



2SB824/2SD1060

50V/5A Switching Applications

Applications

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

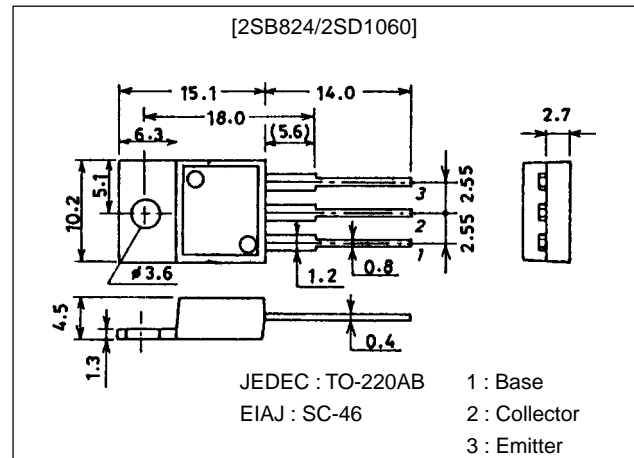
Features

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

Package Dimensions

unit:mm

2010C



() : 2SB824

Specifications

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	P_C	$T_c = 25^\circ\text{C}$	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}	$V_{CB} = (-)40V, I_E = 0$			(-0.1)	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0$			(-0.1)	mA
DC Current Gain	h_{FE1}	$V_{CE} = (-)2V, I_C = (-)1A$	70*		280*	
	h_{FE2}	$V_{CE} = (-)2V, I_C = (-)3A$	30			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)5V, I_C = (-)1A$		30		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1\text{MHz}$		100		pF
				(160)		pF

* : The 2SB824/2SD1060 are graded as follows by h_{FE} at 1A :

