



SANYO Semiconductors

DATA SHEET

2SB824 / 2SD1060

PNP / NPN Epitaxial Planar Silicon Transistors

50V / 5A Switching Applications

Applications

- Suitable for relay drivers, high-speed inverters, converters, and other general large-current switching.

Features

- Low collector-to-emitter saturation voltage : $V_{CE(sat)} = (-)0.4V \text{ max} / I_C = (-)3A, I_B = (-)0.3A$.

Specifications () : 2SB824

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)60	V
Collector-to-Emitter Voltage	V_{CEO}		(-)50	V
Emitter-to-Base Voltage	V_{EBO}		(-)6	V
Collector Current	I_C		(-)5	A
Collector Current (Pulse)	I_{CP}		(-)9	A
Collector Dissipation	PC		1.75	W
		$T_c = 25^\circ\text{C}$	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_{CBO}	$V_{CB} = (-)40V, I_E = 0A$			(-)0.1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0A$			(-)0.1	mA

Continued on next page.

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SANYO Semiconductor Co., Ltd.

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	hFE1	VCE=(-)2V, IC=(-)1A	70*		280*	
	hFE2	VCE=(-)2V, IC=(-)3A	30			
Gain-Bandwidth Product	fT	VCE=(-)5V, IC=(-)1A		30		MHz
Output Capacitance	Cob	VCB=(-)10V, f=1MHz		(160)100		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)	IC=(-)3A, IB=(-)0.3A			(-)0.4	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC=(-)1mA, IE=0A	(-)60			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC=(-)1mA, RBE=∞	(-)50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	IE=(-)1mA, IC=0A	(-)6			V
Turn-ON Time	ton	See specified Test Circuit.		0.1		μs
Storage Time	tstg	See specified Test Circuit.		(0.7)1.4		μs
Fall Time	tf	See specified Test Circuit.		0.2		μs

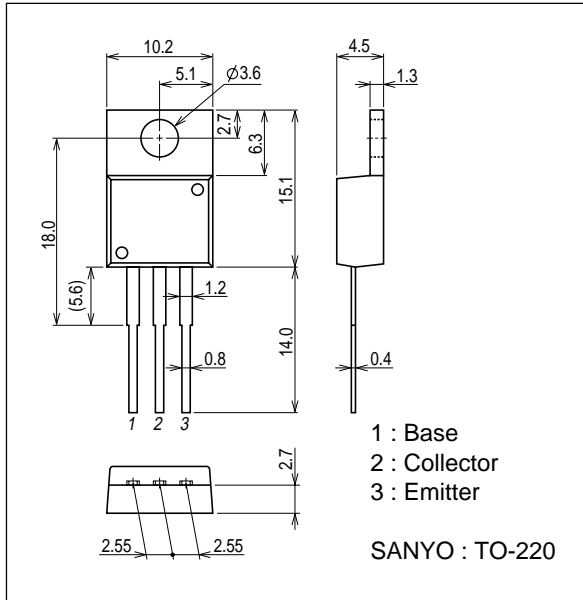
* : The 2SB824 / 2SD1060 are classified by 1A hFE as follows :

Rank	Q	R	S
hFE	70 to 140	100 to 200	140 to 280

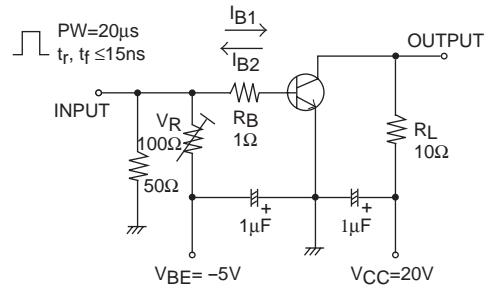
Package Dimensions

unit : mm (typ)

