

<b>SANYO</b>	No.2214B	<b>2SB1228/2SD1830</b>
		PNP/NPN Epitaxial Planar Silicon Darlington Transistor
<b>Driver Applications</b>		

**Applications**

- Suitable for use in control of motor drivers, printer hammer drivers, relay drivers, and constant-voltage regulators.

**Features**

- High DC current gain.
- Large current capacity and wide ASO.
- Low saturation voltage.
- Micaless package facilitating mounting.

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

Collector-to-Base Voltage	V <sub>CB0</sub>	(-)	110	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>	(-)	100	V
Emitter-to-Base Voltage	V <sub>EBO</sub>	(-)	6	V
Collector Current	I <sub>C</sub>	(-)	8	A
Collector Current (Pulse)	I <sub>CP</sub>	(-)	12	A
Collector Dissipation	P <sub>C</sub>		2.0	W
			30	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

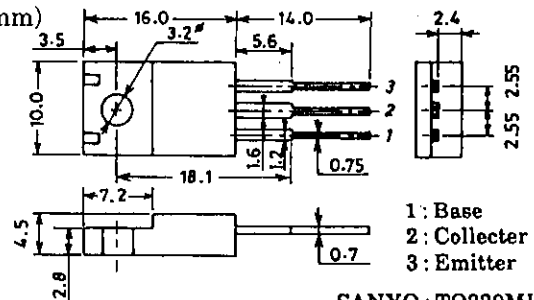
T<sub>c</sub> = 25°C

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

			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = (-)80V, I <sub>E</sub> = 0			(-)	0.1 mA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = (-)5V, I <sub>C</sub> = 0			(-)	3.0 mA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = (-)3V, I <sub>C</sub> = (-)4A	1500	4000		
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = (-)5V, I <sub>C</sub> = (-)4A		20		MHz
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = (-)4A, I <sub>B</sub> = (-)8mA		0.9	(-)	1.5 V
				(-)	1.0	V
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = (-)4A, I <sub>B</sub> = (-)8mA			(-)	2.0 V
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = (-)5mA, I <sub>E</sub> = 0	(-)	110		V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = (-)50mA, R <sub>BE</sub> = ∞	(-)	100		V
Turn-ON Time	t <sub>on</sub>	See specified Test Circuit.		0.6		μs
		"		(0.7)		μs
Storage Time	t <sub>stg</sub>	"		4.8		μs
		"		(1.4)		μs
Fall Time	t <sub>f</sub>	"		1.6		μs
		"		(1.5)		μs

**Package Dimensions 2041A**

(unit: mm)



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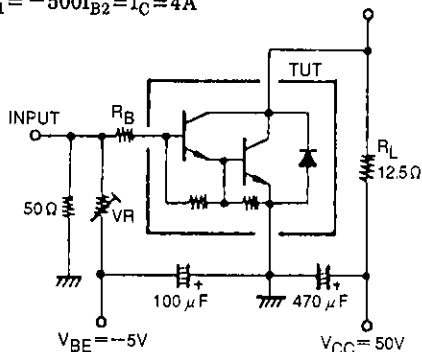
**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

