



~~2SB1229/2SD1835~~

Driver Applications

An ON Semiconductor Company

Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment.

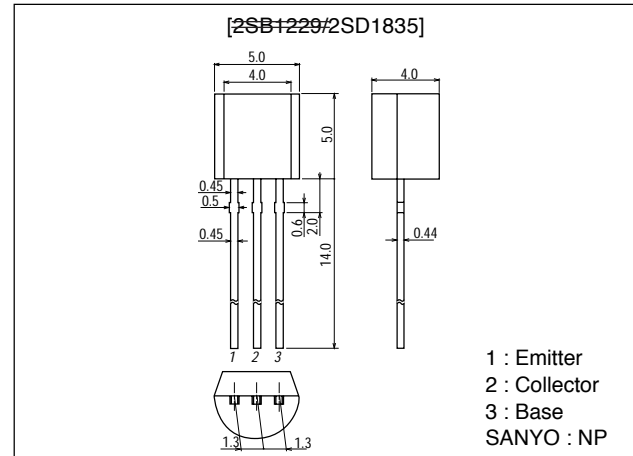
Features

- Adoption of FBET, MBIT processes.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Fast switching time.

Package Dimensions

unit:mm

2003B



(-) : 2SB1229

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		≈ 60	V
Collector-to-Emitter Voltage	V_{CEO}		≈ 50	V
Emitter-to-Base Voltage	V_{EBO}		≈ 6	V
Collector Current	I_C		≈ 2	A
Collector Current (Pulse)	I_{CP}		≈ 3	A
Collector Dissipation	P_C		0.75	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}	$V_{CB} = \approx 50\text{V}$, $I_E = 0$			≈ 100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = \approx 4\text{V}$, $I_C = 0$			≈ 100	nA
DC Current Gain	h_{FE1}	$V_{CE} = \approx 2\text{V}$, $I_C = \approx 100\text{mA}$	100*		560*	
	h_{FE2}	$V_{CE} = \approx 2\text{V}$, $I_C = \approx 1.5\text{A}$	40			
Gain-Bandwidth Product	f_T	$V_{CE} = \approx 10\text{V}$, $I_C = \approx 50\text{mA}$		150		MHz
Output Capacitance	C_{ob}	$V_{CB} = \approx 10\text{V}$, $f = 1\text{MHz}$		12(22)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = \approx 1\text{A}$, $I_B = \approx 50\text{mA}$		0.15	0.4	V
				(=0.3)	(=0.7)	V

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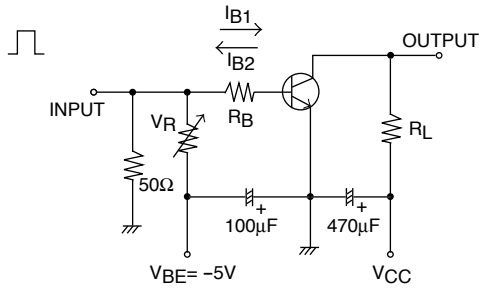
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C \approx 1A, I_B \approx 50mA$		≈ 0.9	≈ 1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C \approx 10\mu A, I_E = 0$	≈ 60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C \approx 1mA, R_{BE} = \infty$	≈ 50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E \approx 10\mu A, I_C = 0$	≈ 6			V
Turn-ON Time	t_{on}	See specified Test Circuit		60(60)		ns
Storage Time	t_{stg}	See specified Test Circuit		550		ns
				(450)		ns
Fall Time	t_f	See specified Test Circuit		30		ns
				30		ns

