



# 2SB912/2SD1229

## Driver Applications

### Applications

- Motor drivers, printer hammer drivers, relay drivers, voltage regulator control.

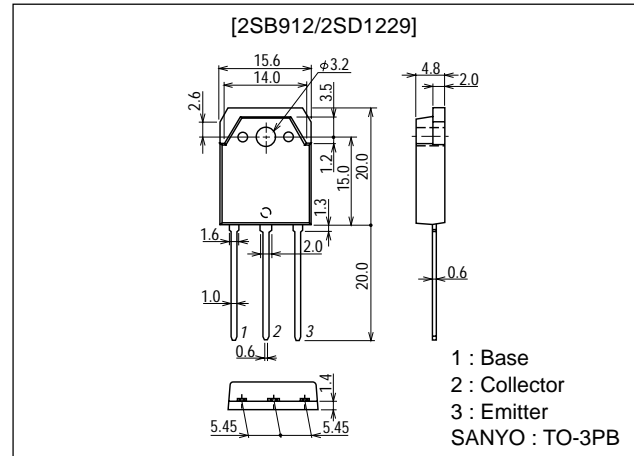
### Features

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

### Package Dimensions

unit:mm

2022A



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### 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	$I_C$		(-)-10	A
Collector Current (Pulse)	$I_{CP}$		(-)-15	A
Collector Dissipation	$P_C$		2.5	W
		$T_c=25^\circ\text{C}$	60	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	$I_{CBO}$	$V_{CB}=(-)40\text{V}, I_E=0$			(-)-0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)5\text{V}, I_C=0$			(-)-3.0	mA
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2\text{V}, I_C=(-)5\text{A}$	2000	5000		
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)5\text{V}, I_C=(-)5\text{A}$		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)5\text{A}, I_B=(-)10\text{mA}$		0.9	(-)-1.5	V
				(-)-1.0		V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)5\text{A}, I_B=(-)10\text{mA}$			(-)-2.0	V

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**SANYO Electric Co., Ltd. Semiconductor Company**

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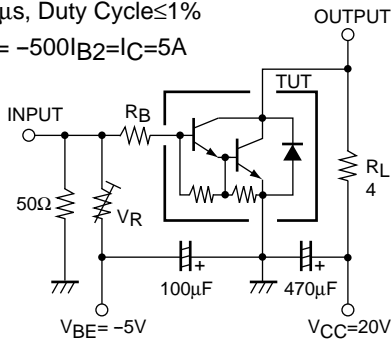
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)5mA, I_E=0$	(-)70			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)50mA, R_{BE}=\infty$	(-)60			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.5)		$\mu s$
				0.6		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		(1.5)		$\mu s$
				3.0		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		(1.7)		$\mu s$
				1.8		$\mu s$

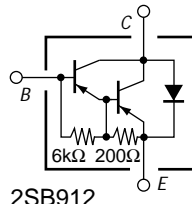
## Switching Time Test Circuit

PW=50 $\mu s$ , Duty Cycle $\leq$ 1%  
500I<sub>B1</sub> = -500I<sub>B2</sub> = I<sub>C</sub> = 5A

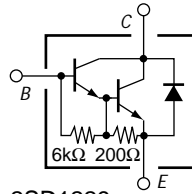


(For PNP, the polarity is reversed.)

