



# 2SB880/2SD1190

For Various Drivers Applications

## Applications

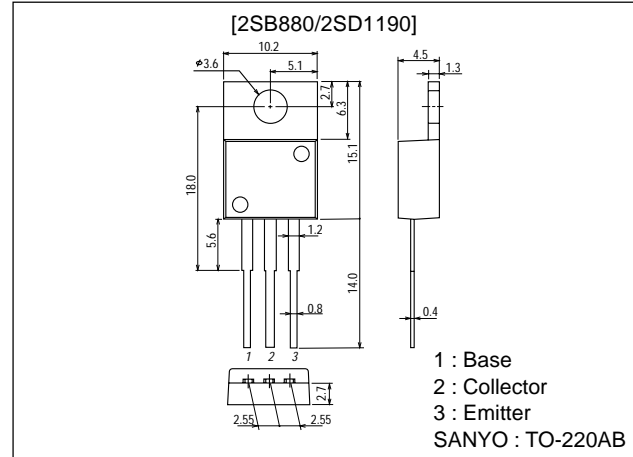
- Motor drivers, printer hammer drivers, relay drivers, voltage regulators.

## Features

- High DC current gain.
- Large current capacity and wide ASO.
- Low saturation voltage.

## Package Dimensions

unit:mm  
2010C



( ) : 2SB880

## Specifications

**Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)70	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)60	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)4	A
Collector Current (Pulse)	$I_{CP}$		(-)6	A
Collector Dissipation	$P_C$	$T_c=25^\circ\text{C}$	1.75	W
			30	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = (-)40\text{V}, I_E = 0$			(-)0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)5\text{V}, I_C = 0$			(-)3.0	mA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)2\text{V}, I_C = (-)2\text{A}$	2000	5000		
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5\text{V}, I_C = (-)2\text{A}$		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)2\text{A}, I_B = (-)4\text{mA}$		0.9	(-)1.5	V
				(-)1.0		V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)2\text{A}, I_B = (-)4\text{mA}$			(-)2.0	V

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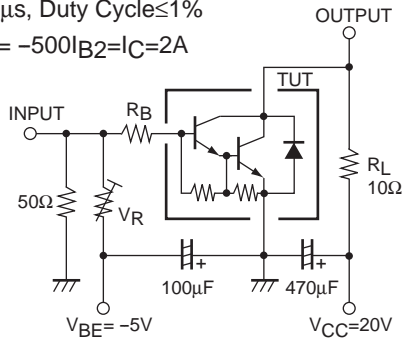
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)5mA, I_E=0$	(-)70			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)50mA, R_{BE}=\infty$	(-)60			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.5)		$\mu s$
				0.6		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		(1.4)		$\mu s$
				2.7		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		(1.2)		$\mu s$
				1.6		$\mu s$

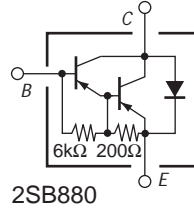
## Switching Time Test Circuit

PW=50 $\mu s$ , Duty Cycle $\leq 1\%$   
 $500I_{B1} = -500I_{B2} = I_C = 2A$

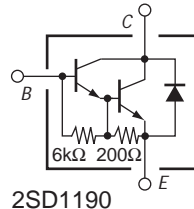


(For PNP, the polarity is reversed.)

