

<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**

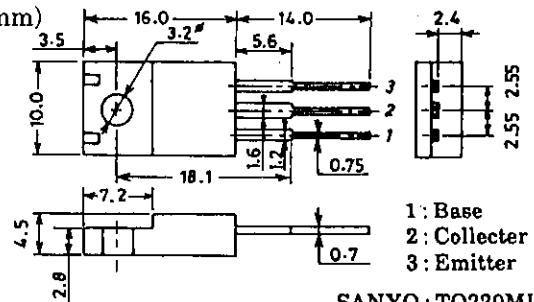
Collector-to-Base Voltage	$V_{CBO}$	(-)110	V
Collector-to-Emitter Voltage	$V_{CEO}$	(-)100	V
Emitter-to-Base Voltage	$V_{EBO}$	(-)6	V
Collector Current	$I_C$	(-)8	A
Collector Current (Pulse)	$I_{CP}$	(-)12	A
Collector Dissipation	$P_C$	2.0	W
		$T_c = 25^\circ C$	30
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

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

			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)80V, I_E = 0$			(-)0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)5V, I_C = 0$			(-)3.0	mA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)3V, I_C = (-)4A$	1500	4000		
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5V, I_C = (-)4A$		20		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)4A, I_B = (-)8mA$		0.9	(-)1.5	V
				(-1.0)		V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)4A, I_B = (-)8mA$			(-)2.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)5mA, I_E = 0$	(-)110			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)50mA, R_{BE} = \infty$	(-)100			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		0.6		µs
		"		(0.7)		µs
Storage Time	$t_{stg}$	"		4.8		µs
		"		(1.4)		µs
Fall Time	$t_f$	"		1.6		µs
		"		(1.5)		µs

**Package Dimensions 2041A**

(unit: mm)



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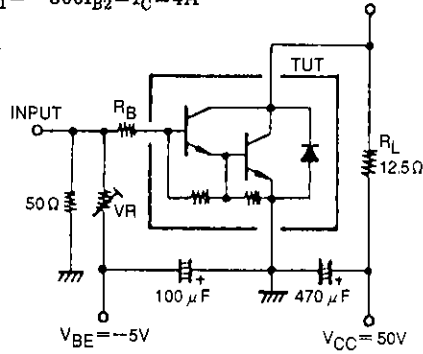
**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