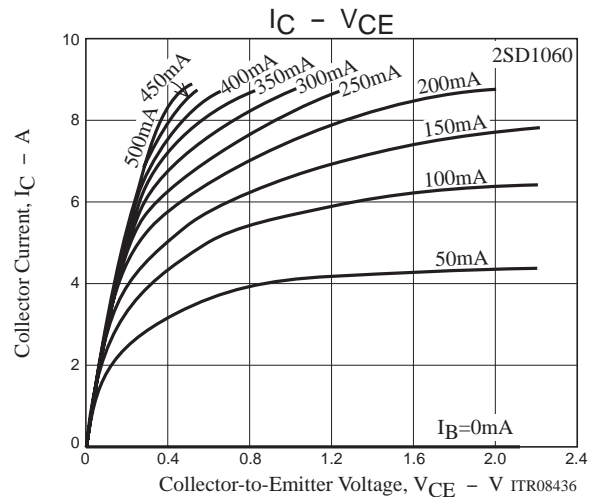
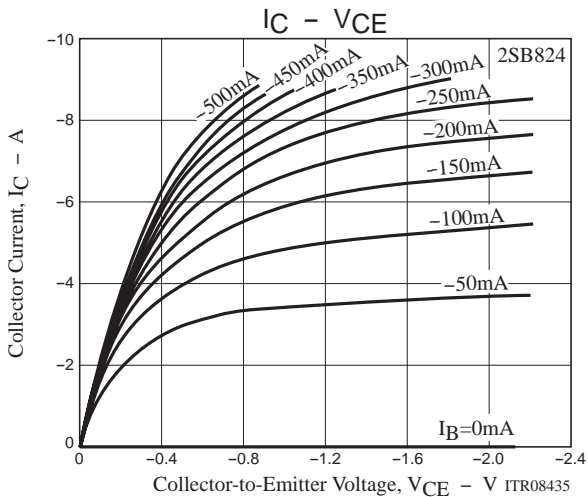
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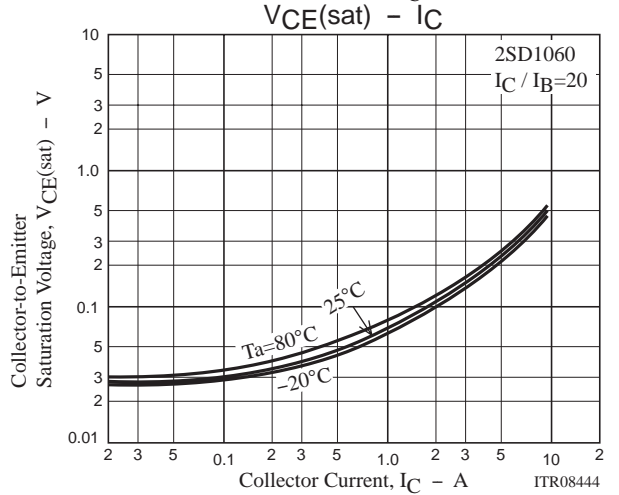
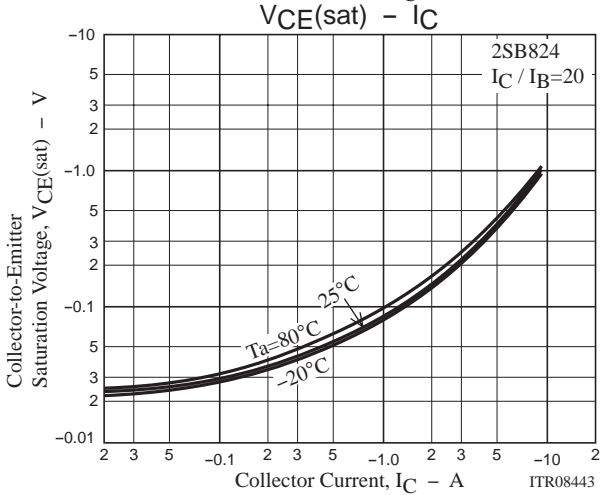
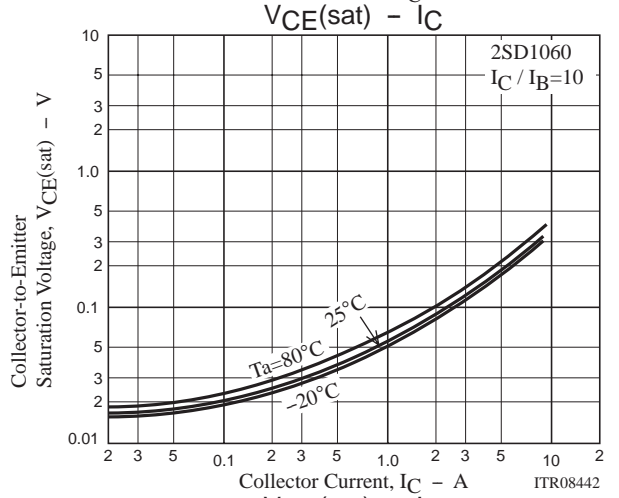
