

**SANYO**

No.3174B

**2SB1394/2SD2099**

PNP/NPN Epitaxial Planar Silicon Transistors

Compact Motor Driver Applications

**Features**

- Contains input resistance( $R_1$ ), base to emitter resistance( $R_{BE}$ ).
- Contains diode between collector and emitter.
- Low saturation voltage.
- Large current capacity.
- Small-sized package making it easy to provide high-density, small-sized hybrid ICs.

( ): 2SB1394

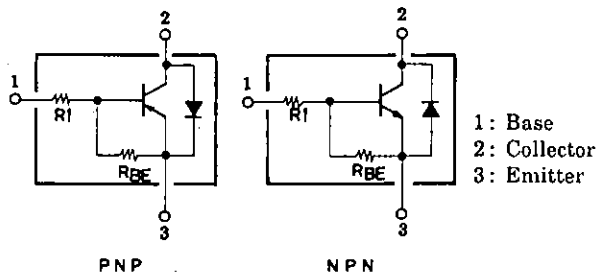
**Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

			unit
Collector to Base Voltage	$V_{CB0}$	(-) $40$	V
Collector to Emitter Voltage	$V_{CEO}$	(-) $30$	V
Emitter to Base Voltage	$V_{EBO}$	(-) $6$	V
Collector Current	$I_C$	(-) $3$	A
Collector Current(Pulse)	$I_{CP}$	(-) $5$	A
Collector Dissipation	$P_C$	Mounted on ceramic board ( $250\text{mm}^2 \times 0.8\text{mm}$ )	$1.5$ W
Junction Temperature	$T_j$		$150$ $^\circ\text{C}$
Storage Temperature	$T_{stg}$		$-55$ to $+150$ $^\circ\text{C}$

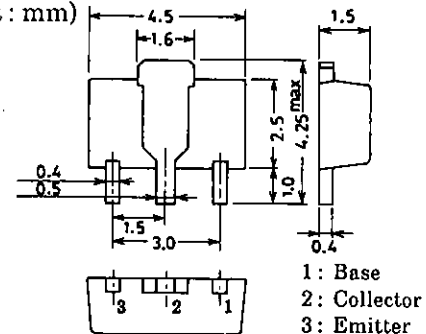
**Electrical Characteristics at  $T_a = 25^\circ\text{C}$** 

			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)30\text{V}, I_E = 0$			(-) $1.0$	$\mu\text{A}$
DC Current Gain	$h_{FE(1)}$	$V_{CE} = (-)2\text{V}, I_C = (-)0.5\text{A}$	(-) $70$			
	$h_{FE(2)}$	$V_{CE} = (-)2\text{V}, I_C = (-)2\text{A}$	(-) $50$			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)2\text{V}, I_C = (-)0.5\text{A}$		$100$		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(55) $40$		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)1\text{A}, I_B = (-)50\text{mA}$		$0.12$	$0.3$	V
				(-) $0.18$	(-) $0.4$	
B-E ON-State Voltage	$V_{BE(ON)}$	$V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$	(-) $0.7$	(-) $1.5$	(-) $4.0$	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$	(-) $40$			V
C-E Breakdown Voltage	$V_{(BR)CEO(1)}$	$I_C = (-)10\mu\text{A}, R_{BE} = \infty$	(-) $40$			V
	$V_{(BR)CEO(2)}$	$I_C = (-)10\text{mA}, R_{BE} = \infty$	(-) $30$			V
Diode Forward Voltage	$V_F$	$I_F = 0.5\text{A}$			(-) $1.5$	V
Base to Emitter Resistance	$R_{BE}$			$0.8$		k $\Omega$
Base Resistance	$R_1$		$60$	$90$	$120$	$\Omega$

Marking 2SB1394: BN  
2SD2099: DL

**Electrical Connection****Package Dimensions 2038A**

(unit: mm)



