Ordering number : ENN3175A

PNP / NPN Epitaxial Planar Transistors

2SB1325 / 2SD1999

Compact Motor Driver Applications

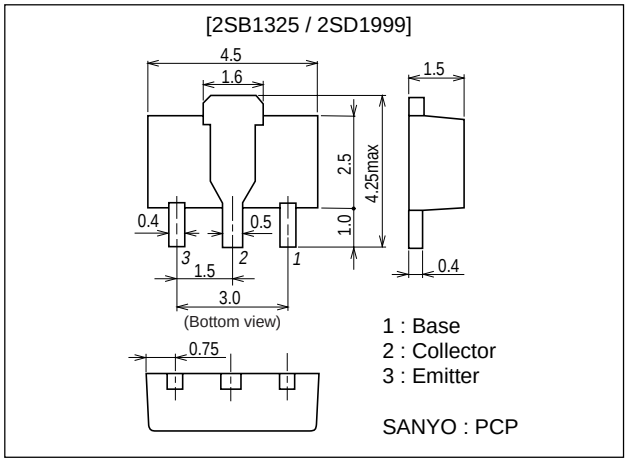
Features

- 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_{CBO}		(-)25	V
Collector-to-Emitter Voltage	V_{CEO}		(-)20	V
Emitter-to-Base Voltage	V_{EBO}		(-)6	V
Collector Current	I_C		(-)4	A
Collector Current (Pulse)	I_{CP}		(-)6	A
Collector Dissipation	P_C	Mounted on ceramic board (250mm²×0.8mm)	1.5	W
Junction Temperature	T_J		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(-)20V, I_E=0			(-)1.0	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(-)2V, I_C=(-)0.5A	70			
	$h_{FE}2$	V_{CE}=(-)2V, I_C=(-)3A	50			
Gain-Bandwidth Product	f_T	V_{CE}=(-)2V, I_C=(-)0.5A		(300)		MHz
				200		MHz
Output Capacitance	Cob	V_{CB}=(-)10V, f=1MHz		(60)45		pF

Marking : 2SB1325 : BM
2SD1999 : DN

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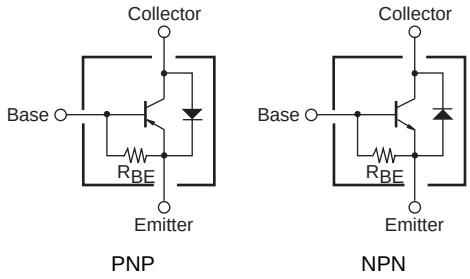
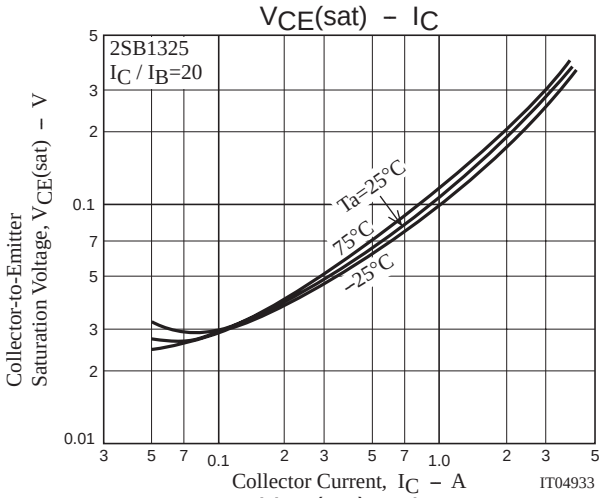
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

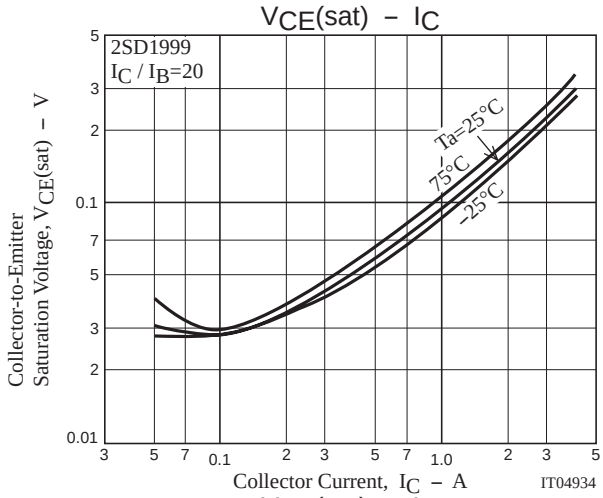
Continued from preceding page.