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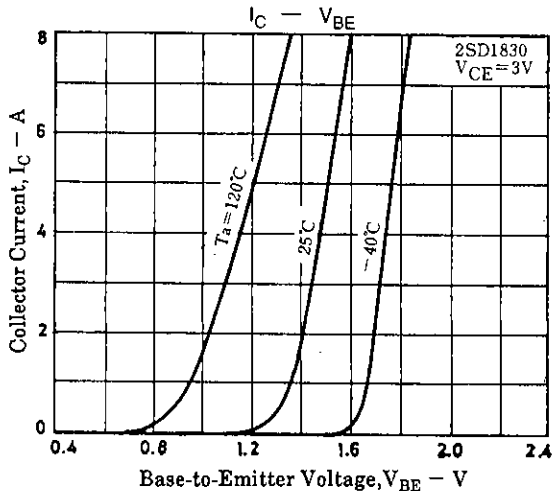
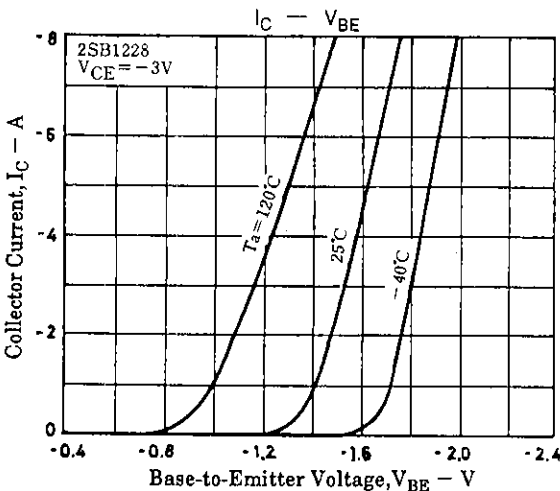
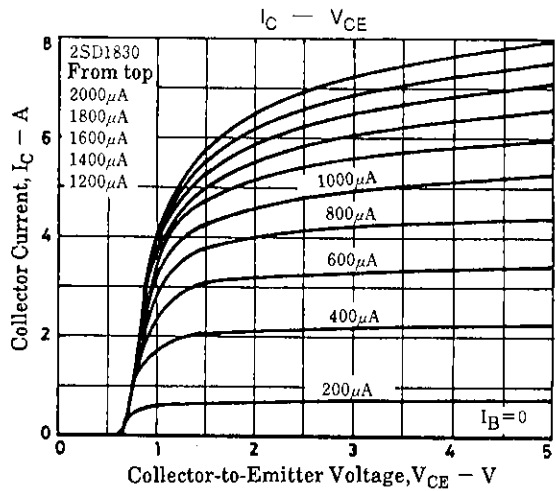
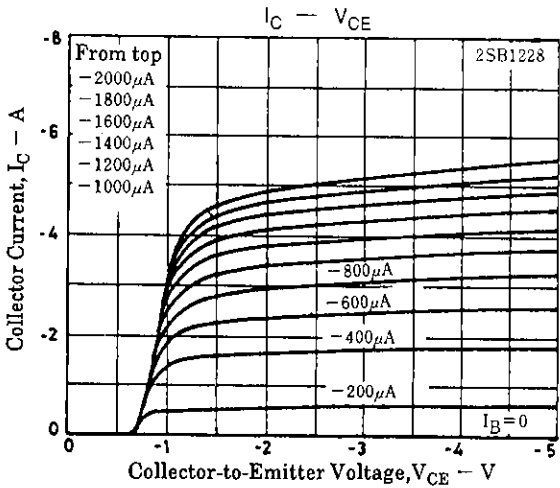
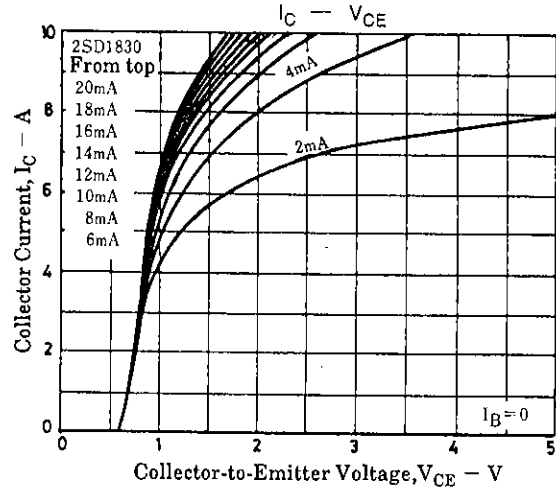
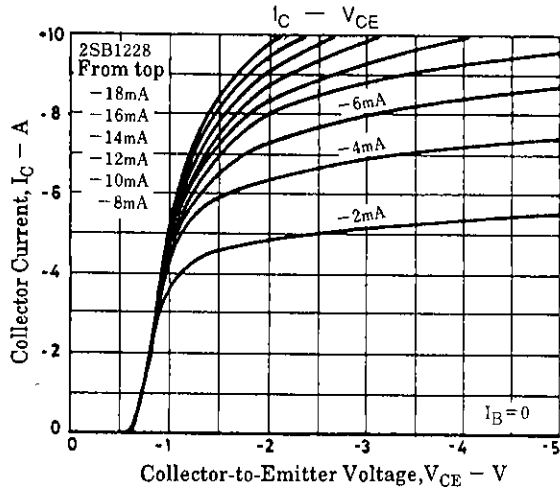
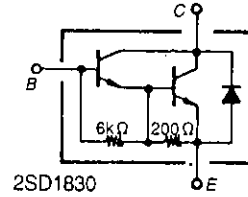
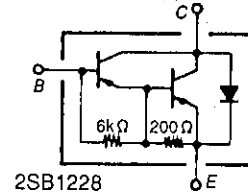
**Specified Test Circuit (For PNP, the polarity is reversed.)**

