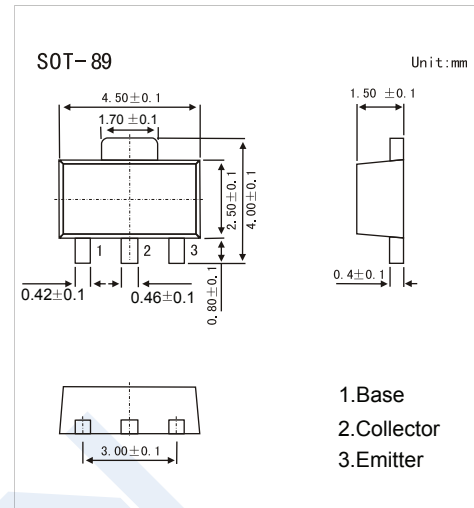


NPN Transistors

3DD13001

■ Features

- Collector-emitter Voltage: $V_{(BR)CEO}=400V$
- Collector Current: $I_C=0.2A$



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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	600	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current -Continuous	I_C	0.2	A
Collector Dissipation	P_C	0.5	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to 150	$^\circ C$

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	600			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1mA, I_B = 0$	400			V
Emitter-base Breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\mu A, I_C = 0$	7			V
Collector-base cut-off current	I_{CBO}	$V_{CB} = 600V, I_E = 0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 7V, I_C = 0$			100	μA
DC current gain	h_{FE}	$V_{CE} = 20V, I_C = 20mA$	10		40	
		$V_{CE} = 10V, I_C = 0.25mA$	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 50mA, I_B = 10mA$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 50mA, I_B = 10mA$			1.2	V
Fall time	t_f	$I_{B1} = -I_{B2} = 5mA, I_C = 50mA, V_{CC} = 45V$			0.7	μs
Storage time	t_s	$I_{B1} = -I_{B2} = 5mA, I_C = 50mA, V_{CC} = 45V$			3	μs
Transition frequency	f_T	$V_{CE} = 20V, I_C = 20mA, f = 1MHz$	8			MHz

■ $h_{FE(1)}$ Classification

Rank	A	B	C	D	E	F
h_{FE}	10~15	15~20	20~25	25~30	30~35	35~40

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Typical Characteristics