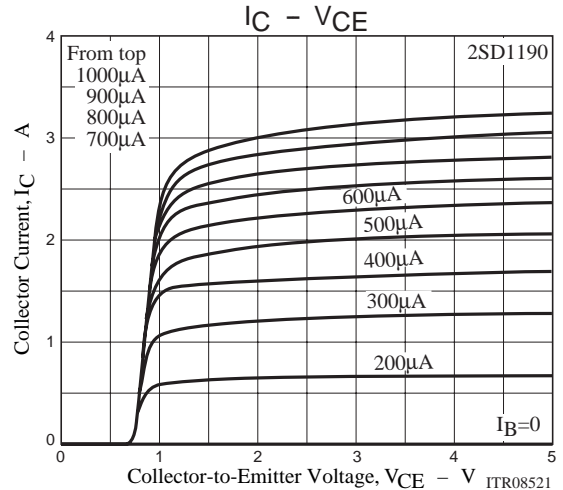
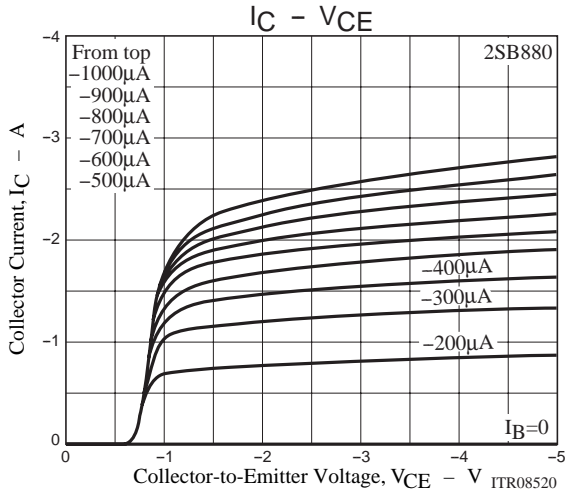
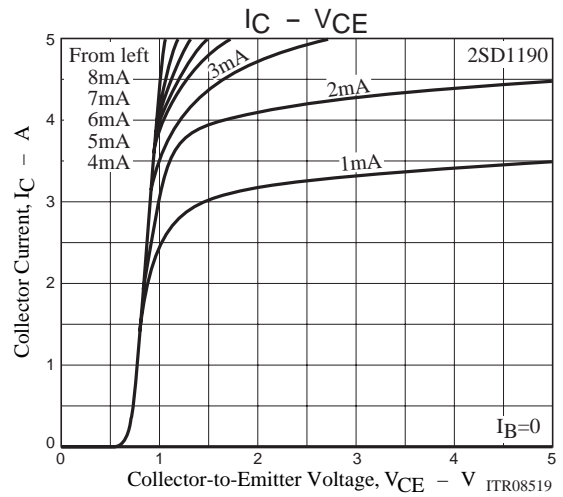
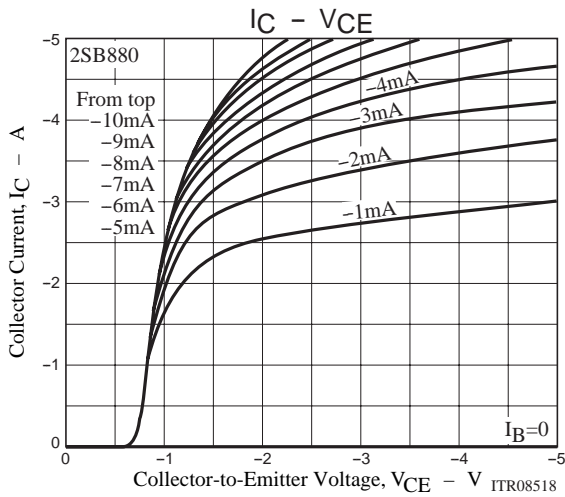
## Electrical Connection



