

# 2SB1224 / 2SD1826 — PNP / NPN Epitaxial Planar Silicon Darlington Transistors Driver Applications

## 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.
- Micaless package facilitating mounting.

## Specifications ( ) : 2SB1224

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-)70	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)60	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)7	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)10	A
Collector Dissipation	P <sub>C</sub>		2.0	W
		T <sub>c</sub> =25°C	25	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>CB0</sub>	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0A			(-)0.1	mA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)5V, I <sub>C</sub> =0A			(-)3.0	mA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)3.5A	2000	5000		

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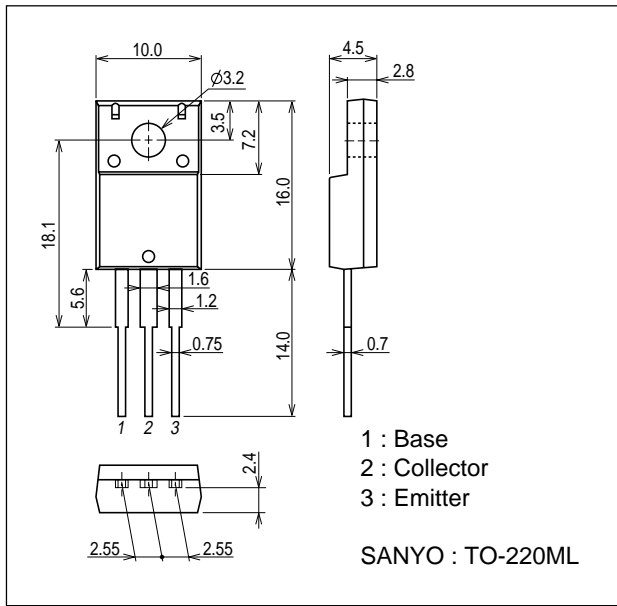
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)5V, I_C=(-)3.5A$		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3.5A, I_B=(-)7mA$		(-1.0)0.9	(-1.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)3.5A, I_B=(-)7mA$			(-2.0)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)5mA, I_E=0A$	(-70)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)50mA, R_{BE}=\infty$	(-60)			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		(0.5)0.6		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit.		(1.5)3.0		$\mu s$
Fall Time	$t_f$	See specified Test Circuit.		(1.4)1.7		$\mu s$

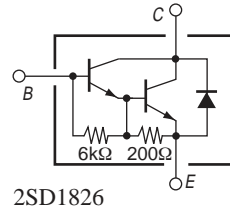
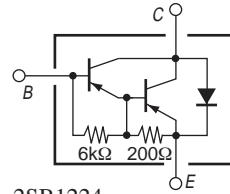
## Package Dimensions

unit : mm (typ)

