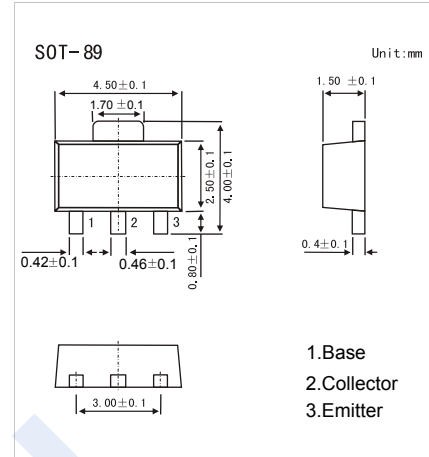
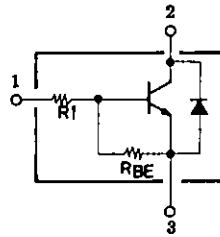


## NPN Transistors

## 2SD2099-HF

## ■ Features

- Low saturation voltage.
- Large current capacity.
- Complementary to 2SB1394-HF
- Pb-Free Package May be Available.  
The G-Suffix Denotes a  
Pb-Free Lead Finish

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	40	V
Collector - Emitter Voltage	$V_{CE0}$	30	
Emitter - Base Voltage	$V_{EB0}$	6	
Collector Current - Continuous	$I_C$	3	A
Collector Current - Pulse	$I_{CP}$	5	
Collector Power Dissipation	$P_C$	1.5	W
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

■ Electrical Characteristics  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_C = 100 \mu\text{A}, I_E = 0$	40			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_C = 10 \text{ mA}, R_{BE} = \infty$	30			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}, I_C = 0$	6			
Collector-base cut-off current	$I_{CB0}$	$V_{CB} = 30 \text{ V}, I_E = 0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 5 \text{ V}, I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1 \text{ A}, I_B = 50 \text{ mA}$			0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1 \text{ A}, I_B = 50 \text{ mA}$			1.2	
Base-to-emitter on state voltage	$V_{BE(on)}$	$V_{CE} = 2 \text{ V}, I_C = 1 \text{ A}$	0.7		4	
DC current gain	$h_{FE(1)}$	$V_{CE} = 2 \text{ V}, I_C = 500 \text{ mA}$	70			
	$h_{FE(2)}$	$V_{CE} = 2 \text{ V}, I_C = 2 \text{ A}$	50			
Diode forward voltage	$V_F$	$I_F = 0.5 \text{ A}$			1.5	V
Base-to-emitter resistance	$R_{BE}$			0.8		$\text{K}\Omega$
Base resistance	$R_1$		60		120	$\Omega$
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$		40		pF
Transition frequency	$f_T$	$V_{CE} = 2 \text{ V}, I_C = 500 \text{ mA}$		100		MHz