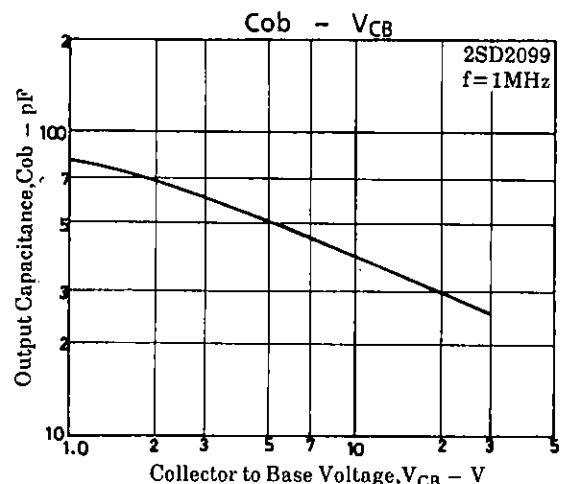
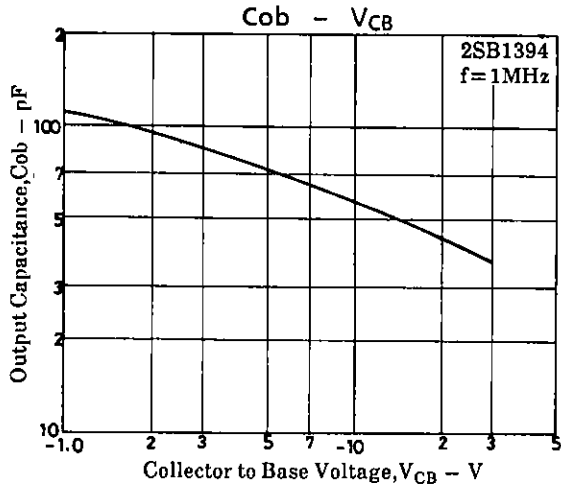
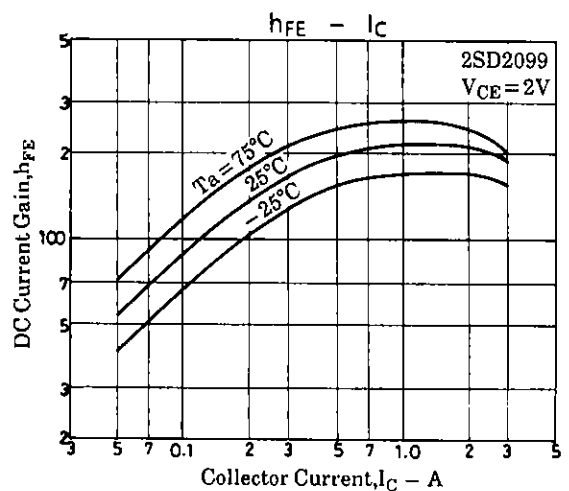
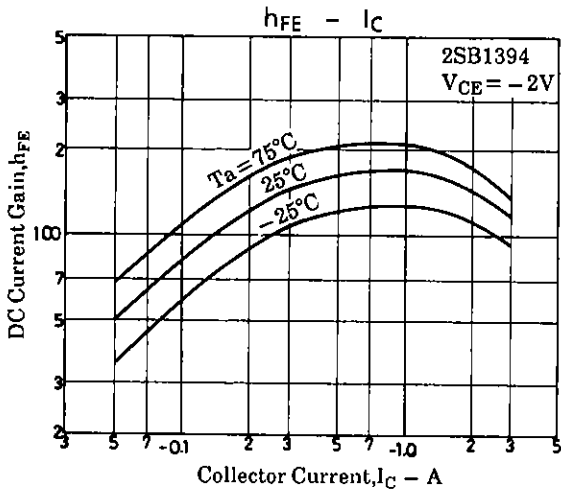