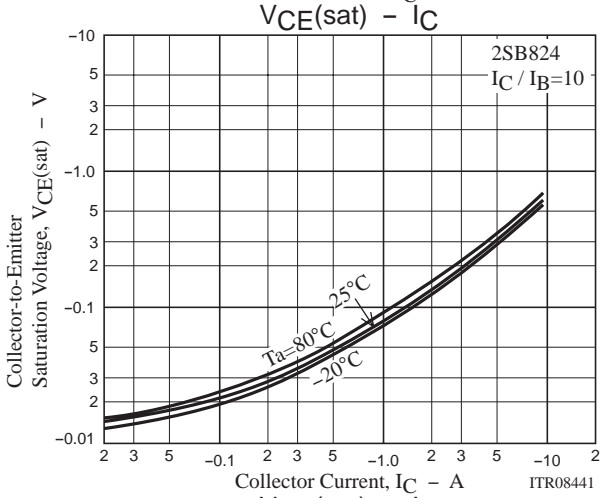
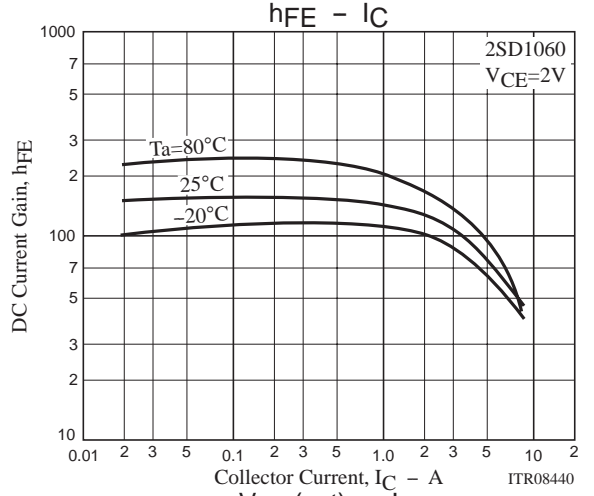
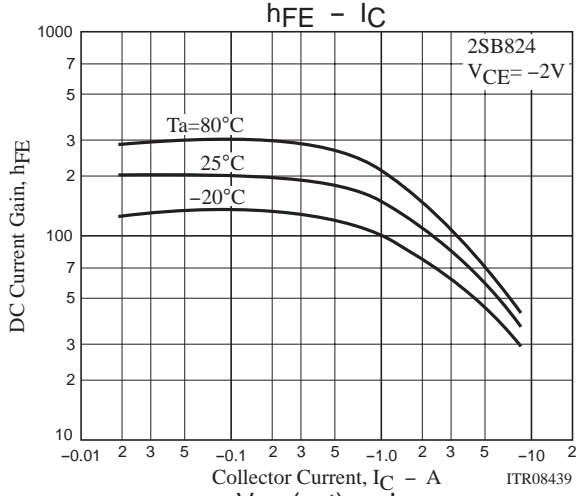
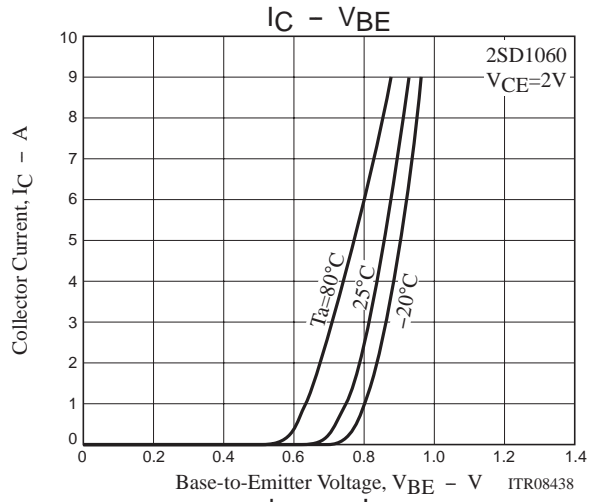
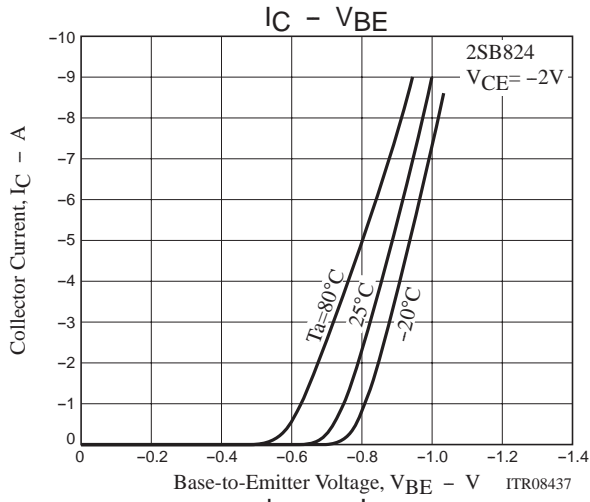
Switching Time Test Circuit