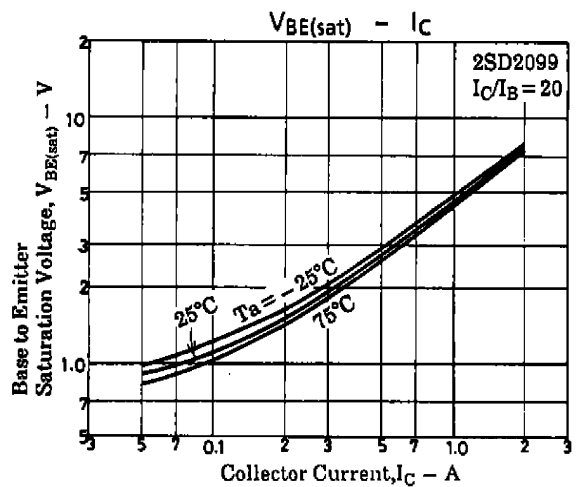
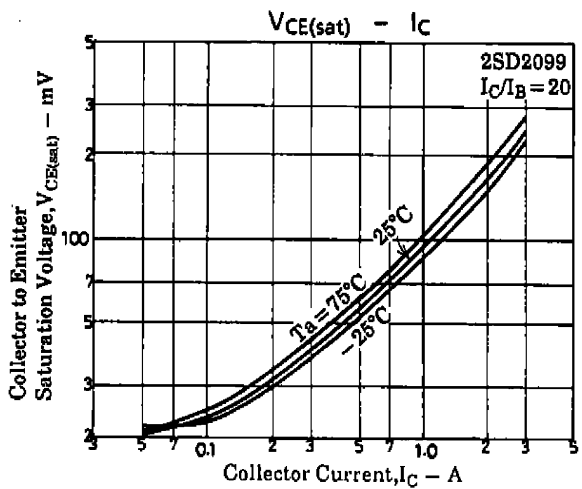
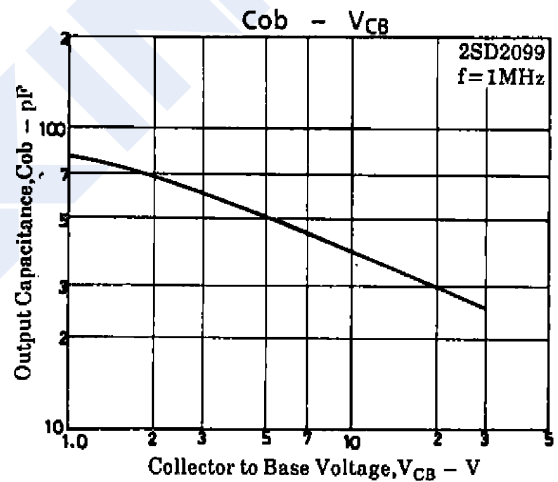
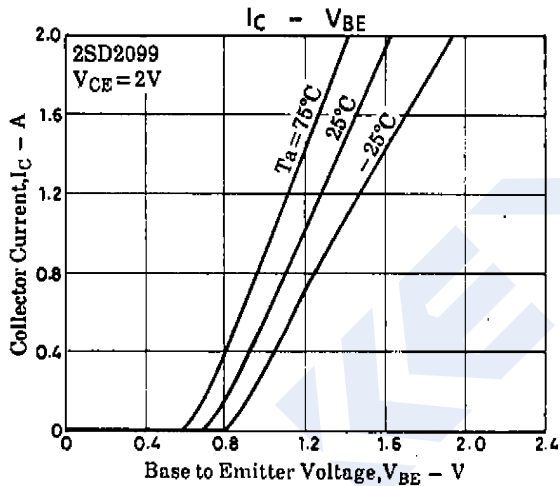
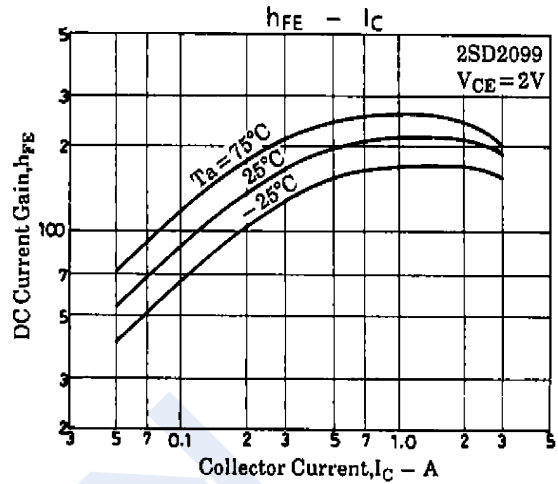
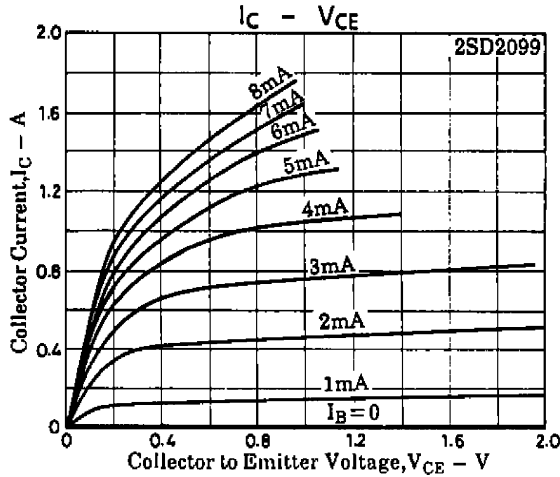
## ■ Marking

Marking	DL F
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### NPN Transistors

### 2SD2099-HF

■ Typical Characteristics



## NPN Transistors

## 2SD2099-HF

## ■ Typical Characteristics