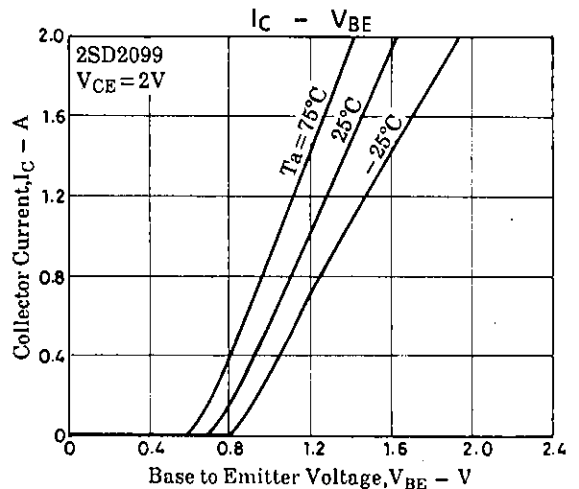
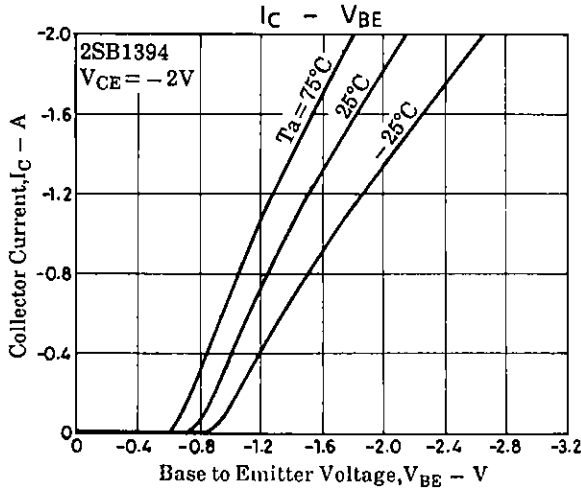
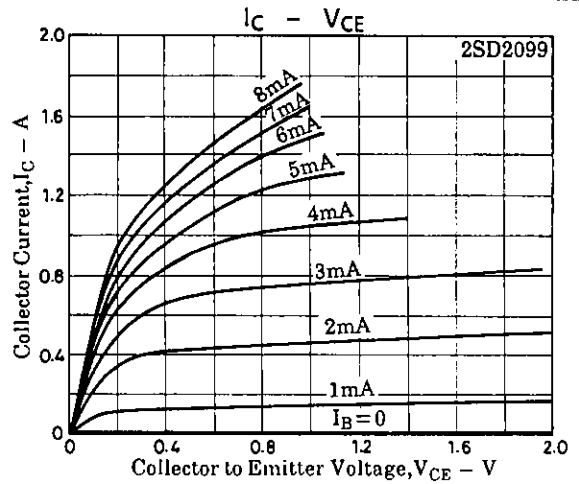
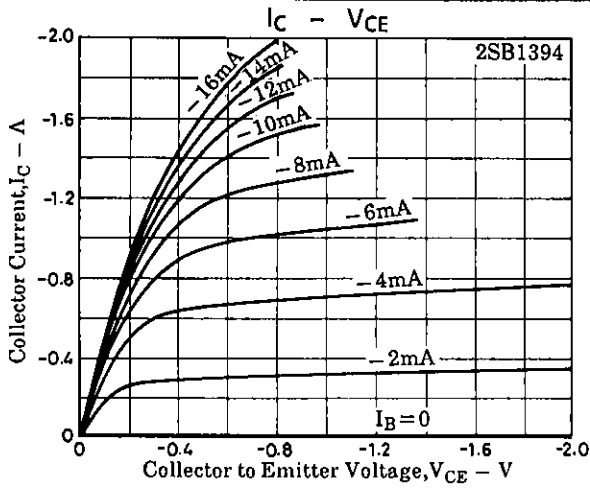
SANYO: PCP  
(Bottom View)

