



2SB1323/2SD1997

Compact Motor Driver Applications

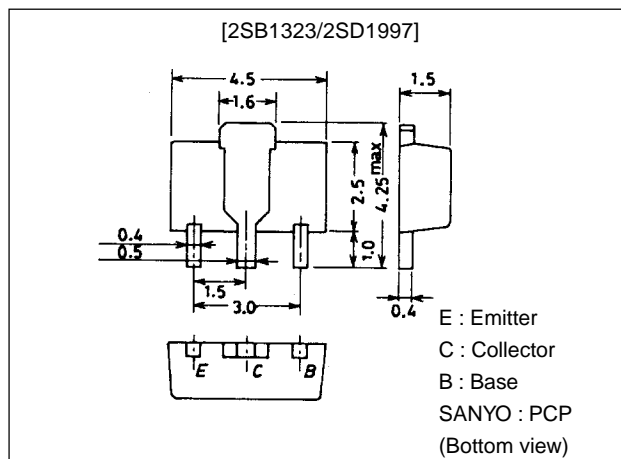
Features

- 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



() : 2SB1323

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 | μA |
| 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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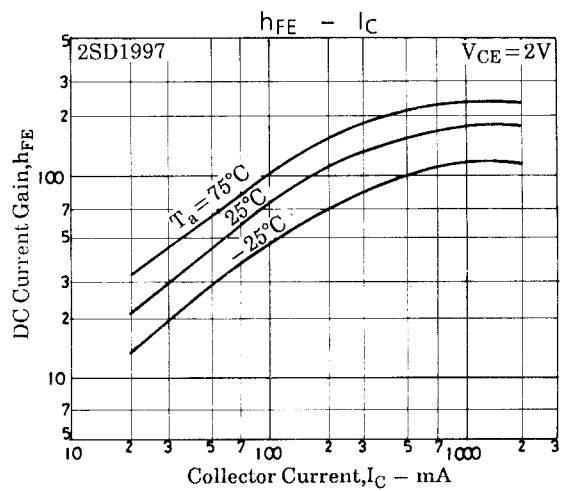
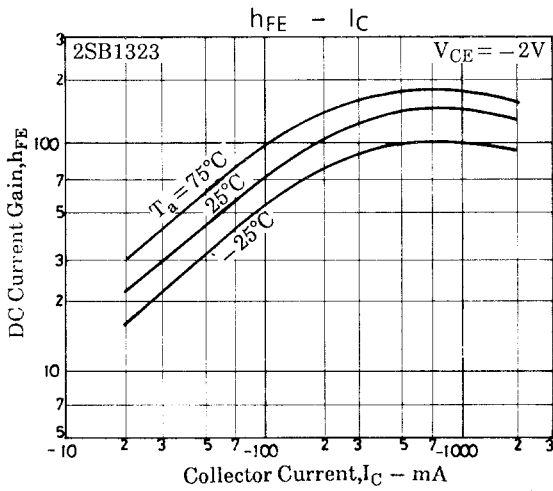
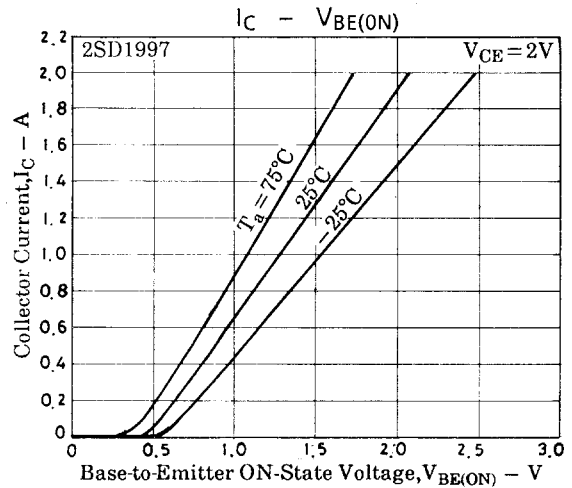
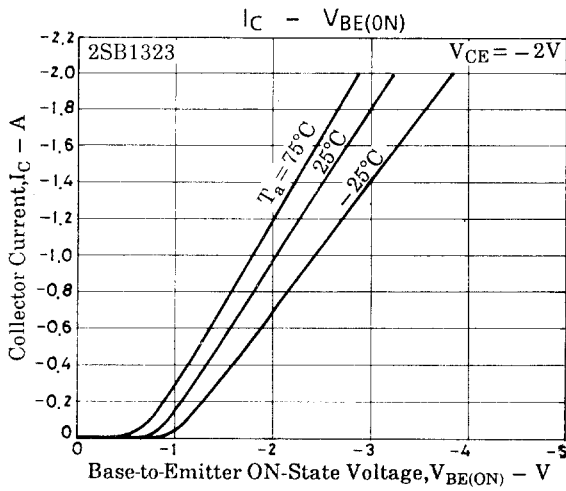
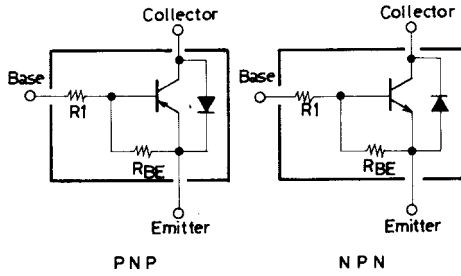
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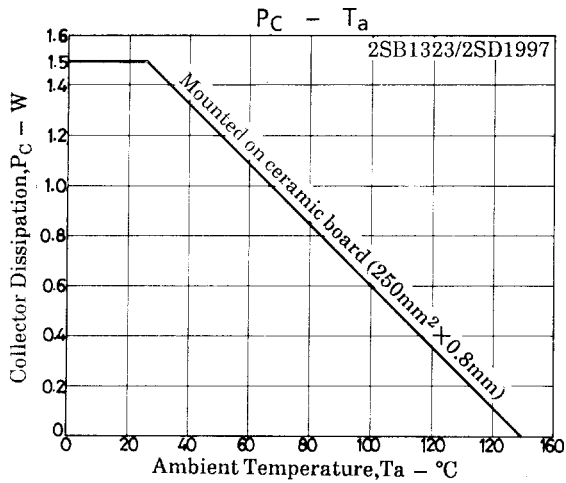