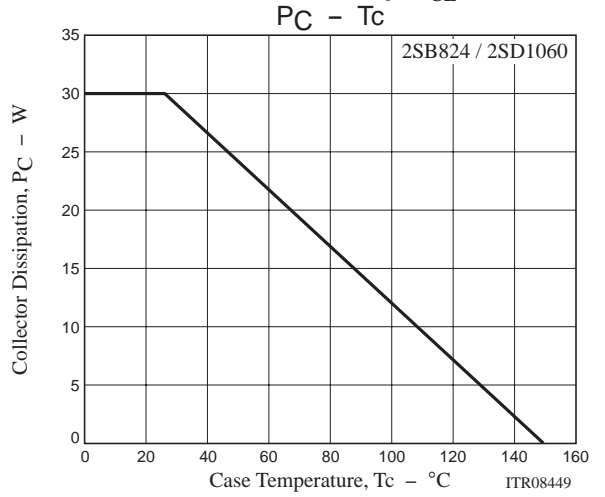
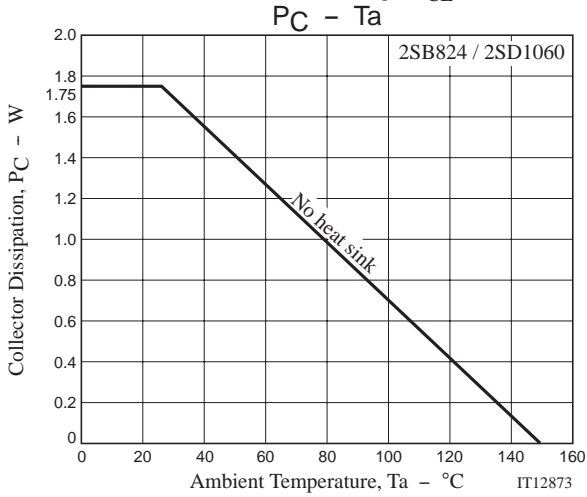
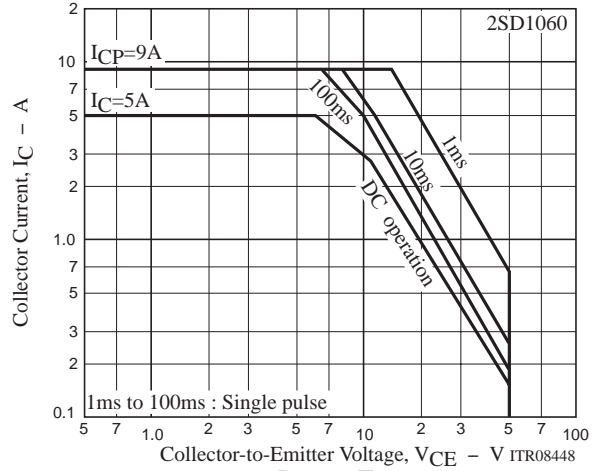
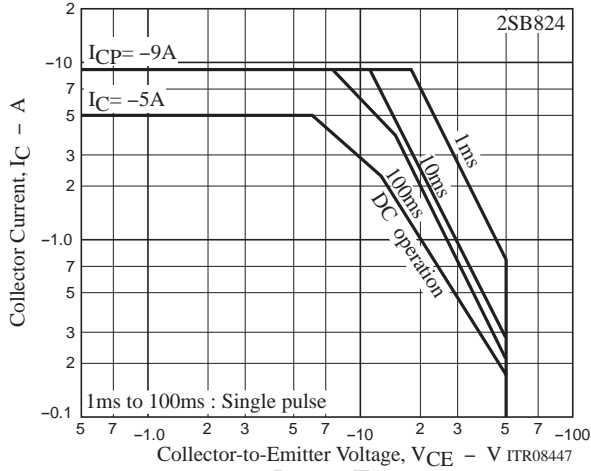