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

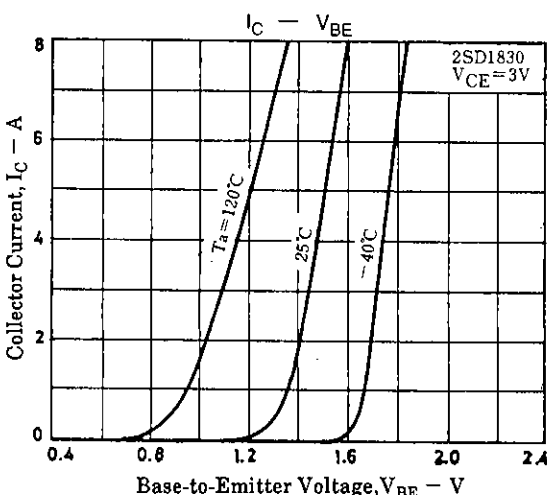
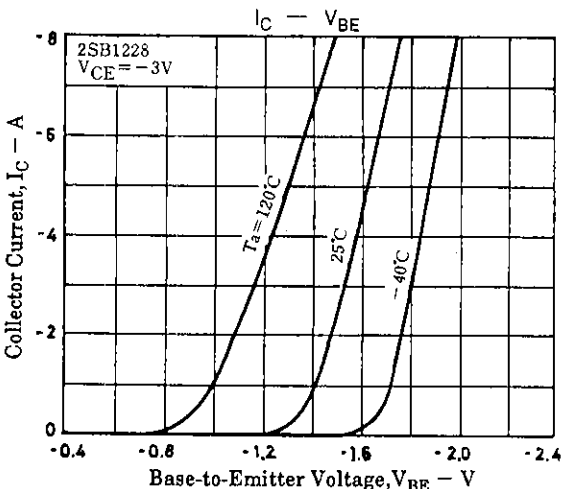
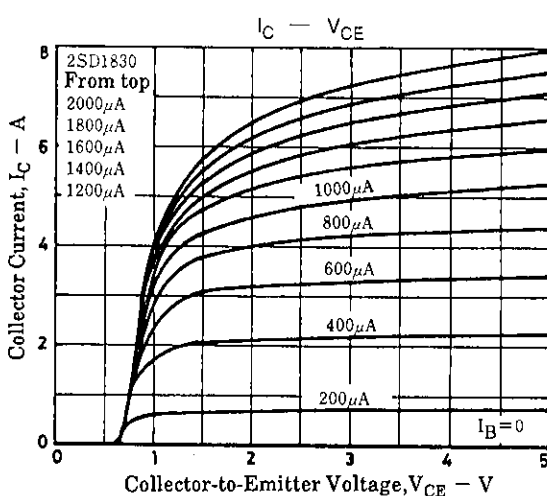
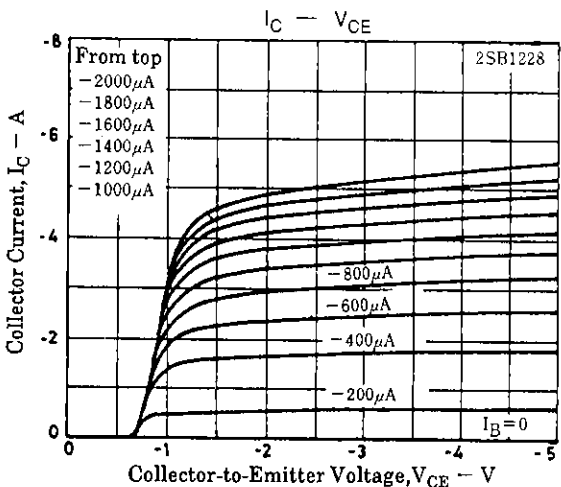
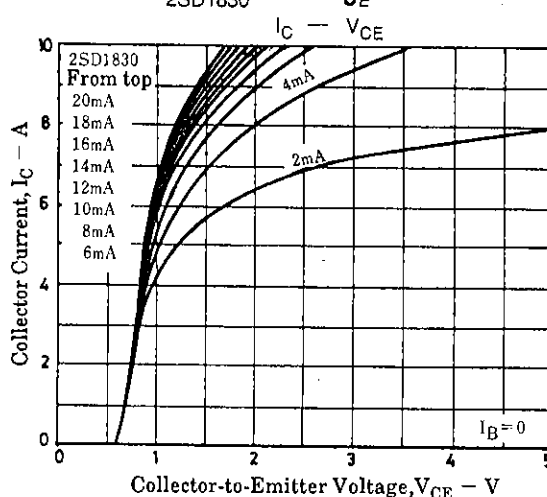
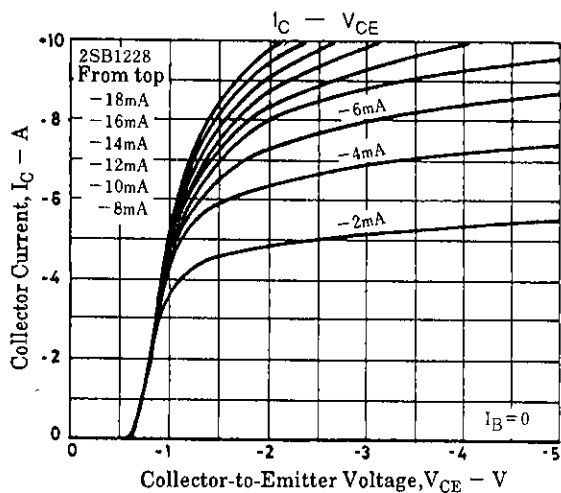
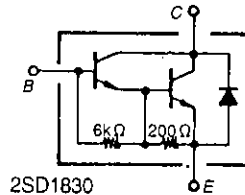
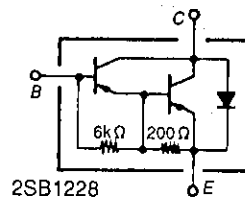
**Specified Test Circuit (For PNP, the polarity is reversed.)**