7508-002



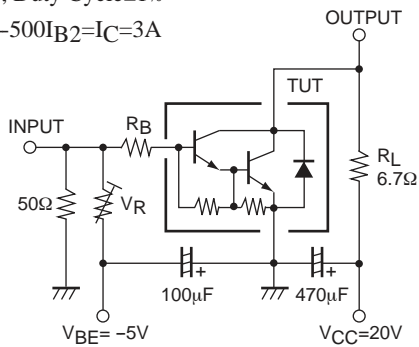
## Electrical Connection



## Switching Time Test Circuit

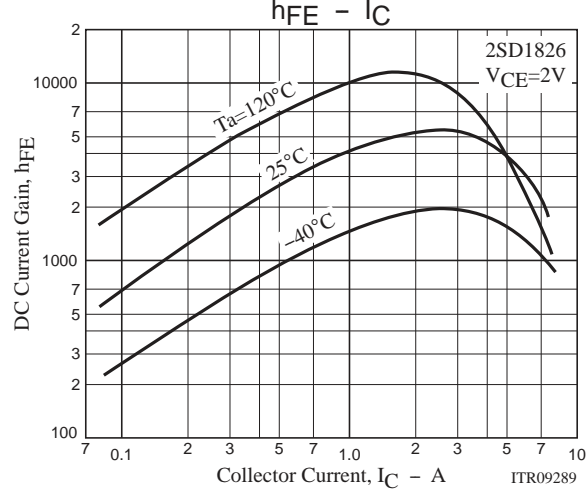
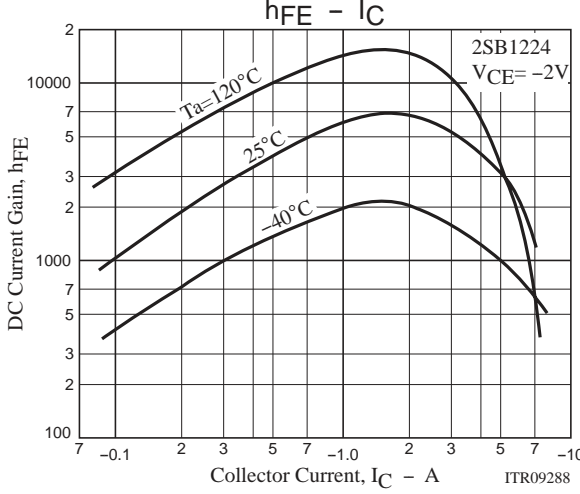
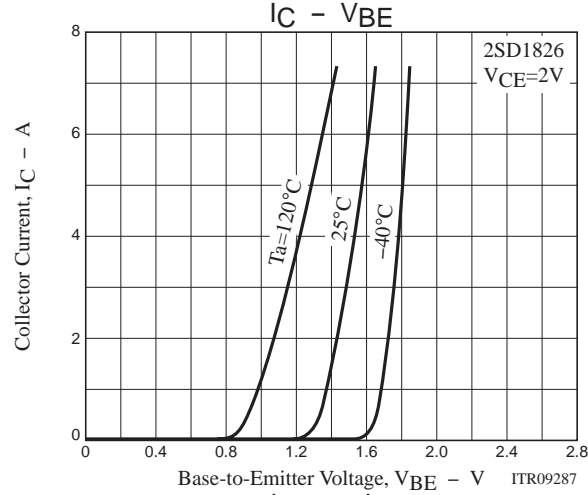