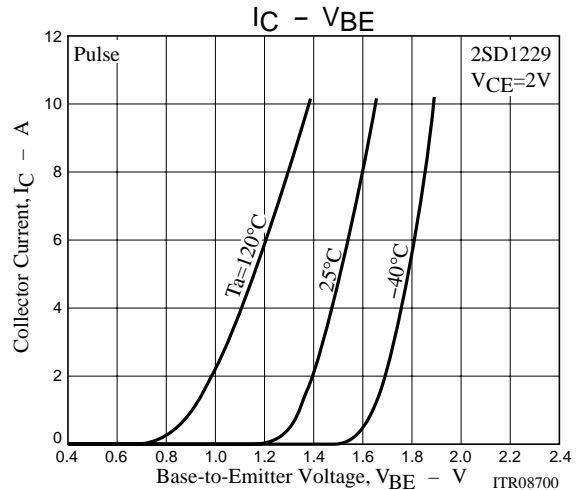
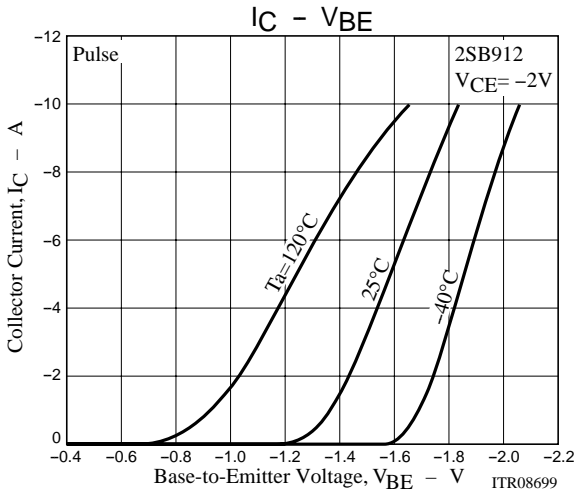
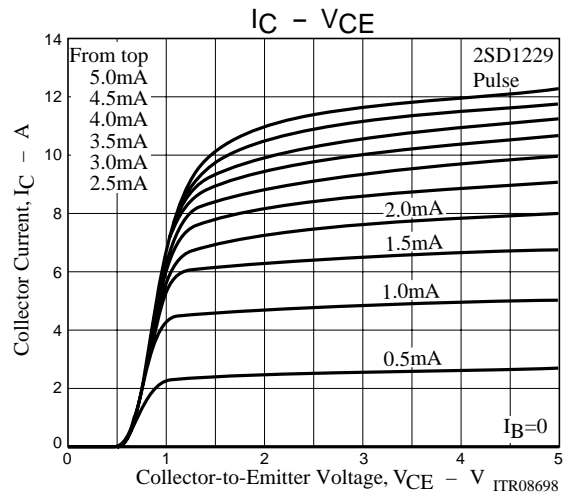
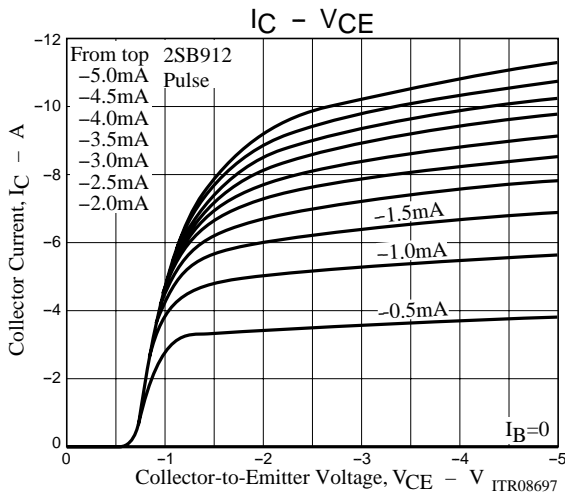
## Electrical Connection