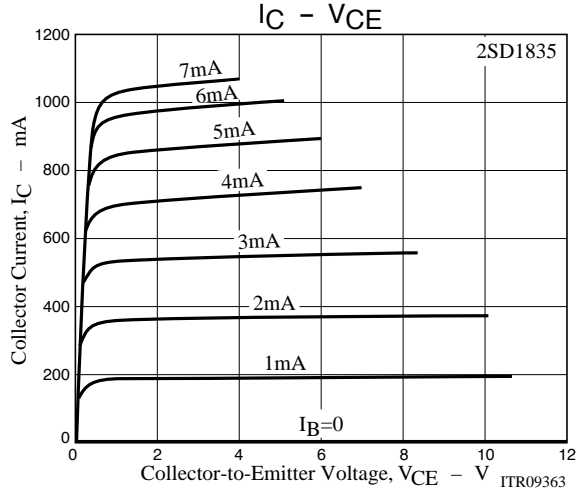
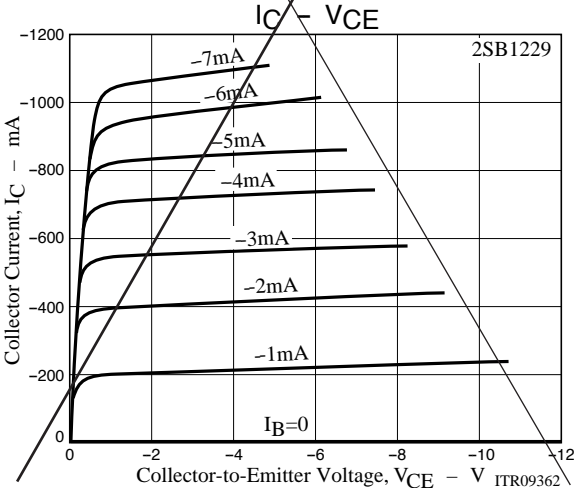
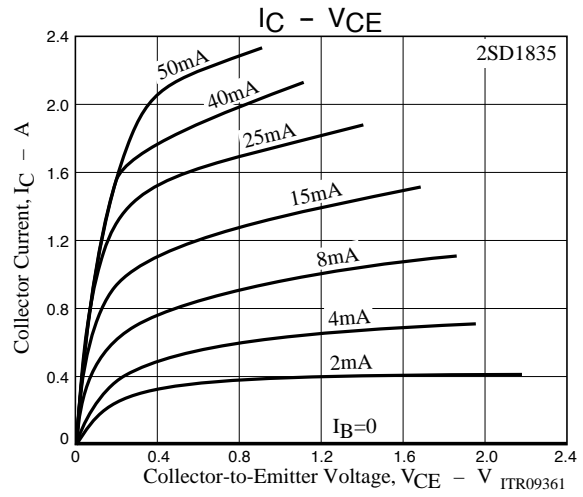
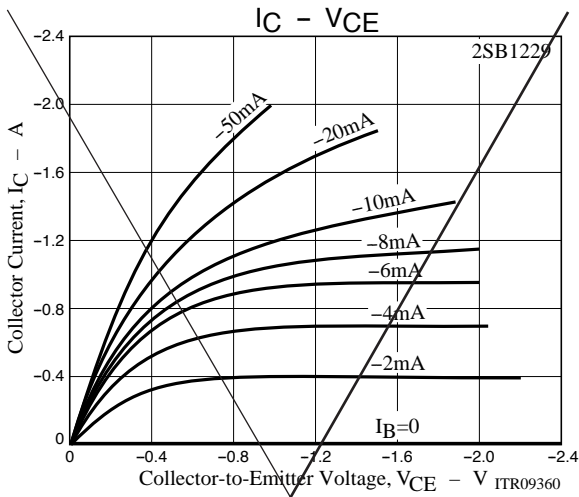
* : The 2SB1229/2SD1835 are classified by 100mA h_{FE} as follows :