PW = 50μs, Duty cycle ≤ 1%

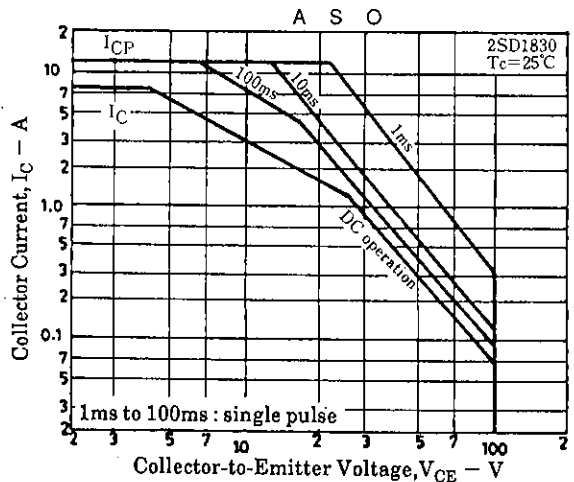
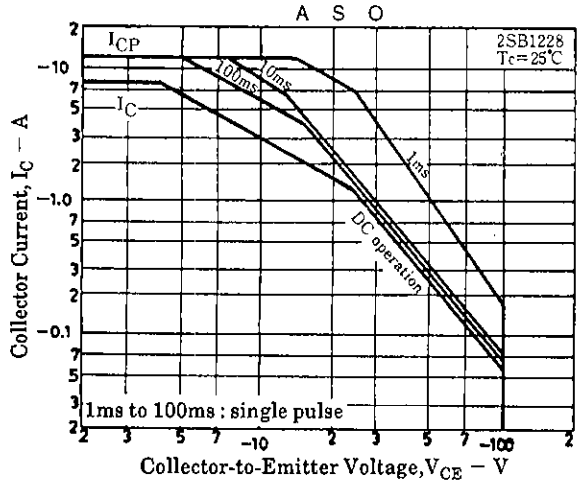
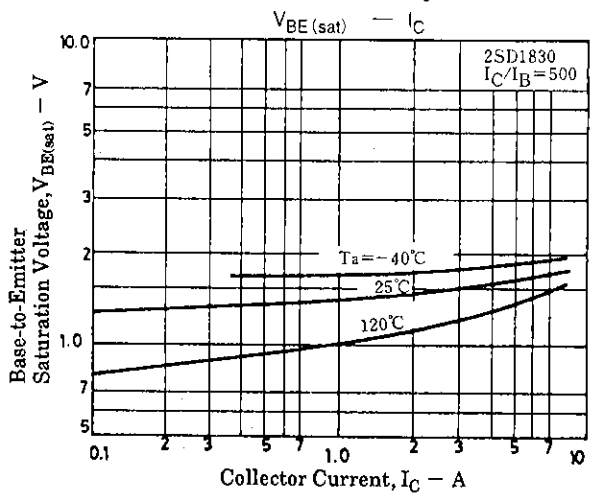
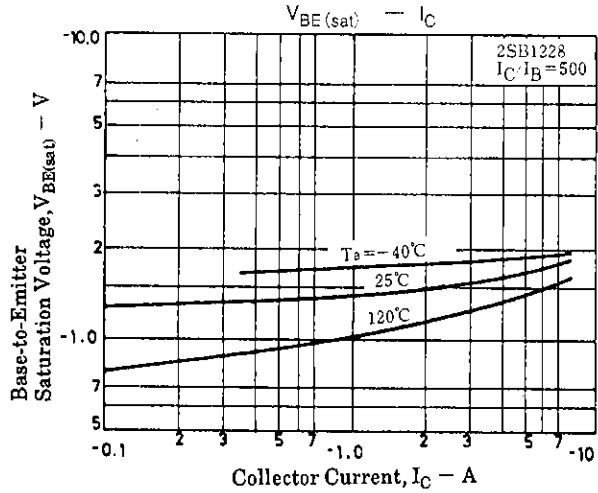
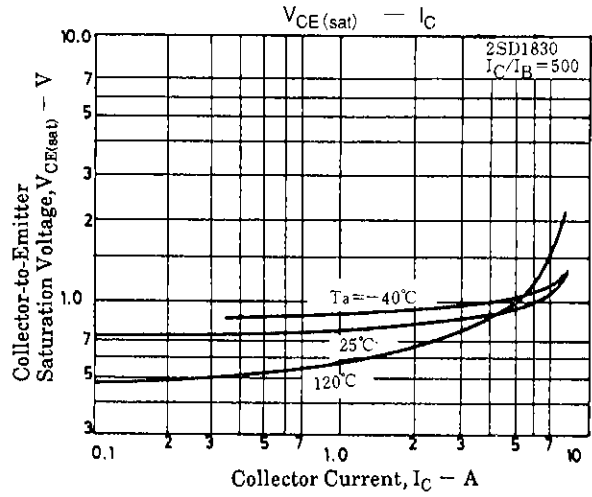
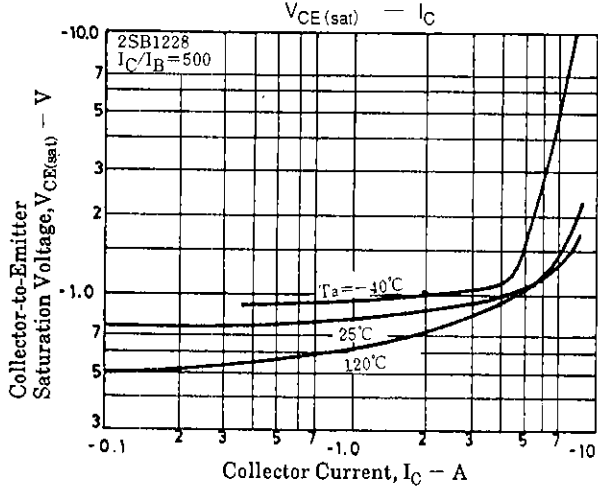
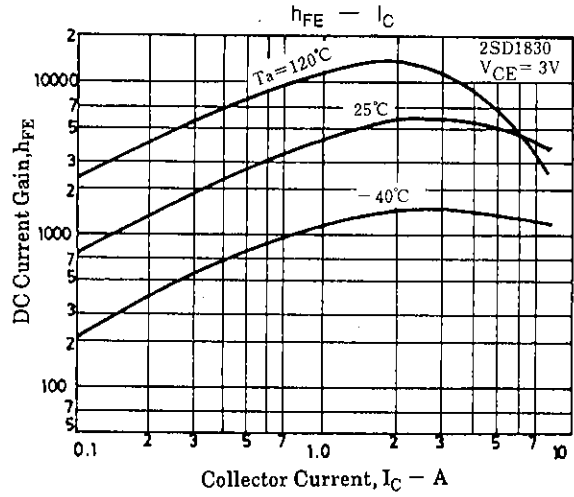
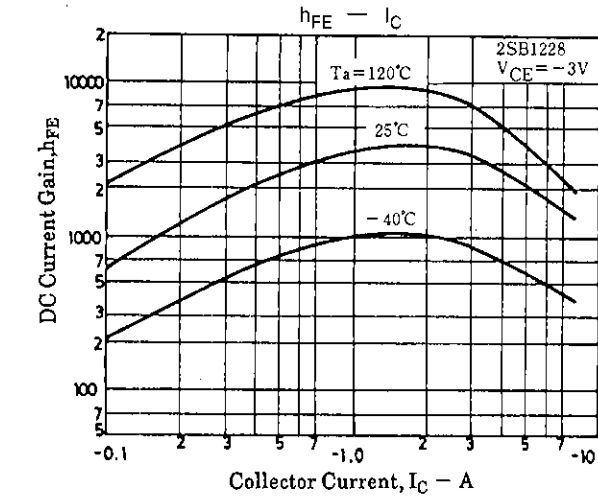
500I<sub>B1</sub> = -500I<sub>B2</sub> = I<sub>C</sub> = 4A