PW = 50μs, Duty cycle ≤ 1%

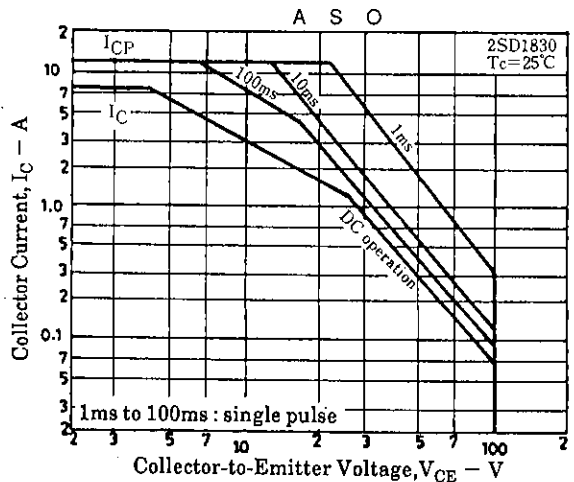
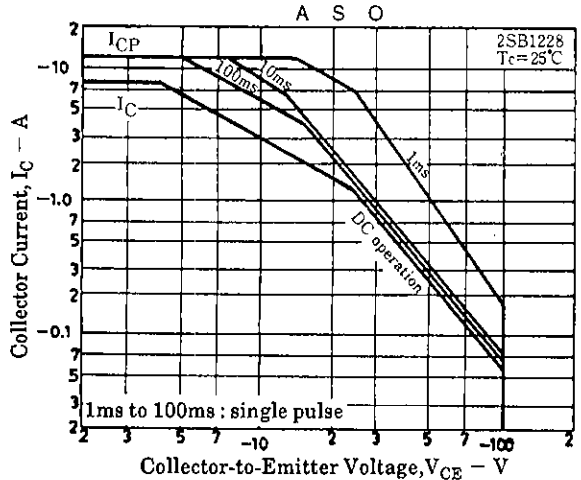
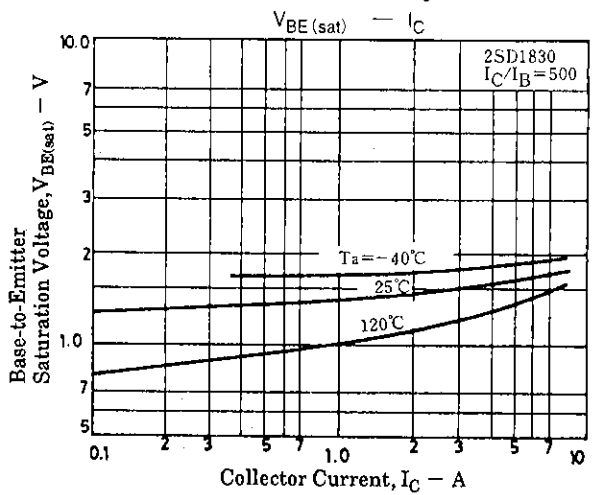
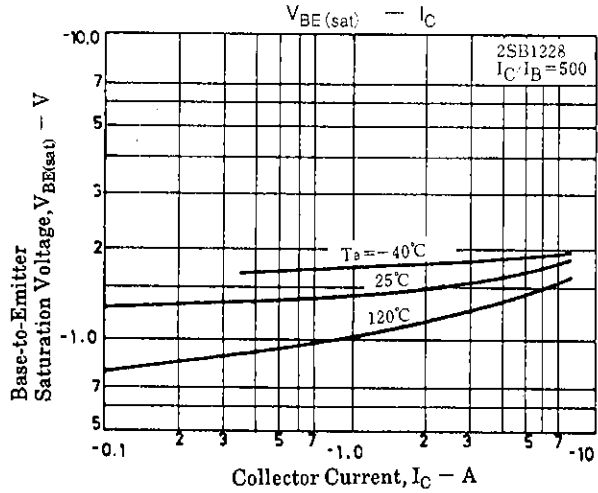
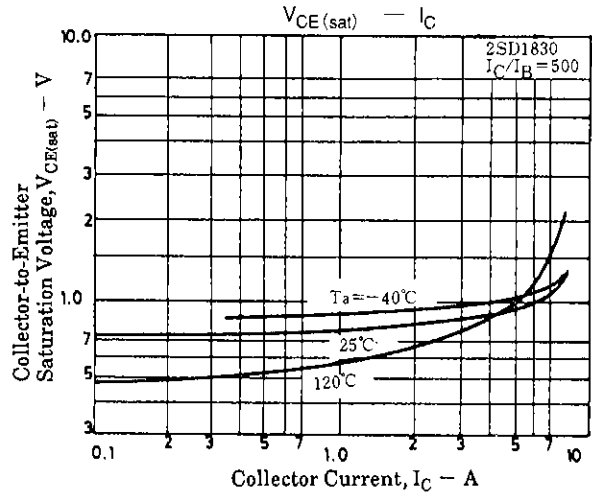
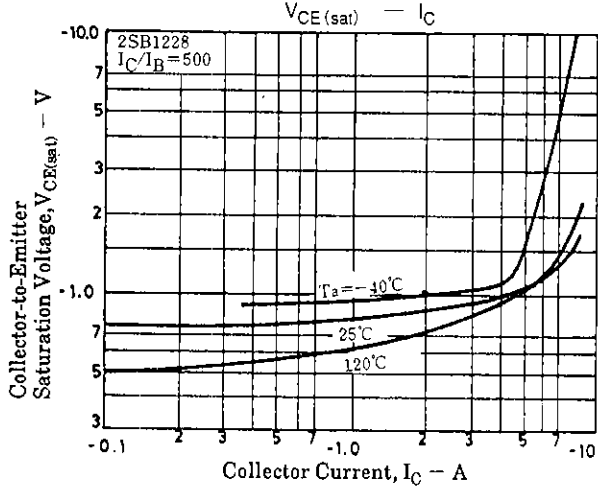
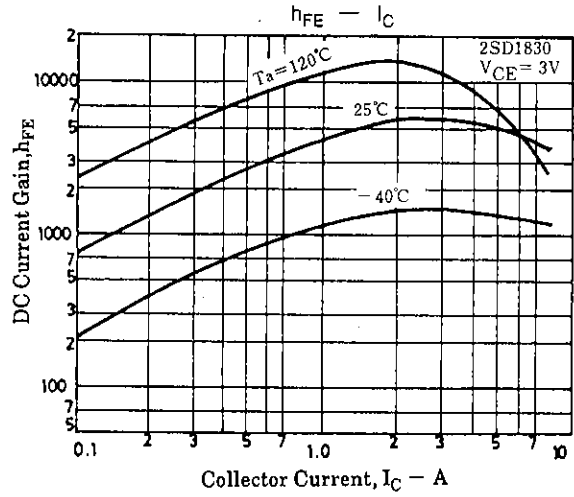
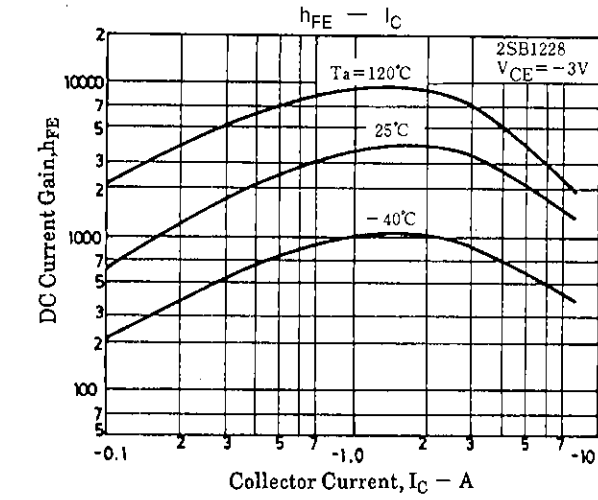
500I<sub>B1</sub> = -500I<sub>B2</sub> = I<sub>C</sub> = 4A