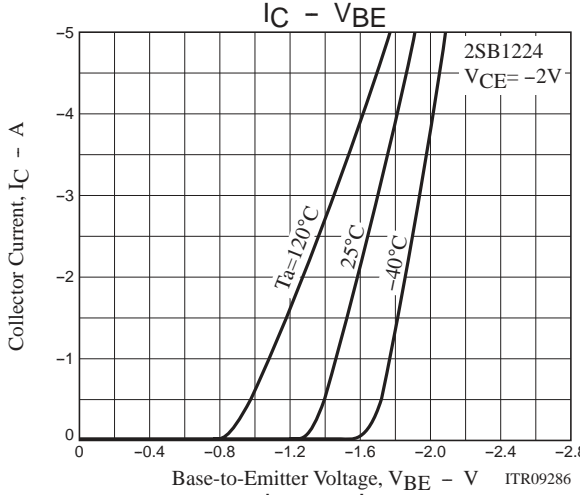
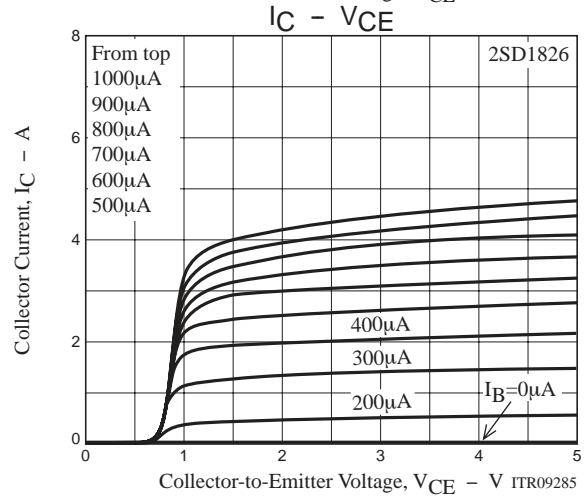
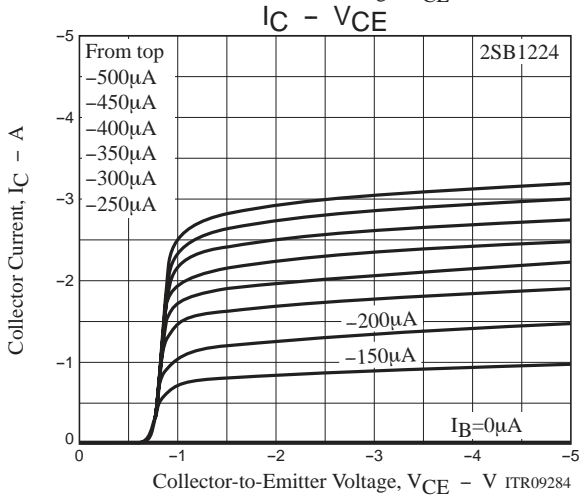
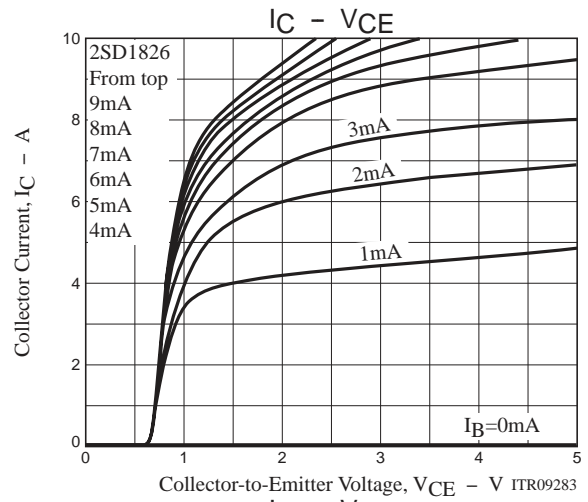
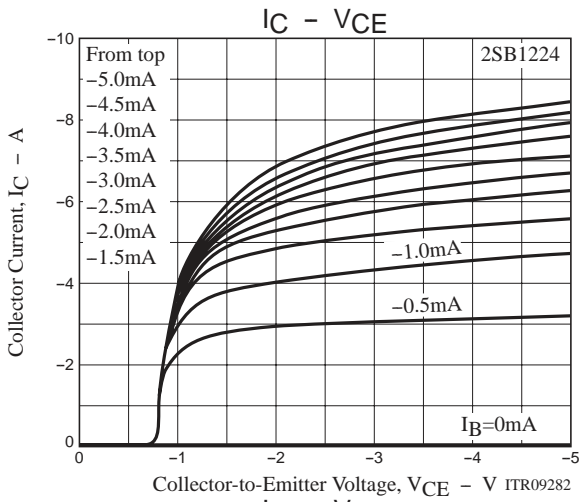
$PW=50\mu s, \text{Duty Cycle} \leq 1\%$

