



## Compact Motor Driver Applications

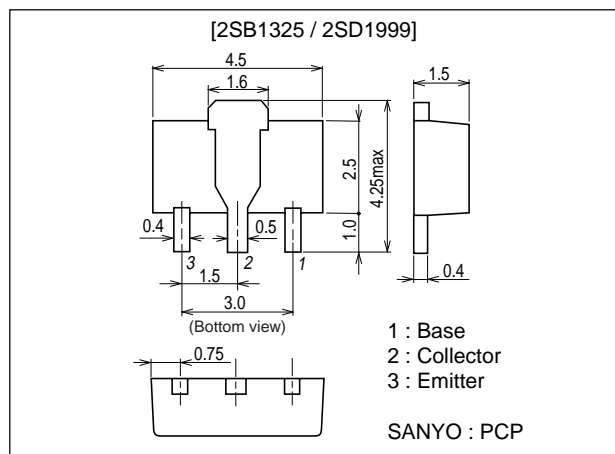
### Features

- Low saturation voltage.
- Contains diode between collector and emitter.
- Contains bias resistance between base and emitter.
- Large current capacitance.
- Small-sized package making it easy to provide high-density, small-sized hybrid ICs.

### Package Dimensions

unit : mm

2038A



( ) : 2SB1325

### Specifications

**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-)25	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)20	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)4	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)6	A
Collector Dissipation	P <sub>C</sub>	Mounted on ceramic board (250mm <sup>2</sup> ×0.8mm)	1.5	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =(-)20V, I <sub>E</sub> =0			(-)1.0	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)0.5A	70			
	h <sub>FE2</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)3A	50			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)0.5A		(300)		MHz
				200		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(60)45		pF

