10\mu s$, duty cycle $\leq 50\%$

*2. When mounted on ceramic substrate of $16cm^2 \times 0.7mm$

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 100V, I_E = 0$			100	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			100	nA
DC current gain *	h_{FE}	$V_{CE} = 2V, I_C = 100mA$	90	200	400	
		$V_{CE} = 2V, I_C = 500mA$	25	80		
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 500mA, I_B = 50mA$		0.15	0.5	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 500mA, I_B = 50mA$		0.9	1.5	V
Base-emitter voltage *	V_{BE}	$V_{CE} = 10V, I_C = 10mA$	600	630	700	mV
Gain bandwidth product	f_T	$V_{CE} = 5V, I_E = -10mA$		160		MHz
Output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1.0MHz$		12		pF

*. $PW \leq 350\mu s$, duty cycle $\leq 2\%$

■ h_{FE} Classification

Marking	BW	BV	BU
h_{FE}	90~180	135~270	200~400