70	Q	140	100	R	200	140	S	280
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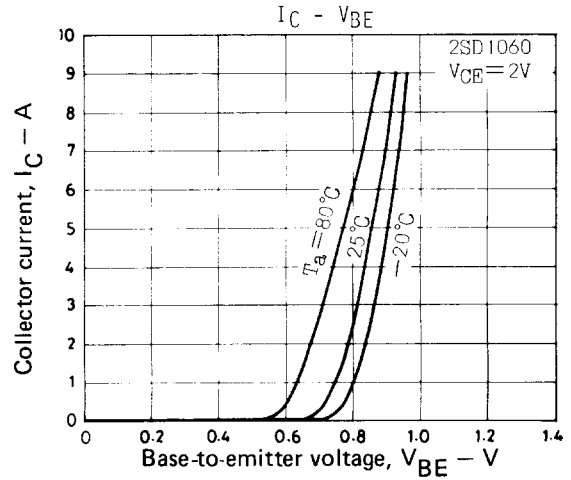
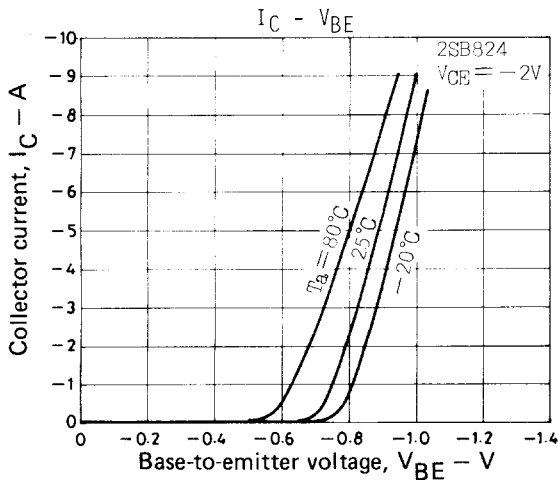
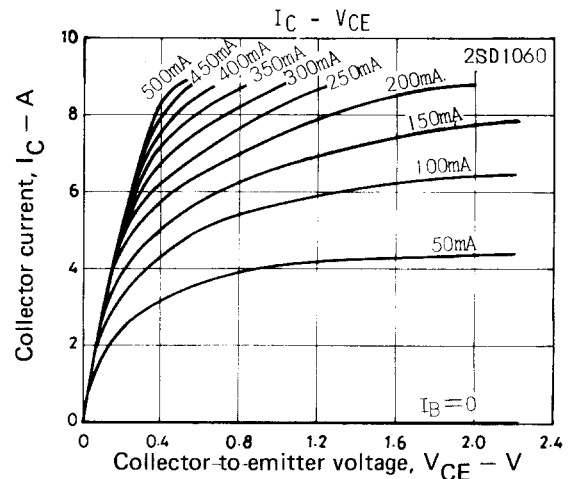
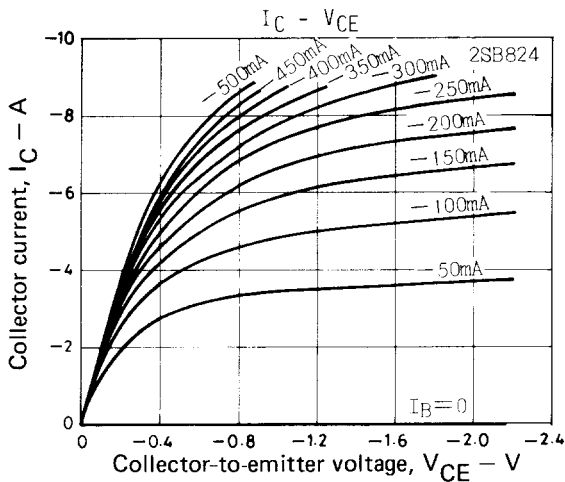
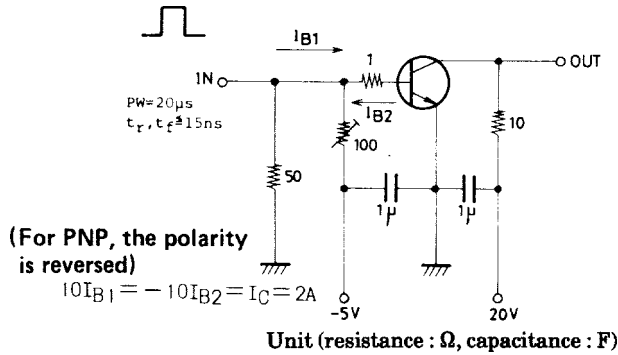
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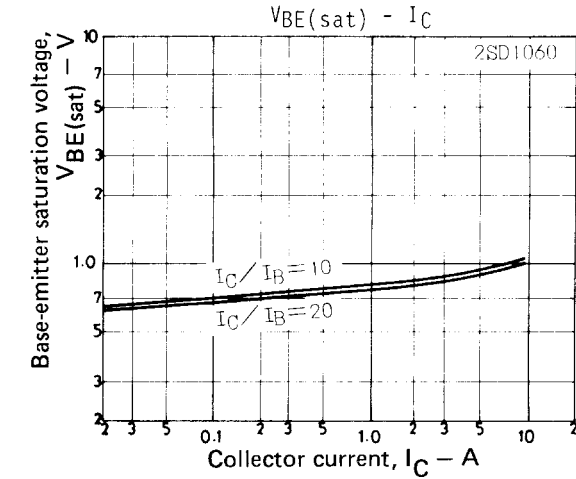