Marking : 2SB1325 : BM

2SD1999 : DN

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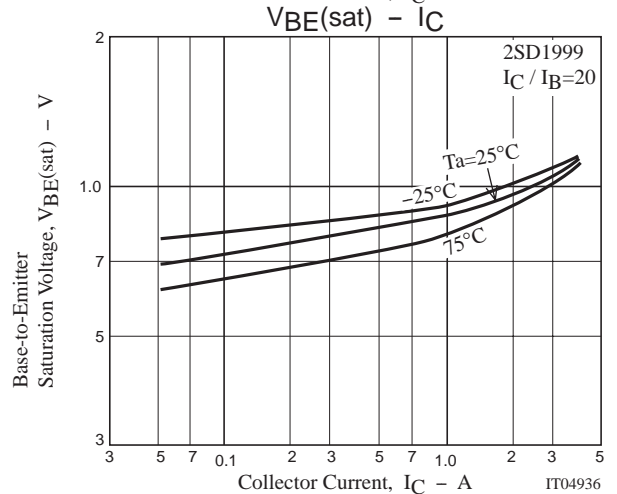
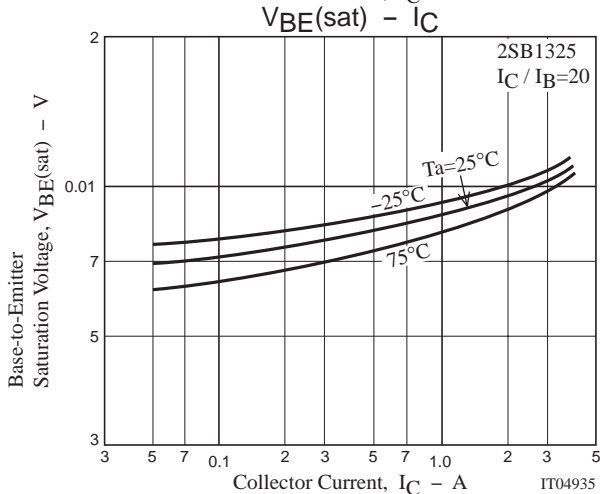
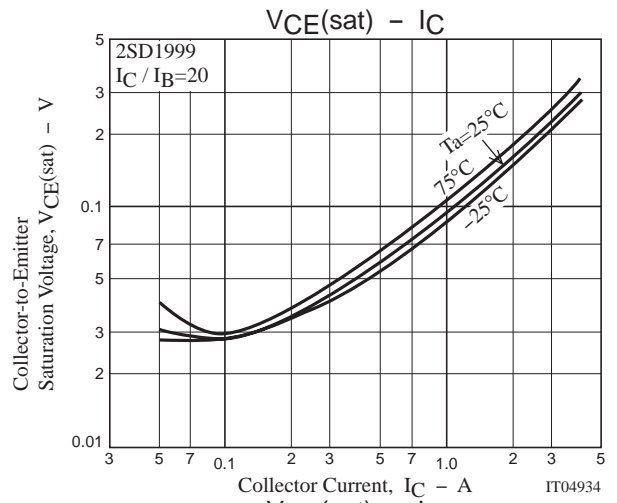
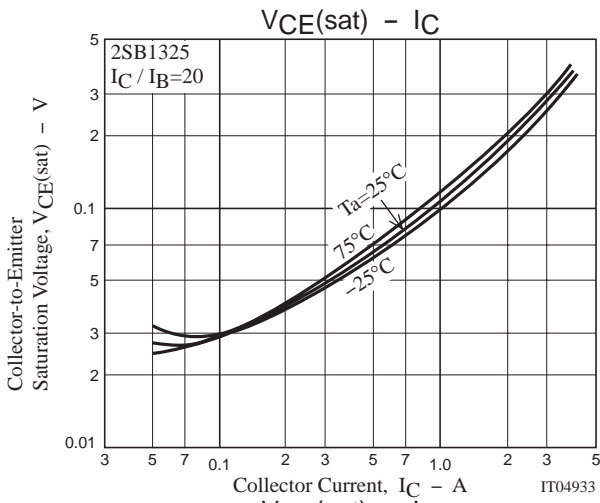
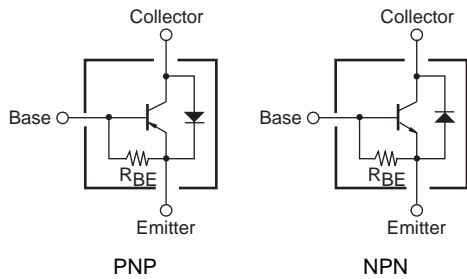
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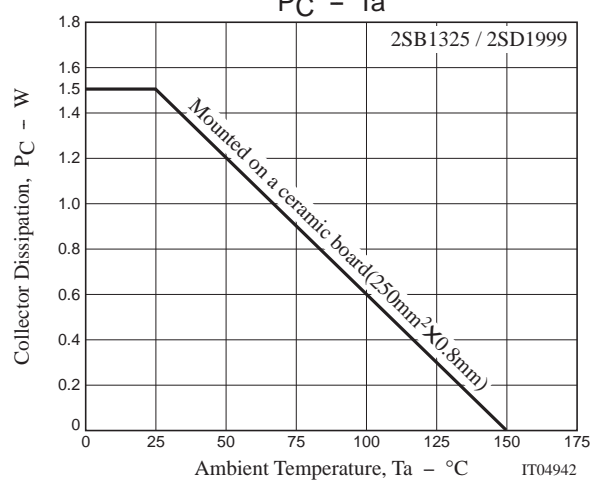
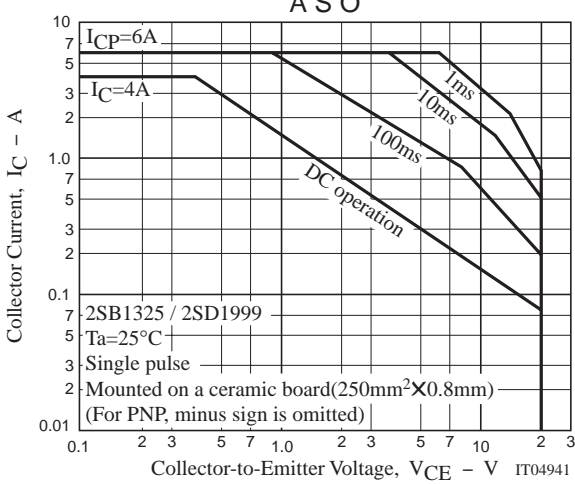
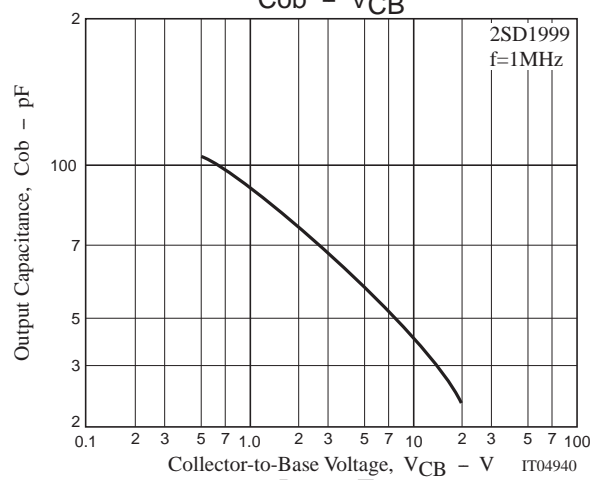
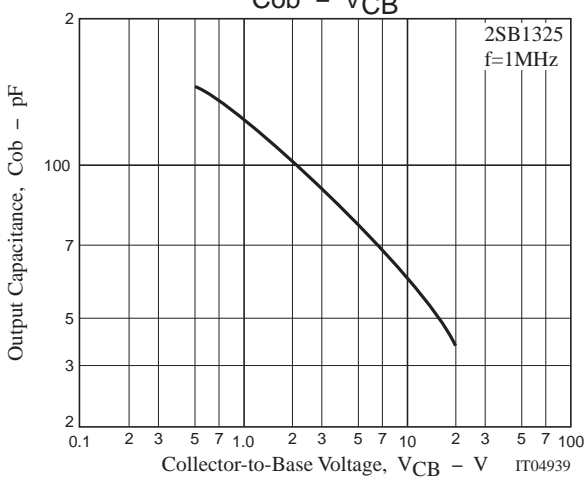
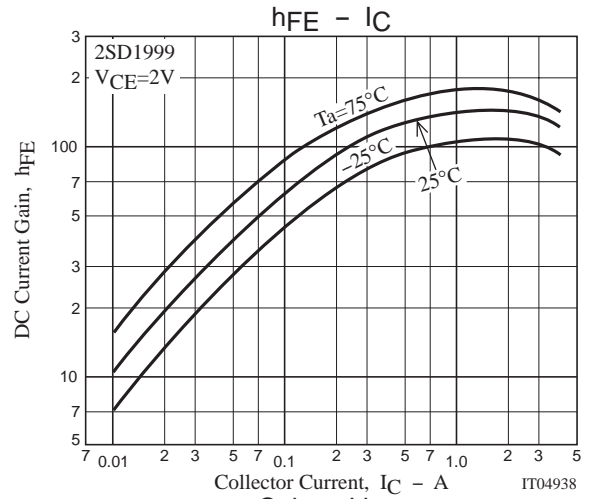
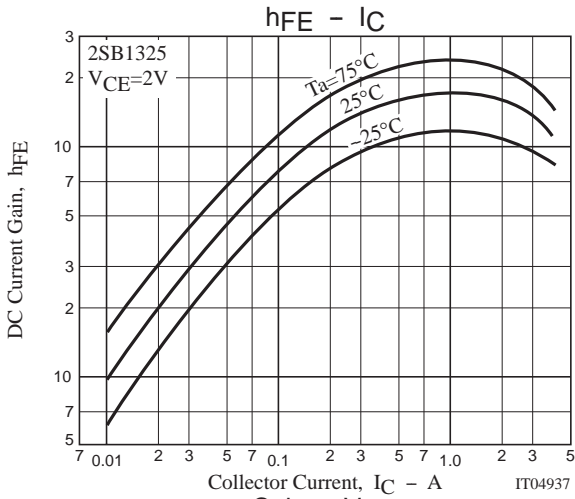
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)3A, I_B = (-)150mA$		(-0.25)	(-0.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)3A, I_B = (-)150mA$			(-1.5)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-25)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO1}$	$I_C = (-)10\mu A, R_{BE} = \infty$	(-25)			V
	$V_{(BR)CEO2}$	$I_C = (-)10mA, R_{BE} = \infty$	(-20)			V
Diode Forward Voltage	$V_F$	$I_F = 0.5A$			1.5	V
Base-to-Emitter Resistance	$R_{BE}$			1.5		k $\Omega$

## Electrical Connection



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