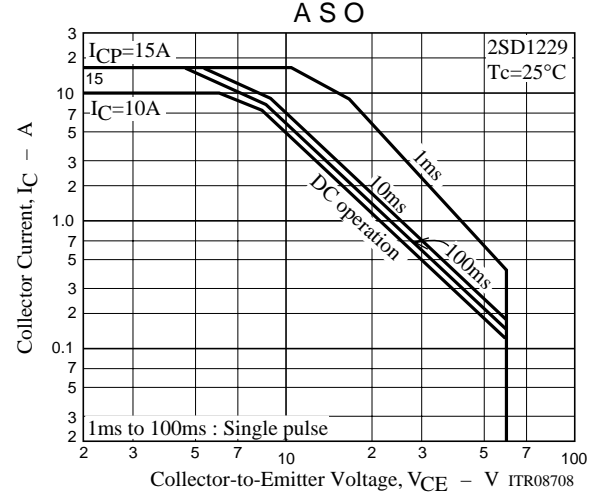
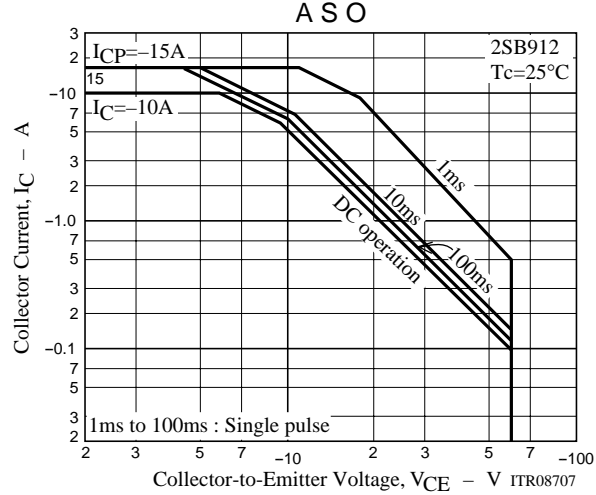
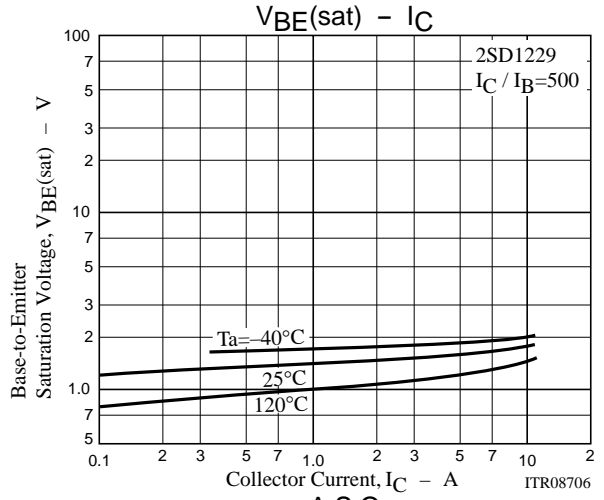
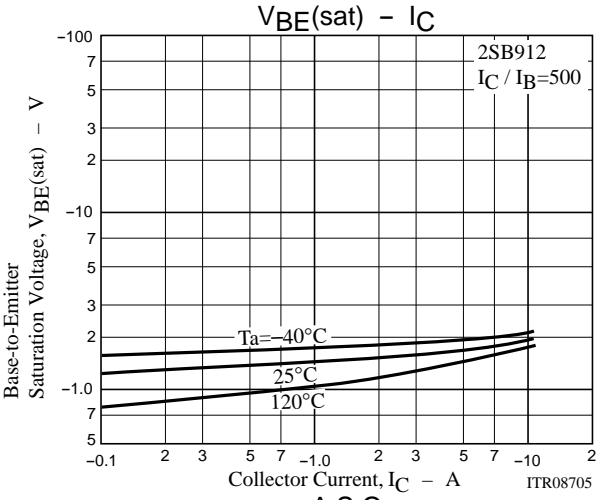
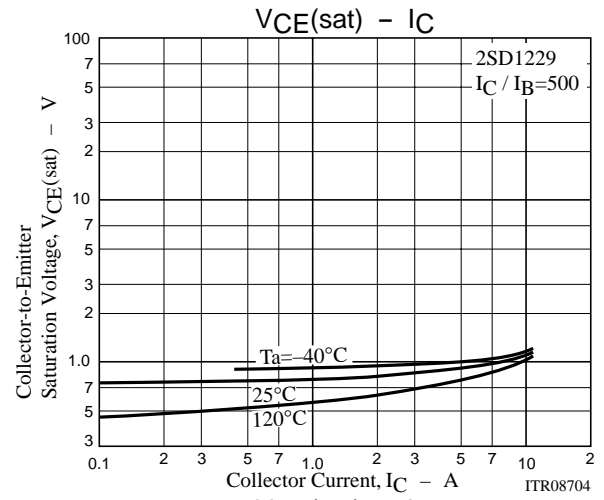
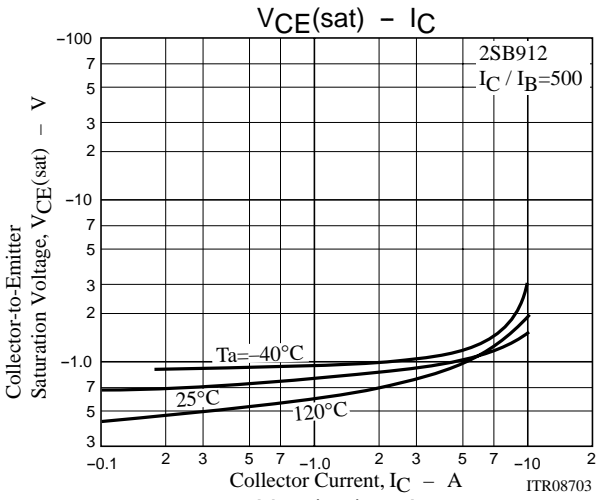
