



## 2SB1323/2SD1997

### Compact Motor Driver Applications

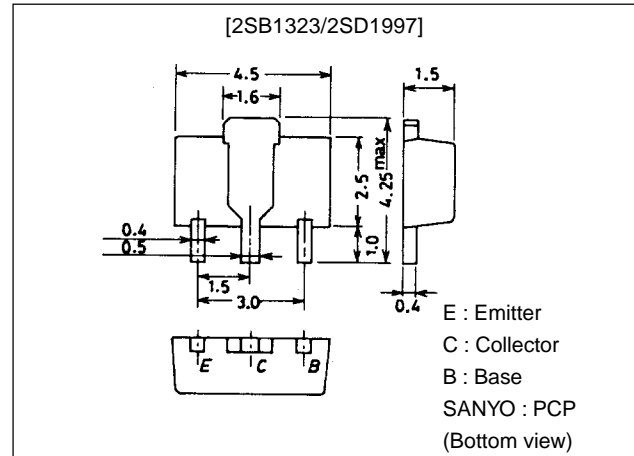
#### Features

- 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.

#### Package Dimensions

unit:mm

2038



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#### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)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 250mm $\times$ 0.8mm)	1.5	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)30\text{V}, I_E=0$			(-)1.0	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=(-)2\text{V}, I_C=(-)0.5\text{A}$	70			
	$h_{FE2}$	$V_{CE}=(-)2\text{V}, I_C=(-)2\text{A}$	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
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1\text{A}, I_B=(-)50\text{mA}$		0.12	0.3	V
				(-)0.18	(-)0.4	V