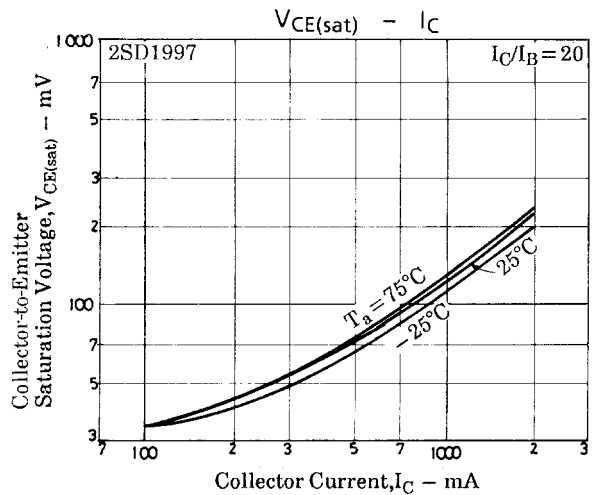
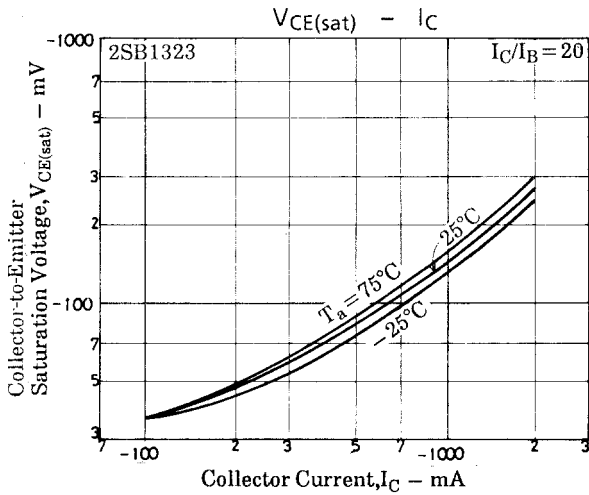
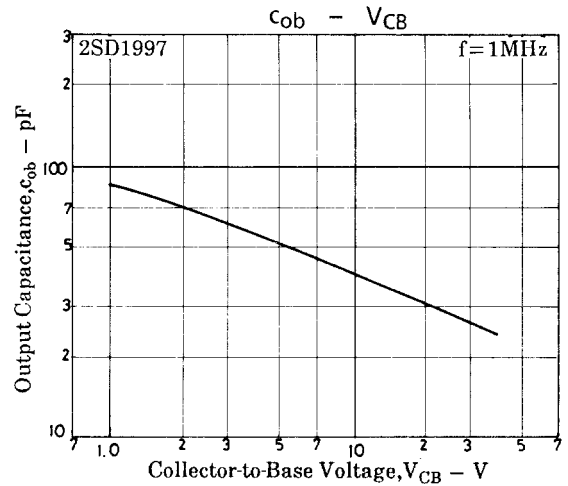
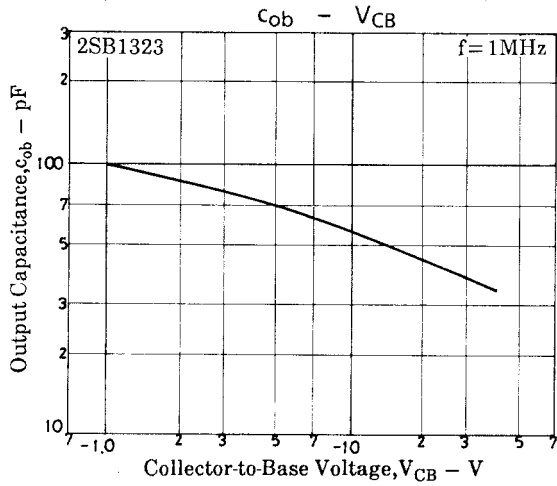
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|----------------------------------------|----------------|---------------------------------|---------|------|------|------------|
| | | | min | typ | max | |
| Base-to-Emitter ON State Voltage | $V_{BE(ON)}$ | $V_{CE}=(-)2V, I_C=(-)1A$ | (-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 Ω |
| Base Resistance | R_1 | | 120 | 160 | 200 | Ω |

Electrical Connection



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