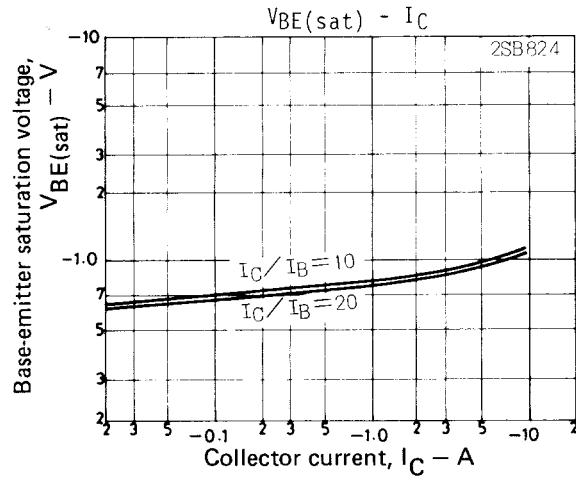
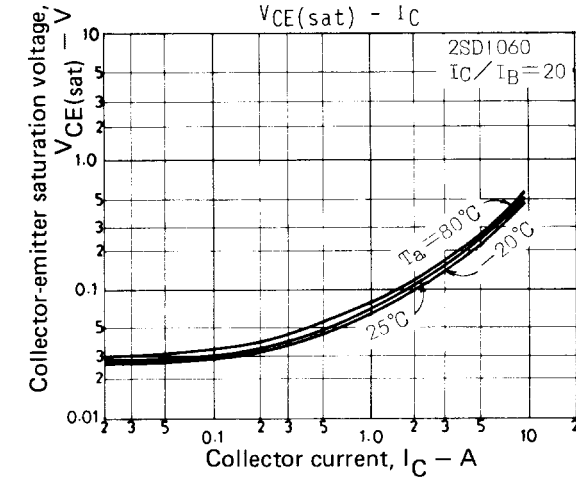
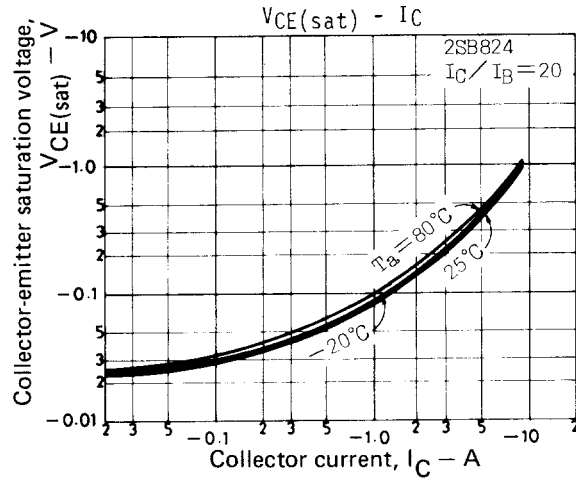
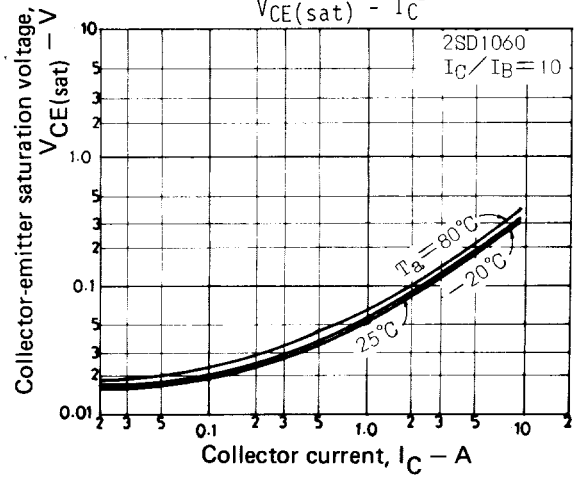
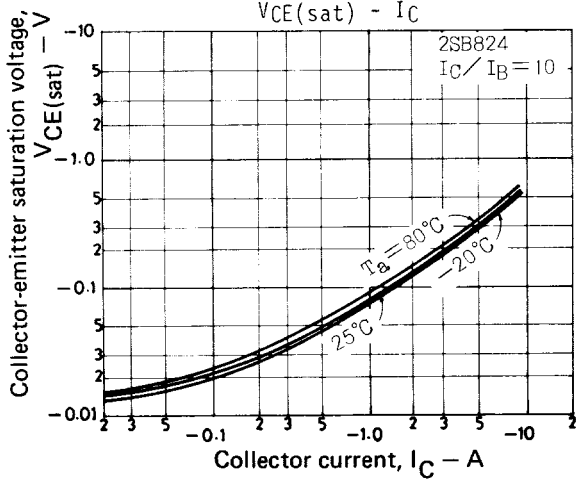
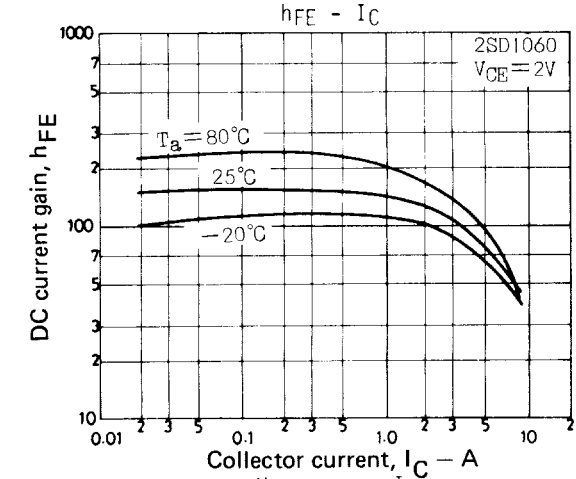
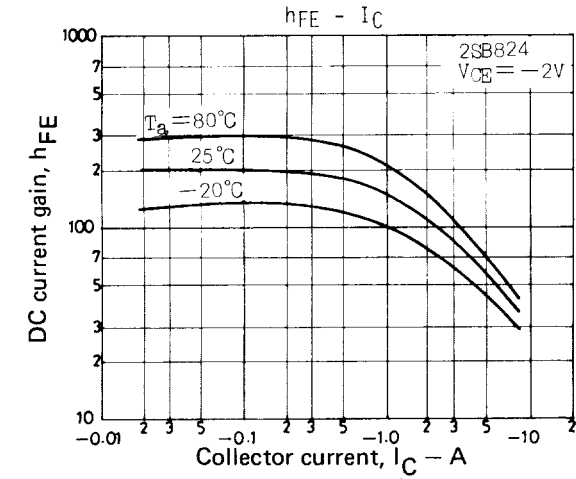
2SB824/2SD1060