Rank	R	S	T	U
h_{FE}	100 to 200	140 to 280	200 to 400	280 to 560

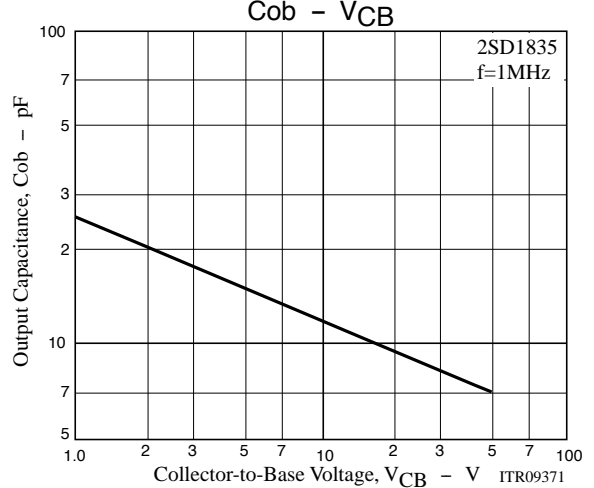
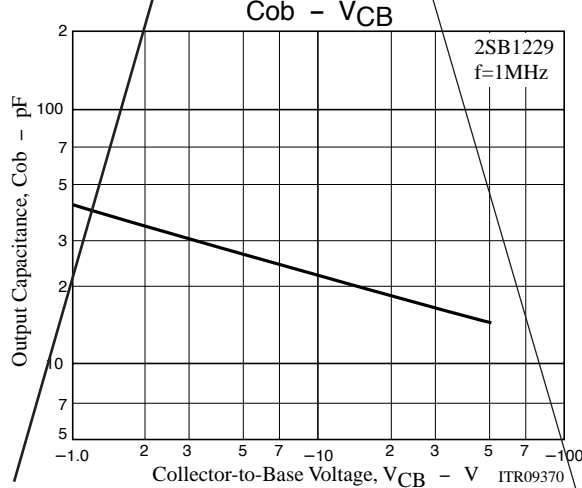
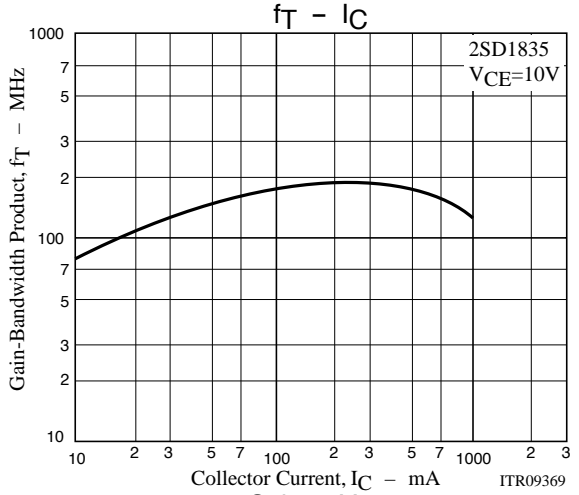
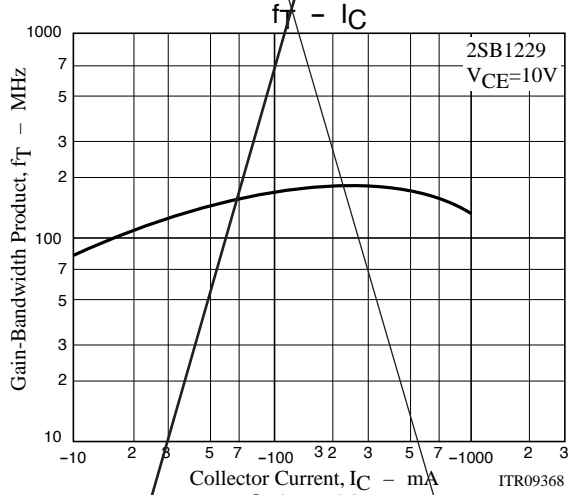