$500I_{B1} = -500I_{B2} = I_C = 3A$

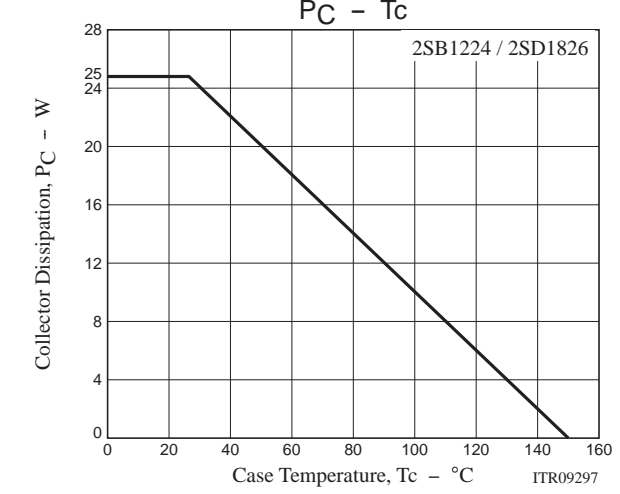
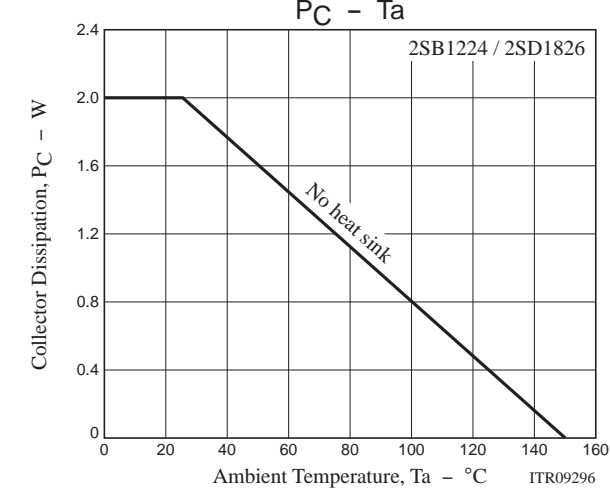
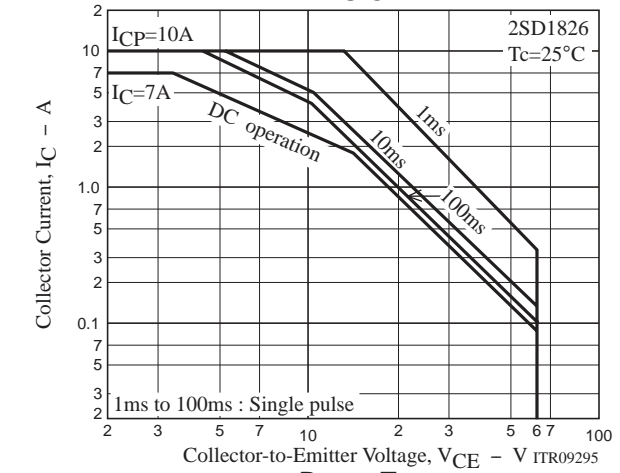
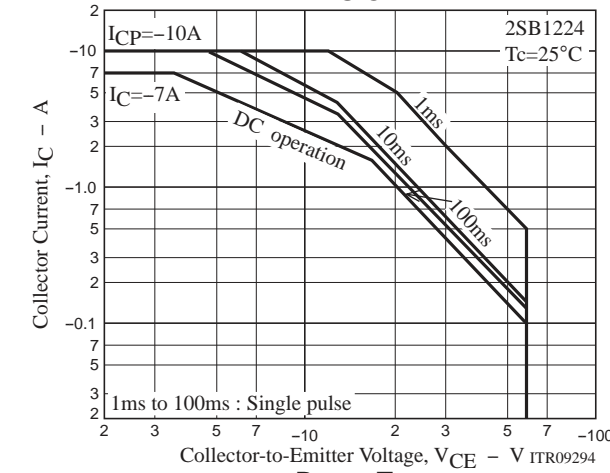
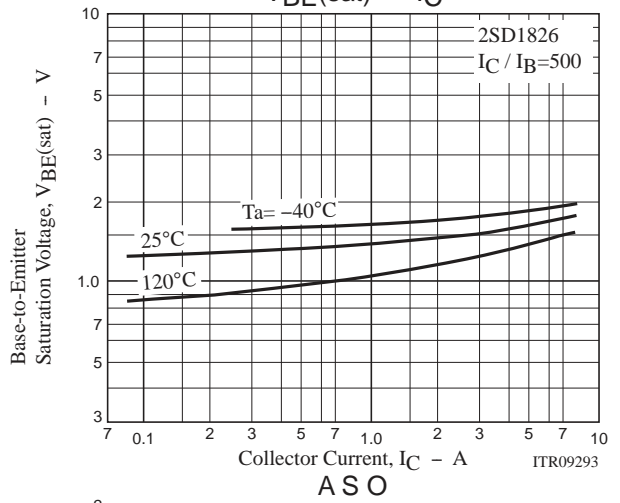