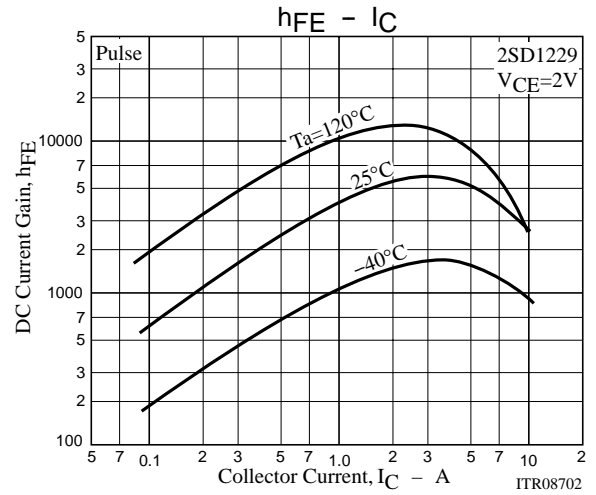
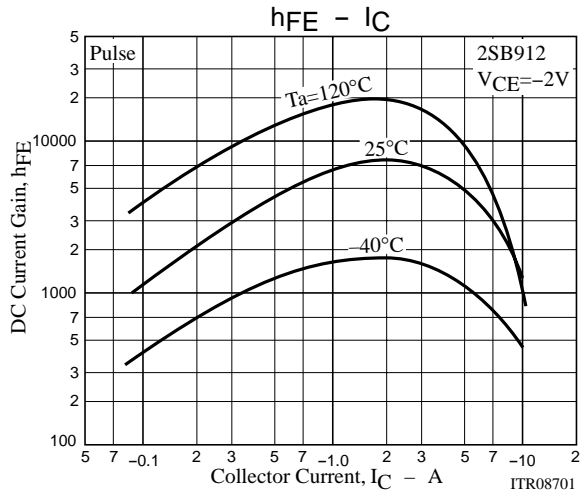
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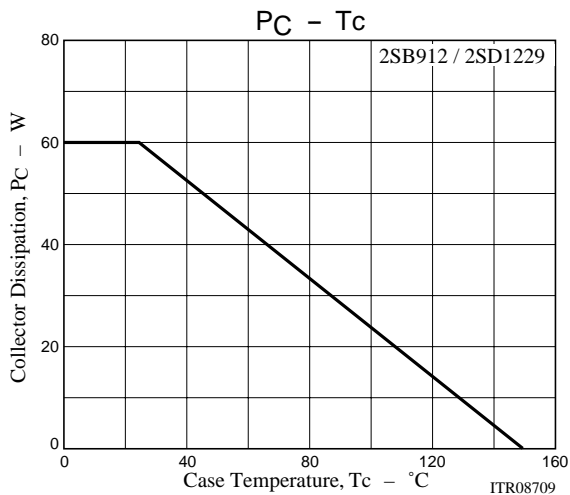
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