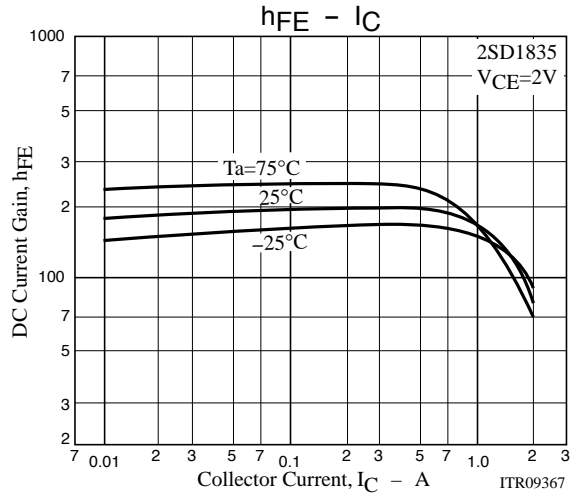
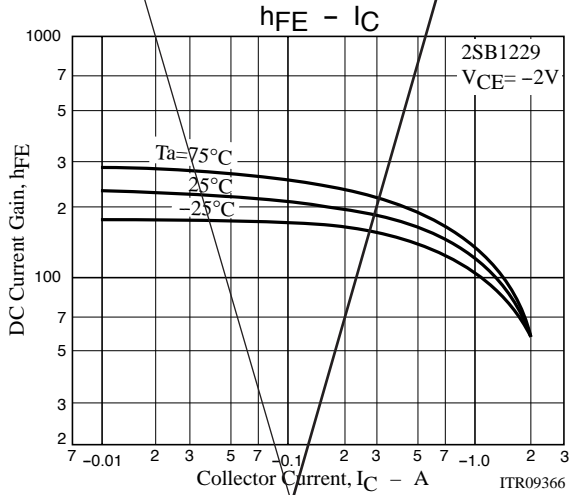
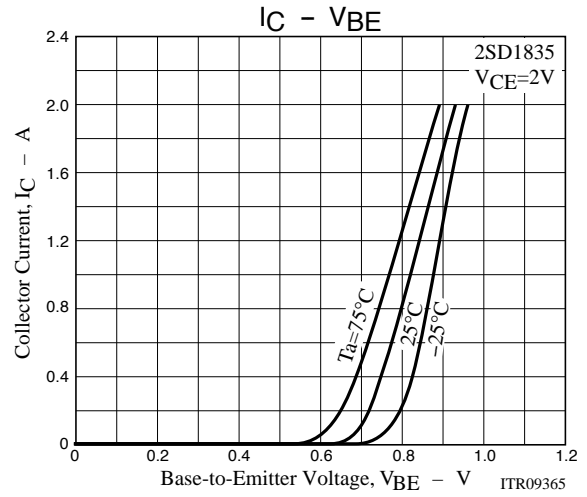
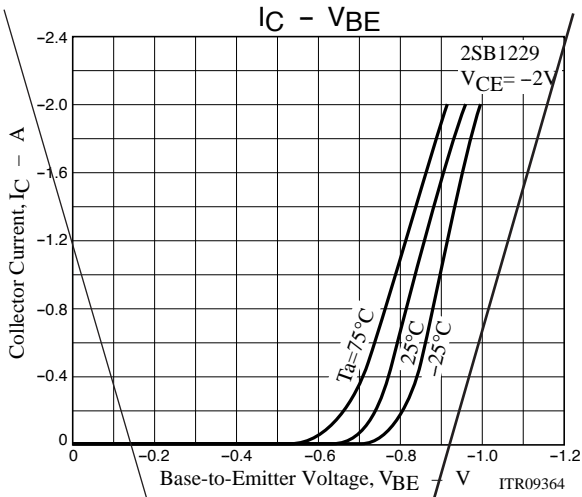
Switching Time Test Circuit