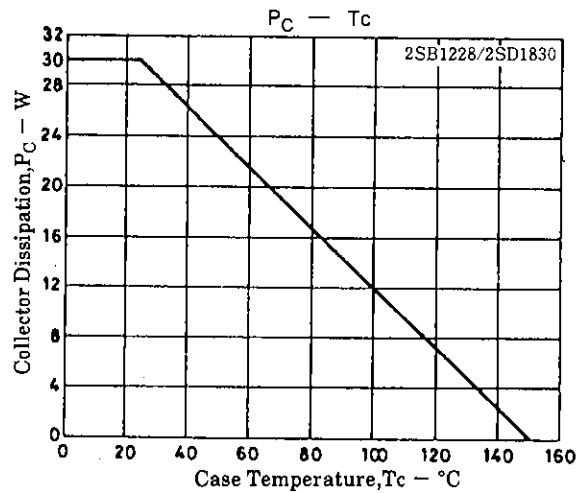
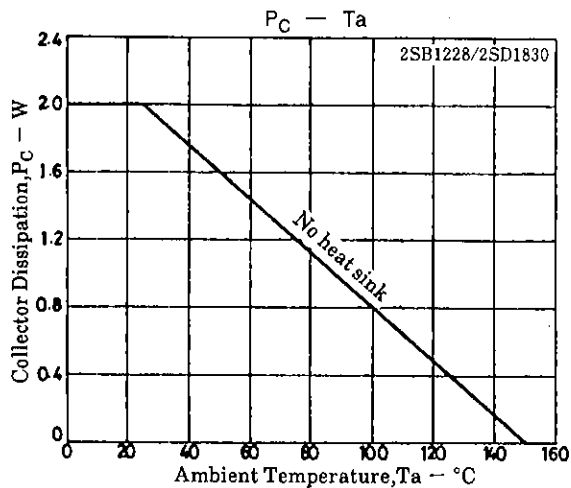


**Electrical Connection**



2SB1228/2SD1830





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