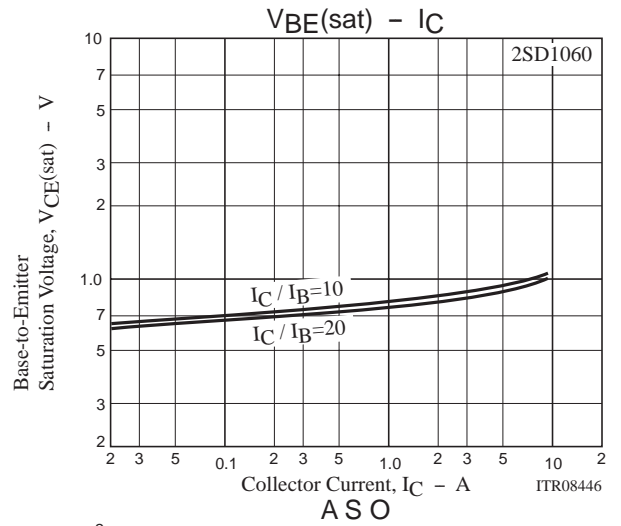
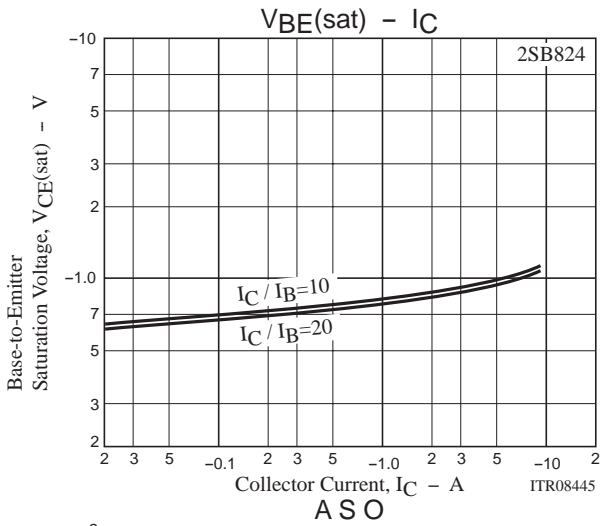
IC=10IB1 = -10IB2=2A
For PNP, the polarity is reversed.



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