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)3A, I_B = (-)0.3A$			(-)0.4	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)1mA, I_E = 0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)1mA, I_C = 0$	(-)6			V
Turn-ON Time	t_{on}	See specified test circuit.		0.1		μs
Storage Time	t_{stg}	See specified test circuit.		(0.7)		μs
				1.4		μs
Fall Time	t_f	See specified test circuit.		0.2		μs

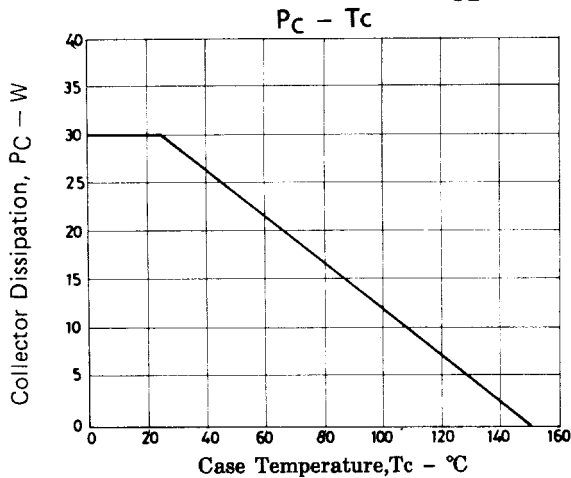
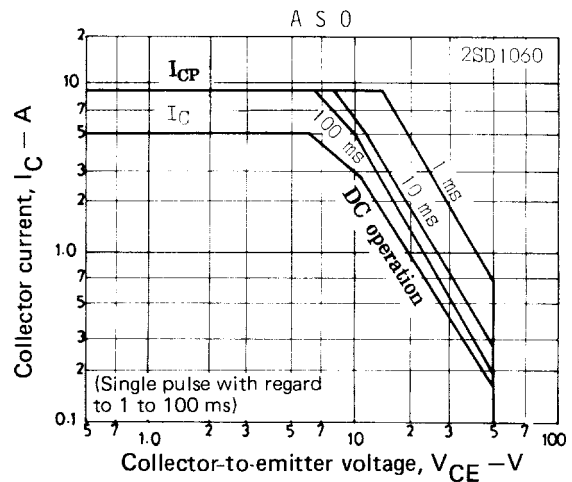
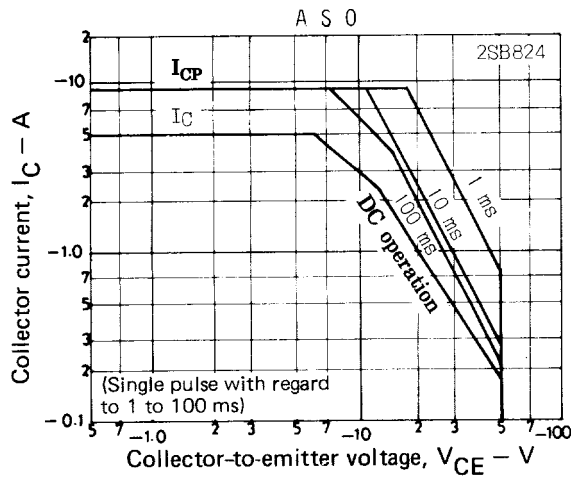
Switching Time Test Circuit



2SB824/2SD1060



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