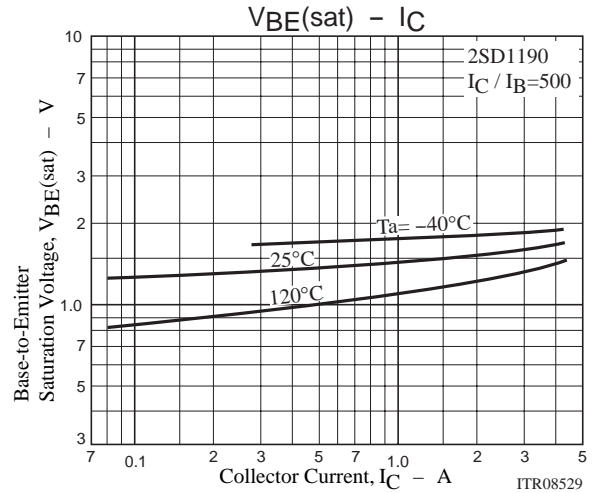
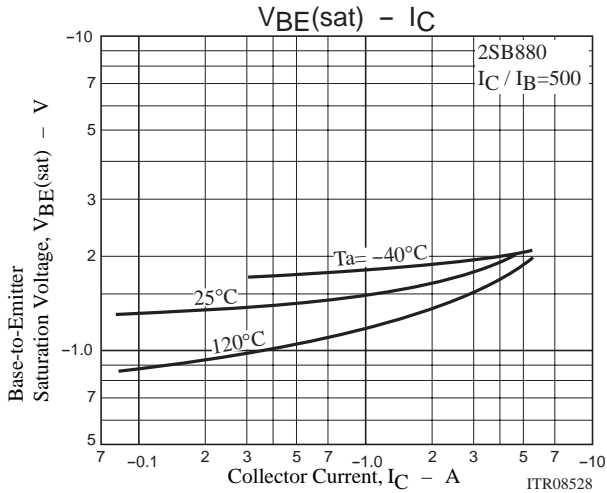
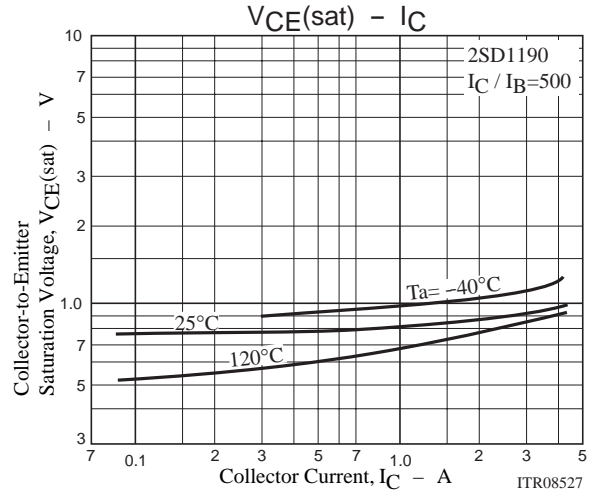
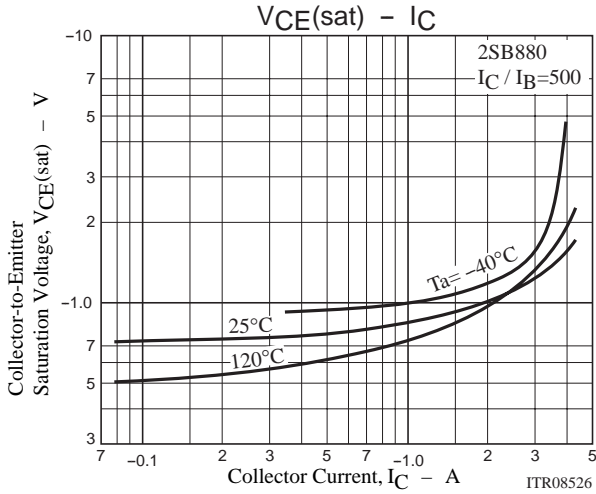
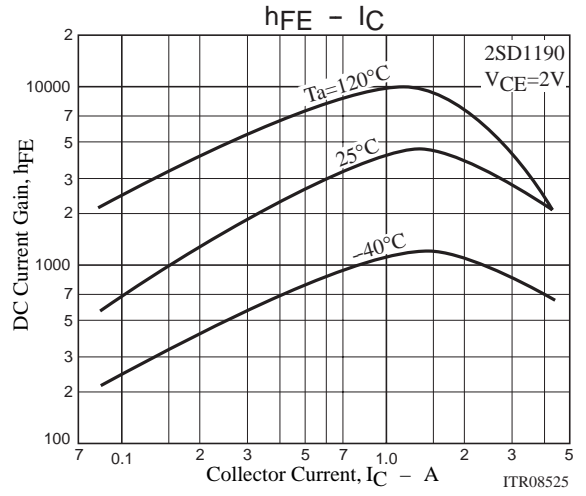
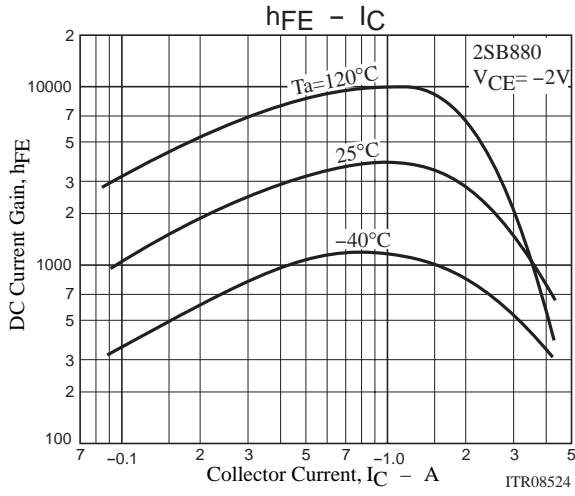
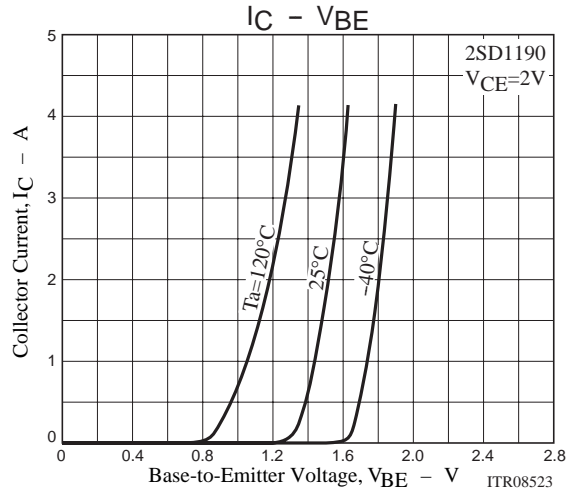