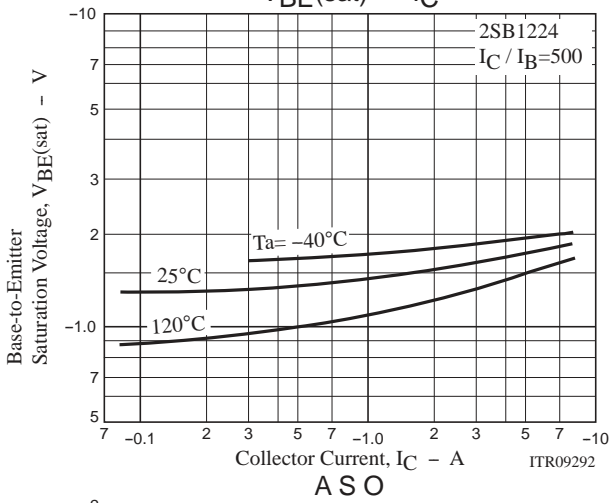
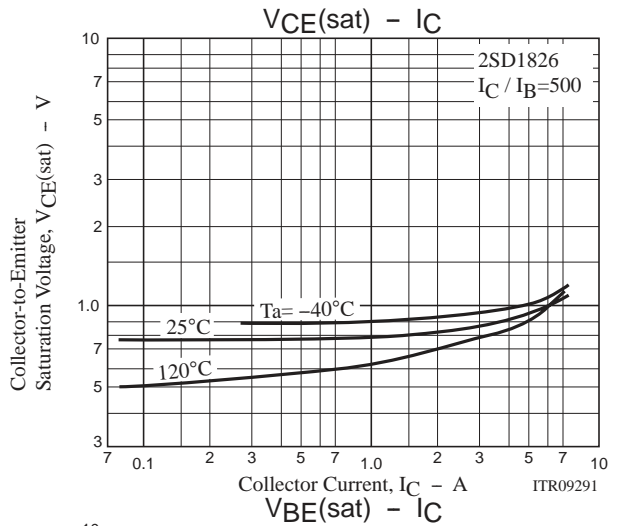
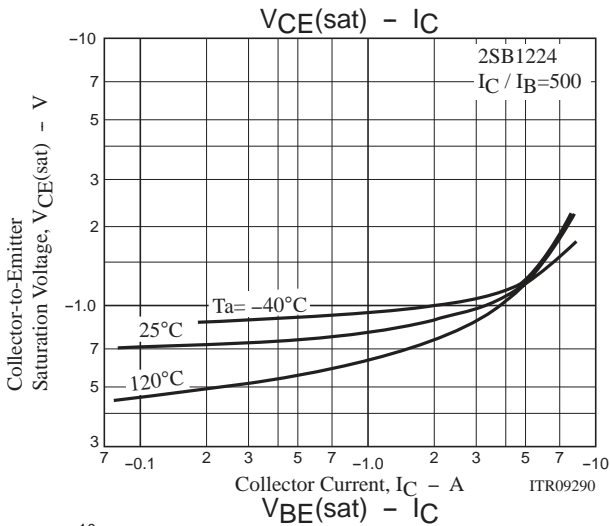


(For PNP, the polarity is reversed.)

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