Marking : 2SB1323 : BK  
2SD1997 : DO

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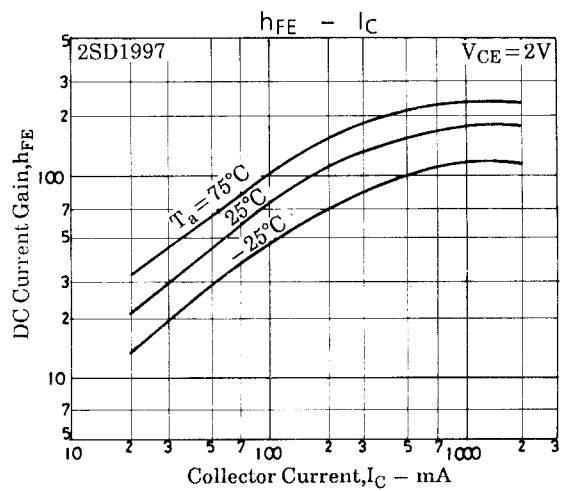
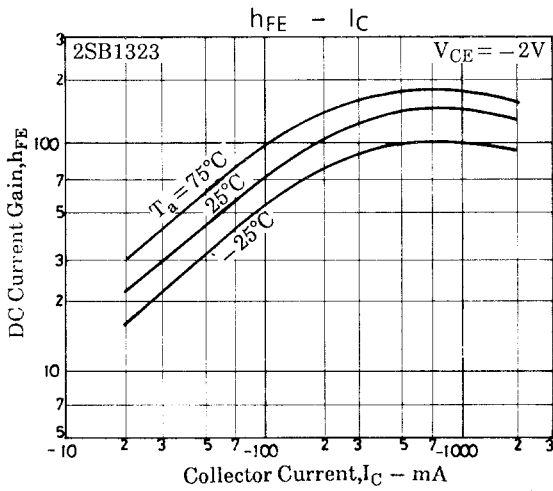
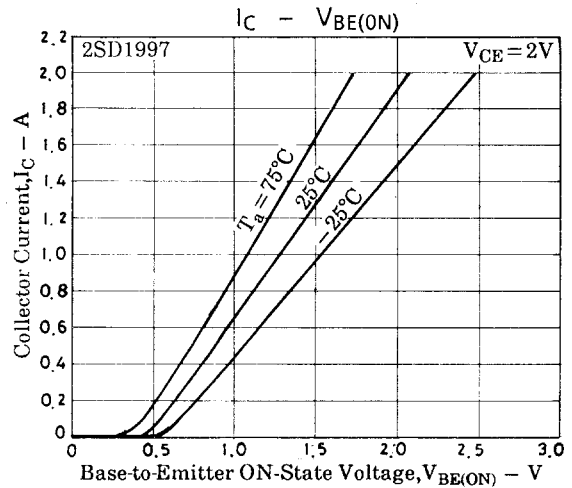
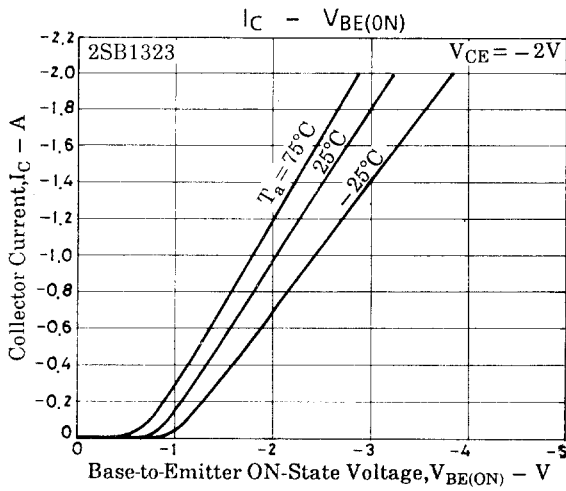
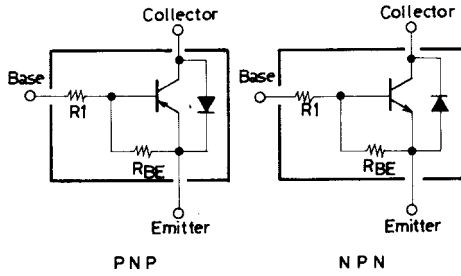
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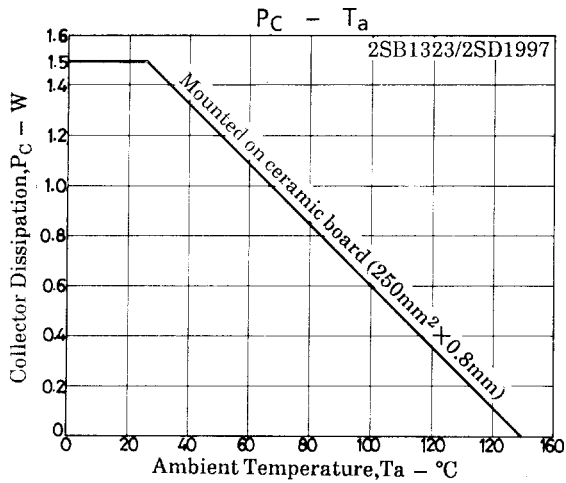
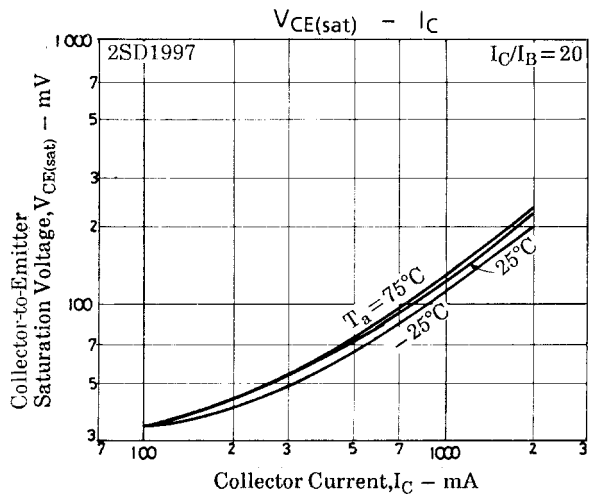
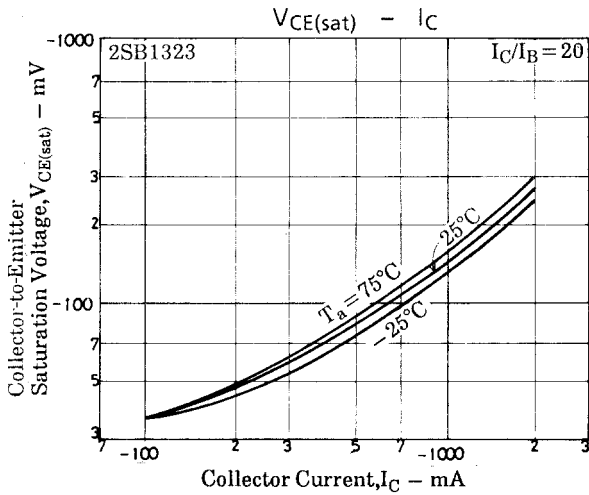
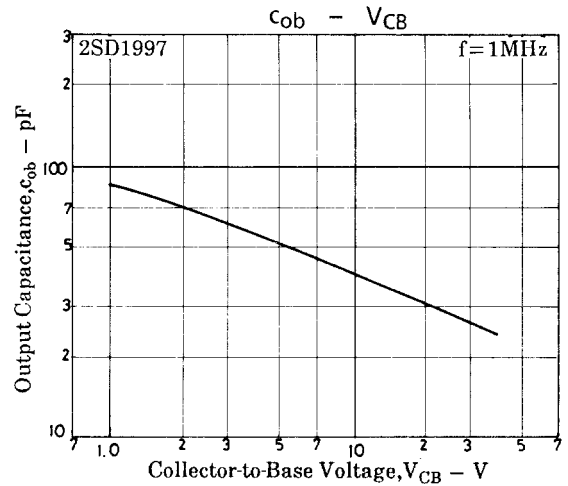
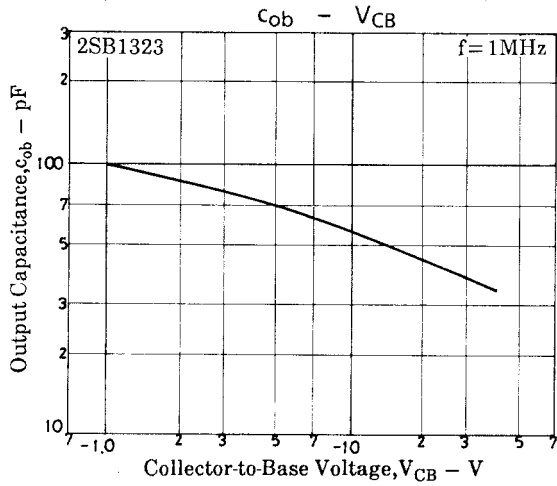
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter ON State Voltage	$V_{BE(ON)}$	$V_{CE}=(-)2V, I_C=(-)1A$	(-1)	(-2)	(-5)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-40)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO1}$	$I_C=(-)10\mu A, R_{BE}=\infty$	(-40)			V
	$V_{(BR)CEO2}$	$I_C=(-)10mA, R_{BE}=\infty$	(-30)			V
Diode Forward Voltage	$V_F$	$I_F=0.5A$			1.5	V
Base-to-Emitter Resistance	$R_{BE}$			0.8		k $\Omega$
Base Resistance	$R_1$		120	160	200	$\Omega$

## Electrical Connection



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