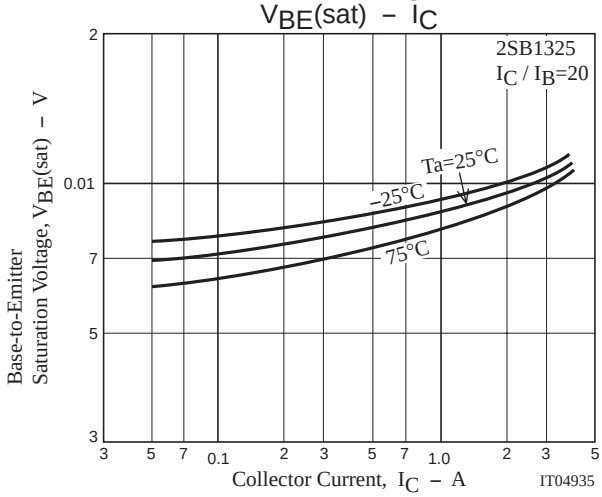
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(-)3A, I_B=(-)150mA		(-)0.25	(-)0.5	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(-)3A, I_B=(-)150mA			(-)1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0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

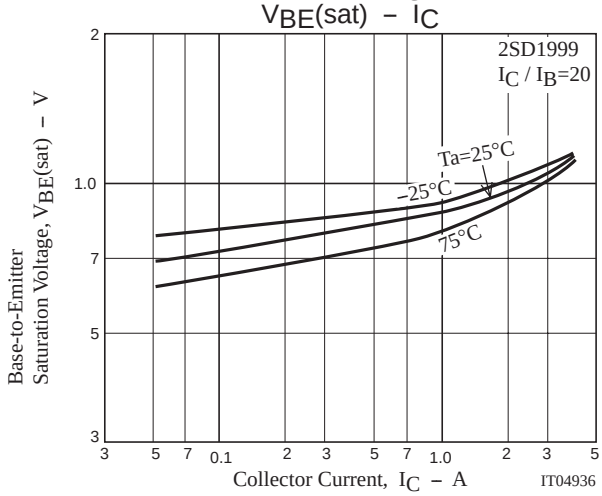
Electrical Connection

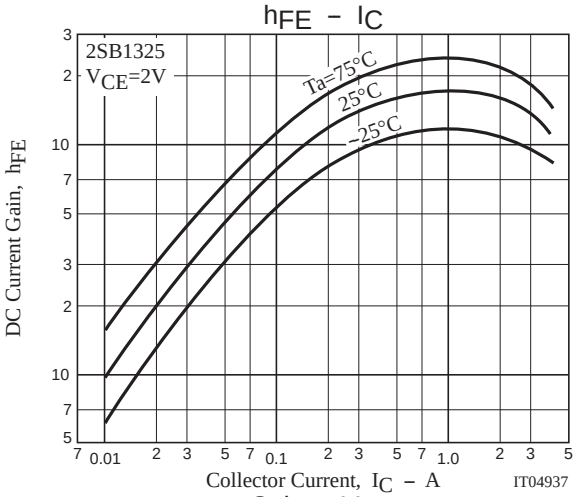


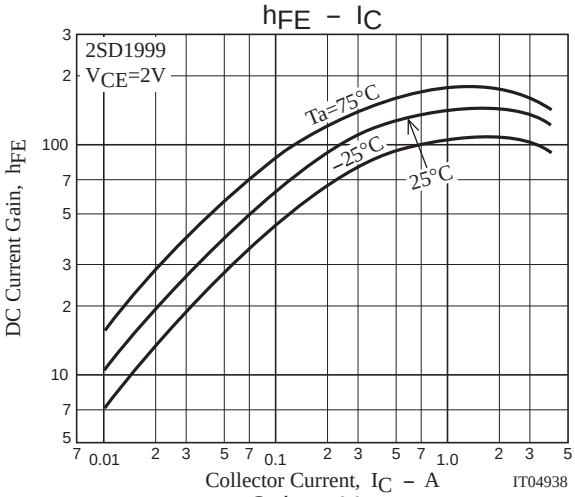


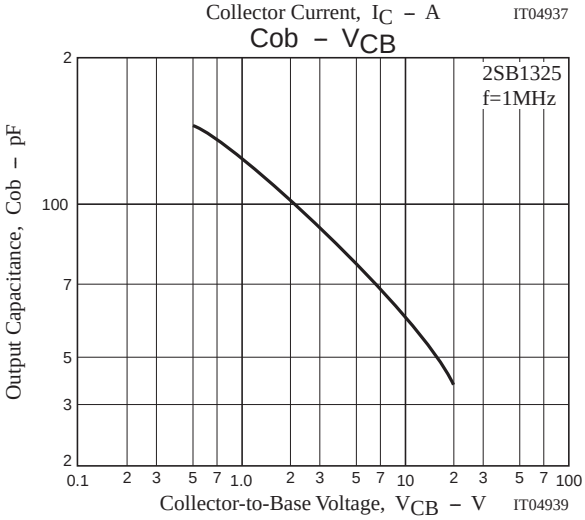


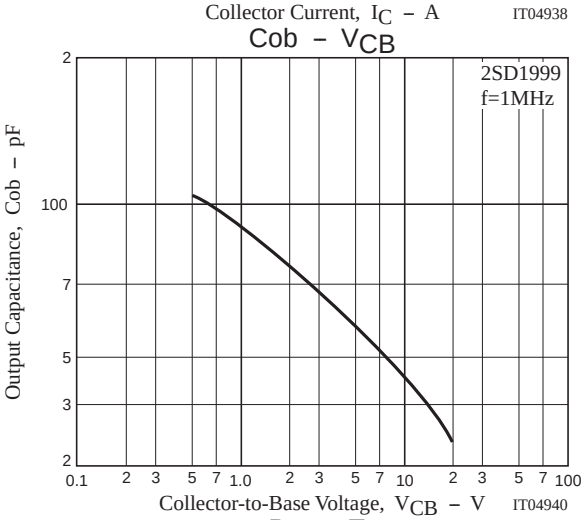


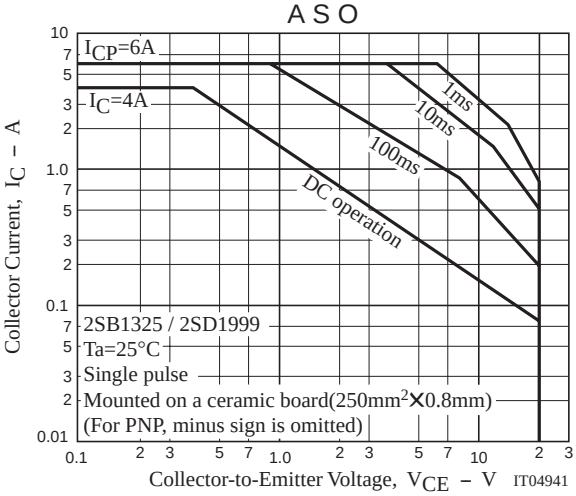


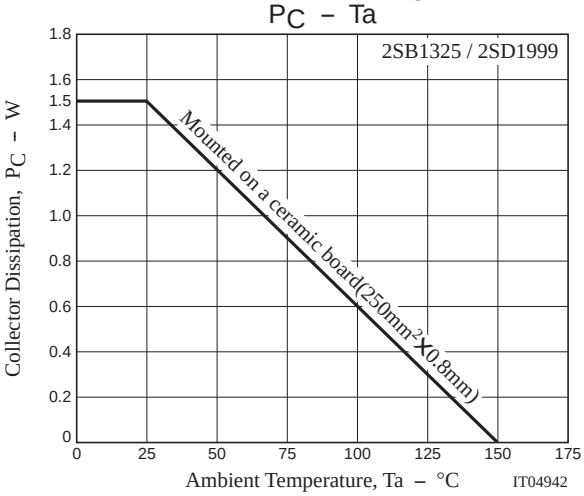

hFE – IC
2SB1325
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT04937


hFE – IC
2SD1999
VCE=2V
Ta=75°C
–25°C
25°C
DC Current Gain, hFE
Collector Current, IC – A
IT04938


Cob – VCB
2SB1325
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT04939


Cob – VCB
2SD1999
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT04940


A S O
ICP=6A
IC=4A
1ms
10ms
100ms
DC operation
2SB1325 / 2SD1999
Ta=25°C
Single pulse
Mounted on a ceramic board(250mm2×0.8mm)
(For PNP, minus sign is omitted)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT04941


PC – Ta
2SB1325 / 2SD1999
Mounted on a ceramic board(250mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT04942