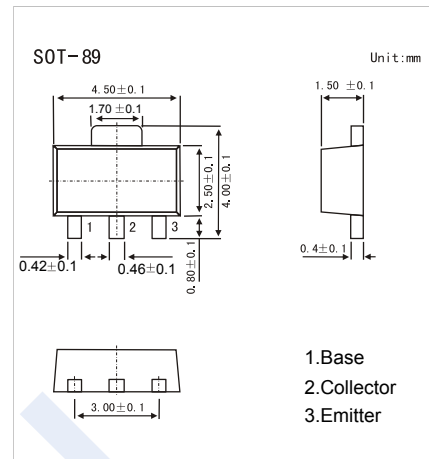


## NPN Transistors

## 2SD1001

### ■ Features

- High collector saturation voltage.  
 $V_{CE(sat)} > 80V$
- Complimentary to 2SB800



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	80	V
Collector - Emitter Voltage	$V_{CEO}$	80	
Emitter - Base Voltage	$V_{EBO}$	5	
Collector Current - Continuous	$I_C$	300	mA
Collector Current - Pulse (Note.1)	$I_{CP}$	500	
Collector Power Dissipation	$P_C$	2	W
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 to 150	

Note.1:  $P_w \leq 100ms$ , duty cycle  $\leq 50\%$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = 100 \mu A, I_E = 0$	80			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = 1 mA, R_{BE} = \infty$	80			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100 \mu A, I_C = 0$	5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 80 V, I_E = 0$			0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$			0.1	
Collector-emitter saturation voltage (Note.1)	$V_{CE(sat)}$	$I_C = 300 mA, I_B = 30 mA$		0.15	0.6	V
Base - emitter saturation voltage (Note.1)	$V_{BE(sat)}$	$I_C = 300 mA, I_B = 30 mA$		0.86	1.2	
Base - emitter voltage (Note.1)	$V_{BE}$	$V_{CE} = 6V, I_C = 10 mA$	600	645	700	mV
DC current gain (Note.1)	$h_{FE}$	$V_{CE} = 1V, I_C = 50 mA$	90	200	400	
		$V_{CE} = 2V, I_C = 300 mA$	30	80		
Collector output capacitance	$C_{ob}$	$V_{CB} = 6V, I_E = 0, f = 1 MHz$		7		pF
Transition frequency	$f_T$	$V_{CE} = 6V, I_E = -10 mA$		140		MHz

Note.1: Pulse test : Pulse width  $\leq 350 \mu s$ , Duty Cycle  $\leq 2\%$ .

### ■ Classification of $h_{FE}(1)$

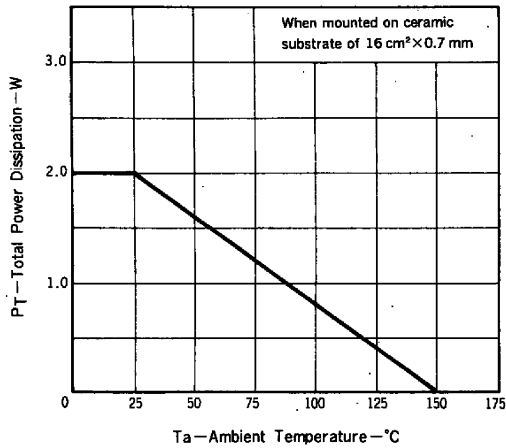
Type	2SD1001- M	2SD1001- L	2SD1001- K
Range	90-180	135-270	200-400
Marking	EM	EL	EK

