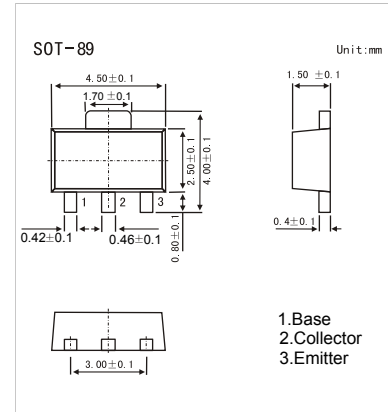


## NPN Transistors

### 2SD1005-HF

#### ■ Features

- World standard miniature package: SOT-89.
- High collector to base voltage:  $V_{CB0} > 100V$ .
- Excellent dc current gain linearity:  $h_{FE} = 80$  TYP. ( $V_{CE} = 2V$ ,  $I_C = 500mA$ ).
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	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.  $PW \leq 10ms$ , 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- base breakdown voltage	$V_{CB0}$	$I_C = 100 \mu A$ , $I_E = 0$	100			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = 1 mA$ , $I_B = 0$	80			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100 \mu A$ , $I_C = 0$	5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 100 V$ , $I_E = 0$			0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5V$ , $I_C = 0$			0.1	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 500 mA$ , $I_B = 50mA$			0.5	V
Base - emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 500 mA$ , $I_B = 50mA$			1.5	
Base - emitter voltage *	$V_{BE}$	$V_{CE} = 10V$ , $I_C = 10mA$	0.6		0.7	
DC current gain *	$h_{FE}$	$V_{CE} = 2V$ , $I_C = 100mA$	90	200	400	
		$V_{CE} = 2V$ , $I_C = 500mA$	45	200		
Collector output capacitance	$C_{ob}$	$V_{CB} = 10V$ , $I_E = 0$ , $f = 1MHz$		12		pF
Transition frequency	$f_T$	$V_{CE} = 5V$ , $I_E = 10mA$		160		MHz

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

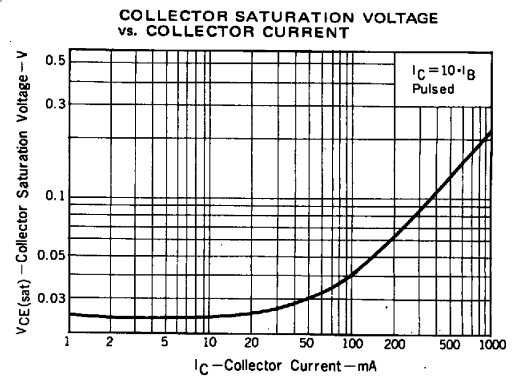
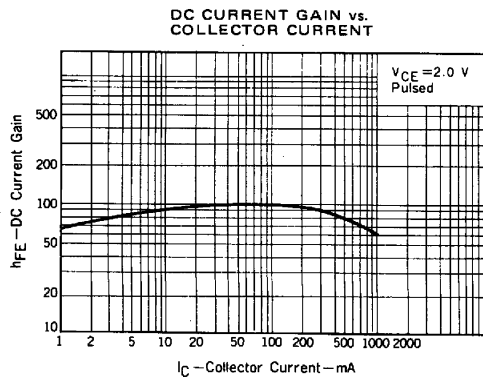
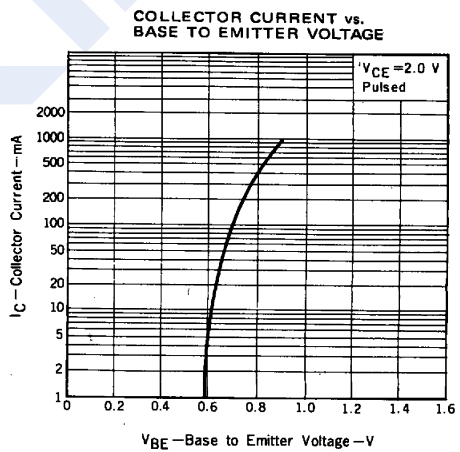
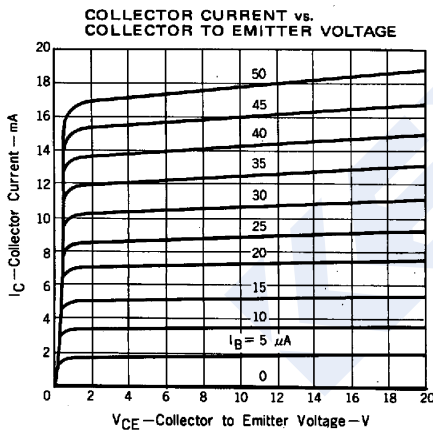
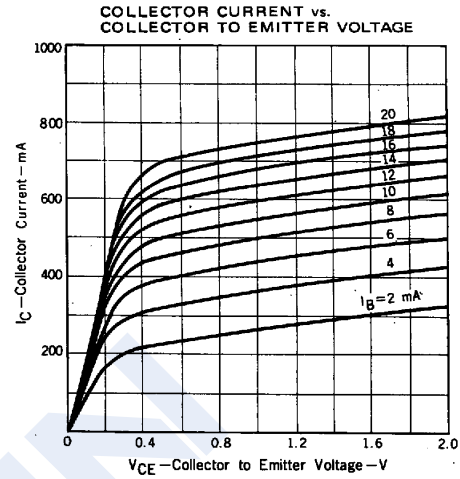
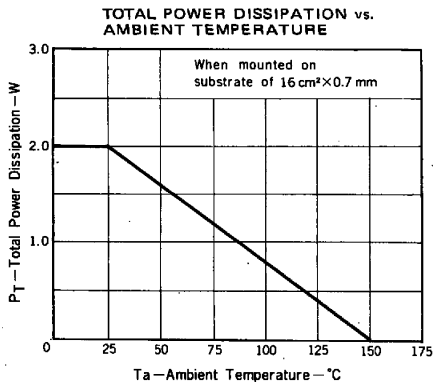
#### ■ $h_{FE}$ Classification(1)

Type	2SD1005-W-HF	2SD1005-V-HF	2SD1005-U-HF
Range	90-180	135-270	200-400
Marking	$BW_F$	$BV_F$	$BU_F$

# NPN Transistors

## 2SD1005-HF

■ Typical Characteristics



### NPN Transistors

### 2SD1005-HF

■ Typical Characteristics