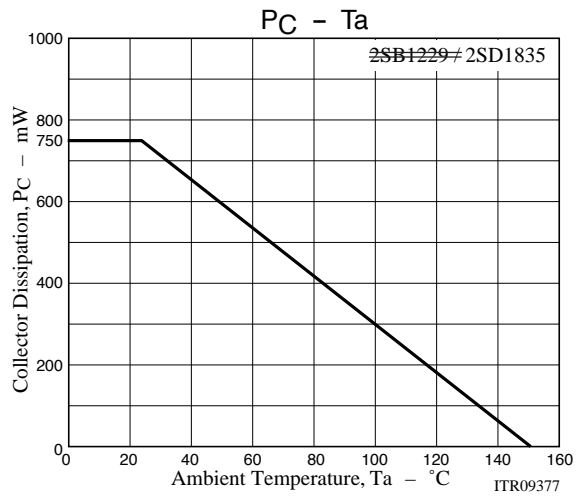
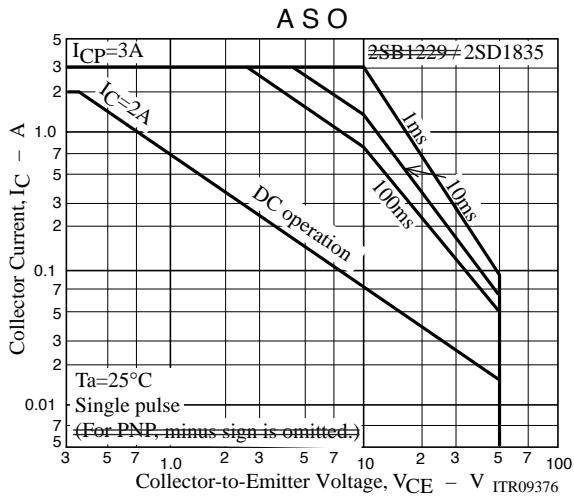
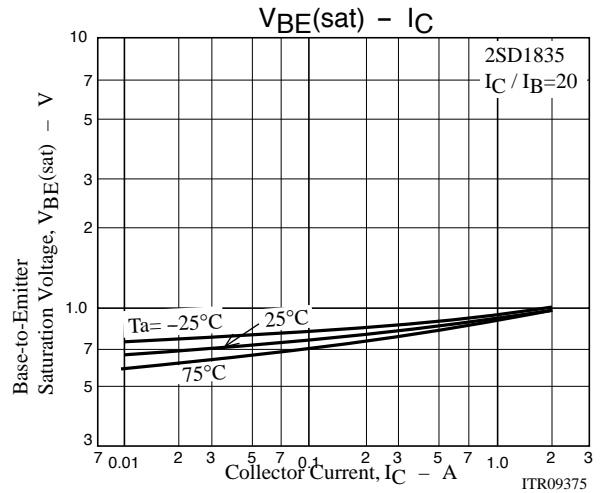
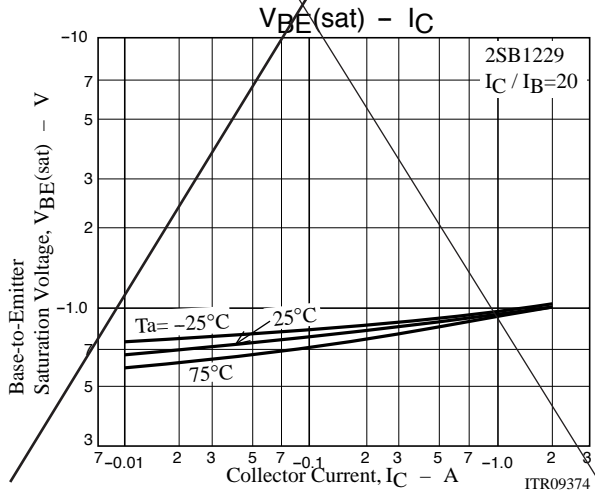
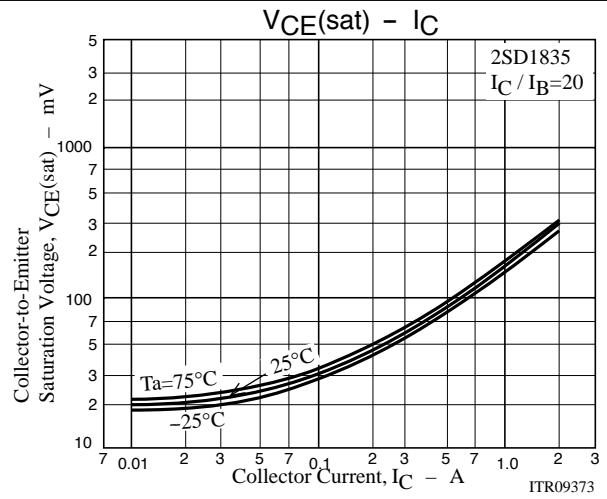
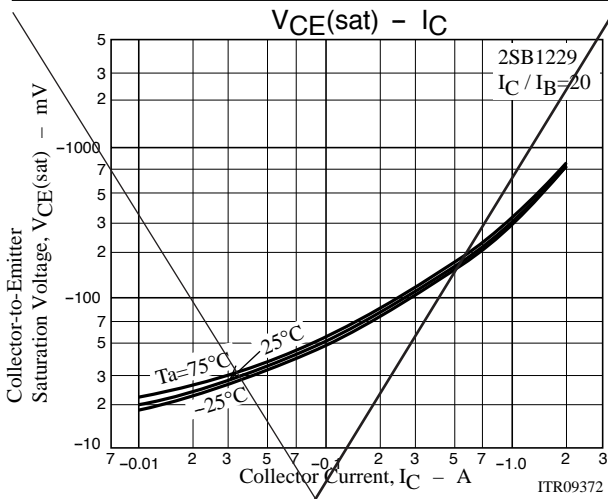
$I_C = 10I_B, I_{B1} = -10I_{B2} = 500mA, V_{CC} = 25V$
 (For PNP, the polarity is reversed.)



2SB1229/2SD1835



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