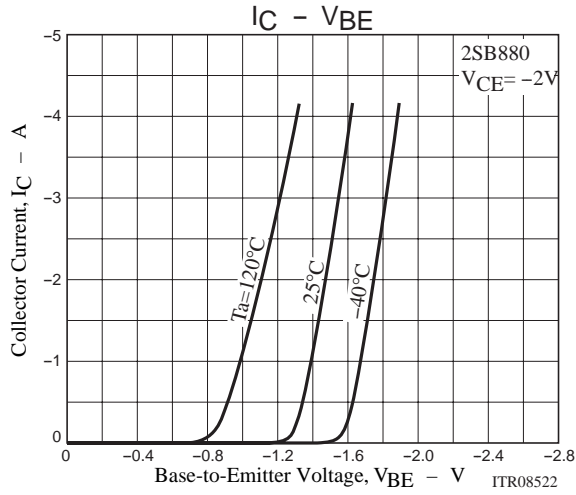
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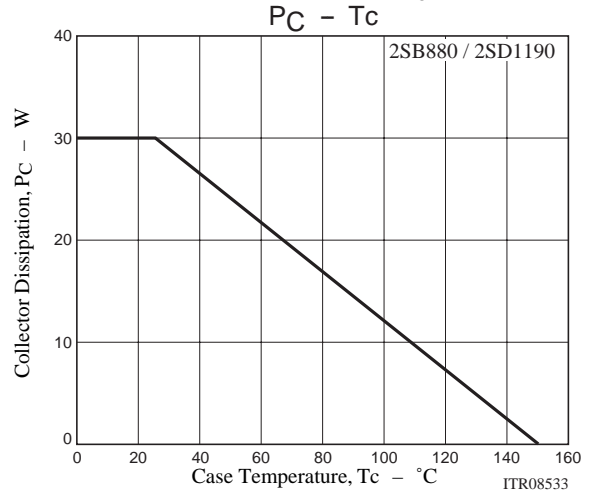
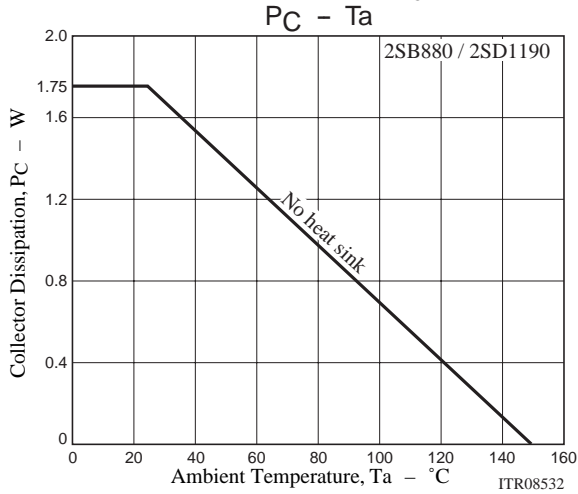
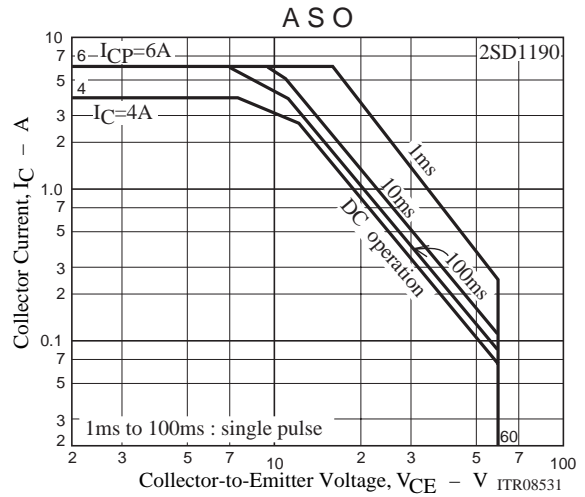
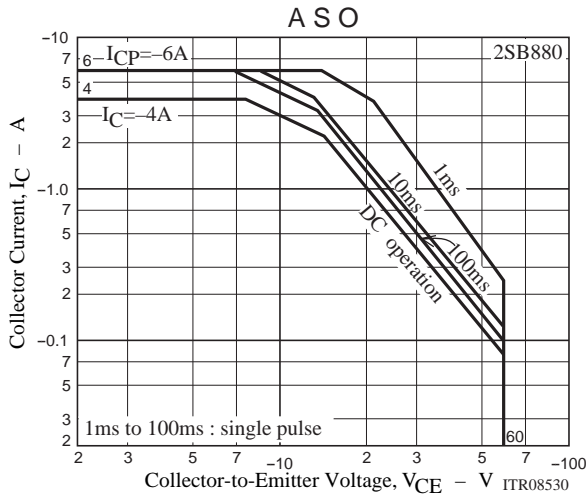
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