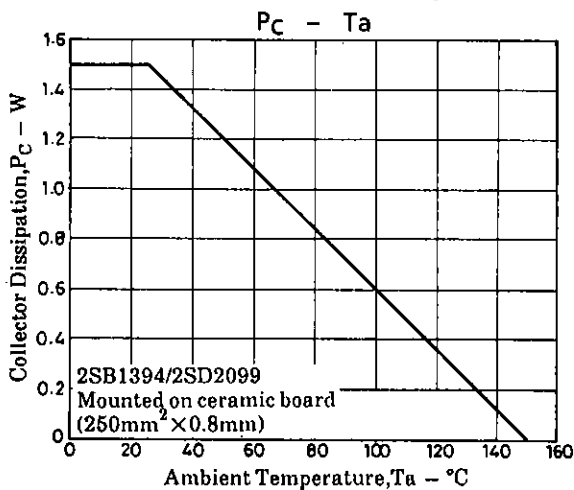
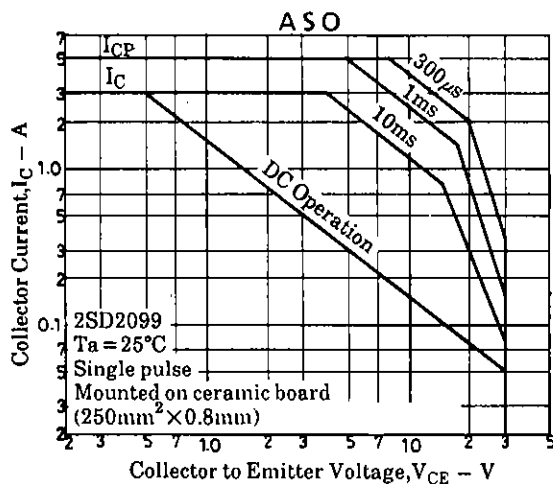
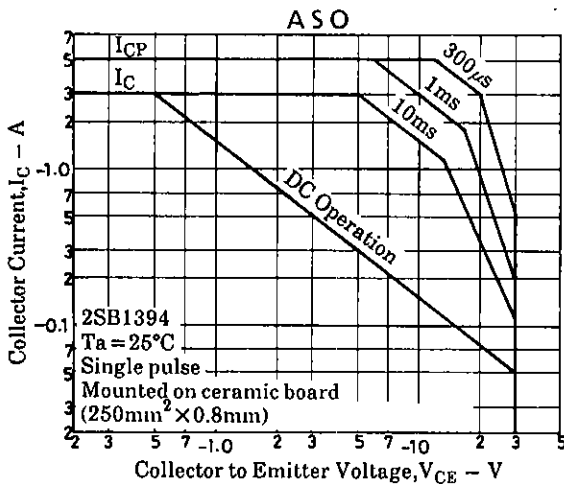
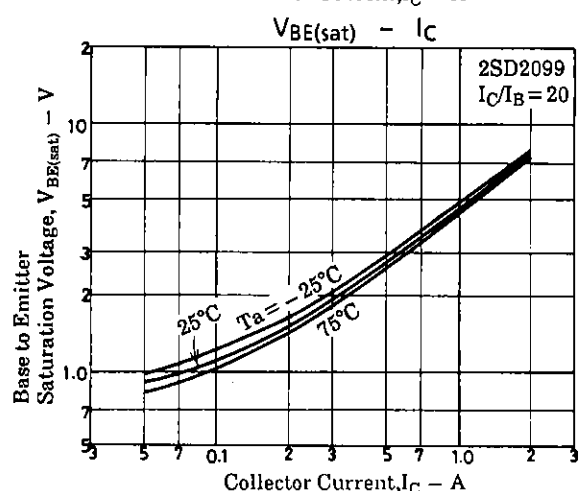
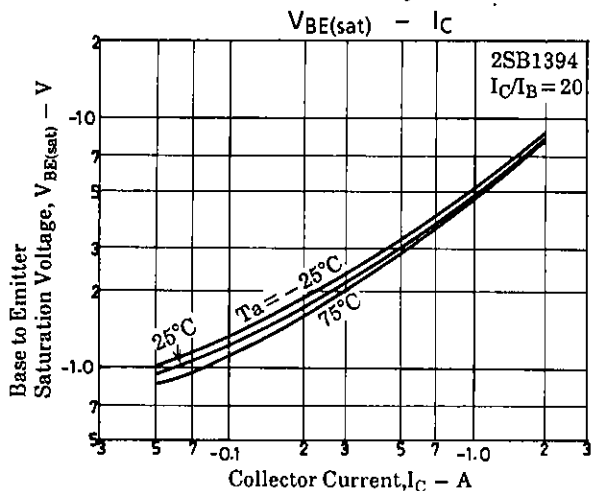
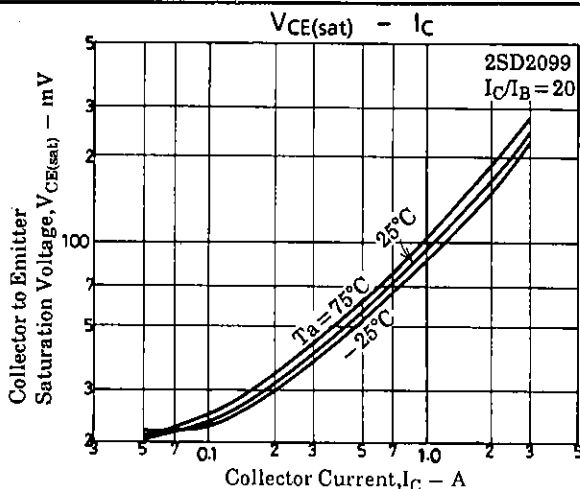
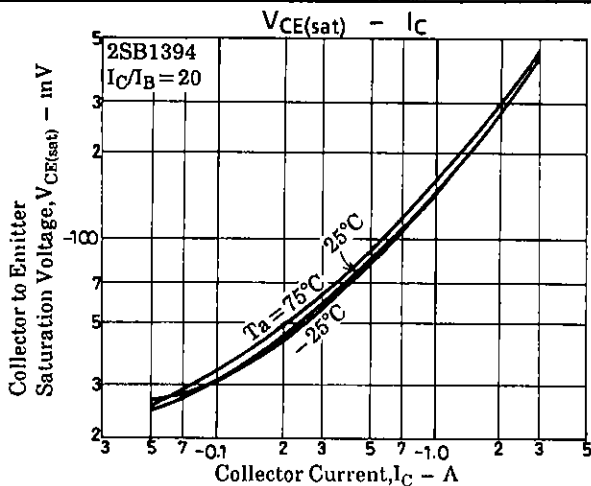
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2SB1394/2SD2099





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