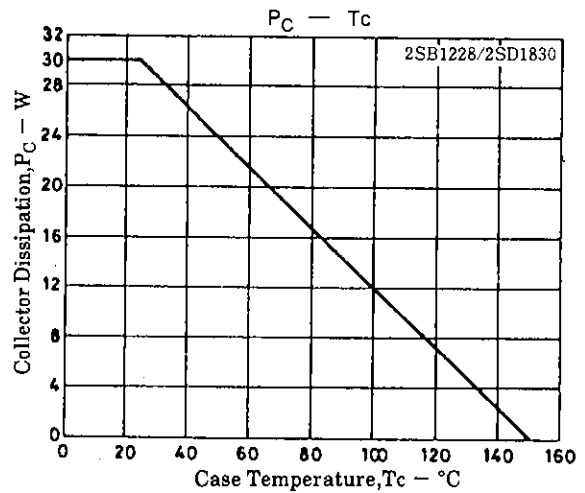
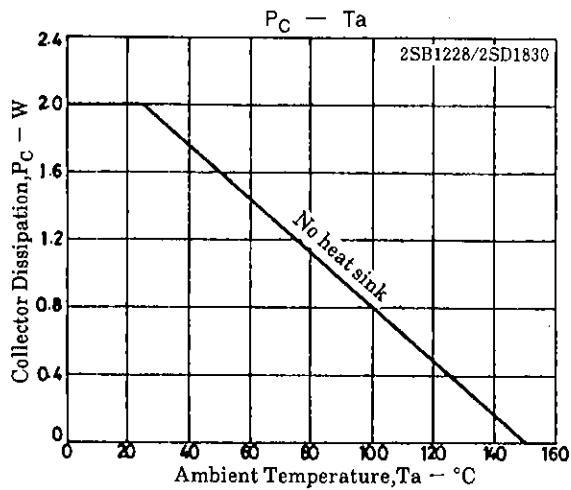


**Electrical Connection**



2SB1228/2SD1830





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