# NPN Transistors

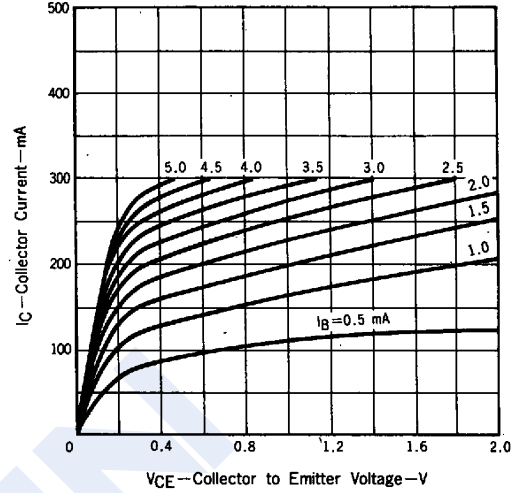
## 2SD1001

■ Typical Characteristics

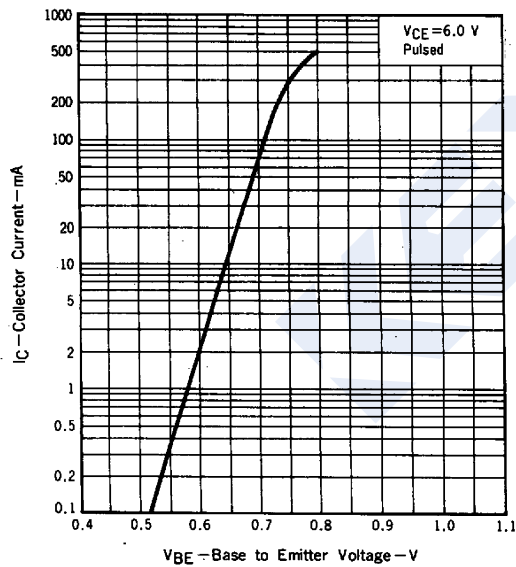
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



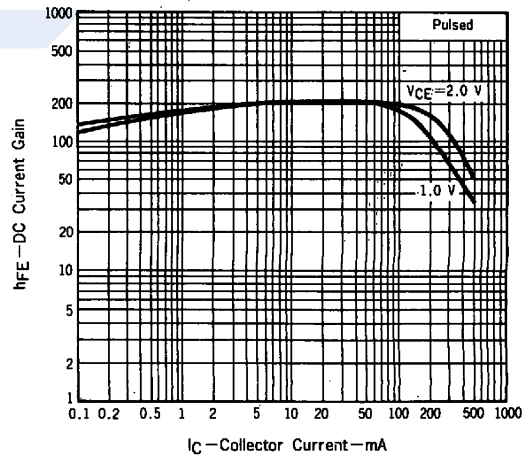
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



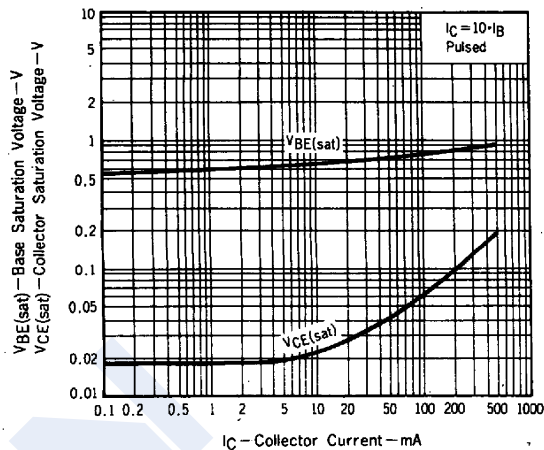
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



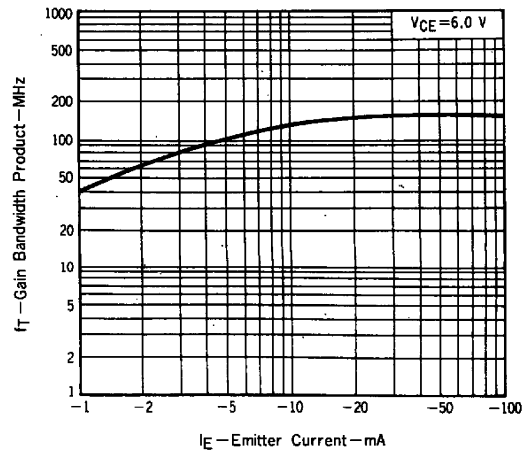
DC CURRENT GAIN vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



## NPN Transistors

## 2SD1001

## ■ Typical Characteristics

