



ON Semiconductor®

**ON Semiconductor
DATA SHEET****2SB1229/2SD1835** — PNP/NPN Epitaxial Planar Silicon Transistors
Driver Applications**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.

() : 2SB1229

Specifications

Absolute Maximum Ratings at Ta = 25°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	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

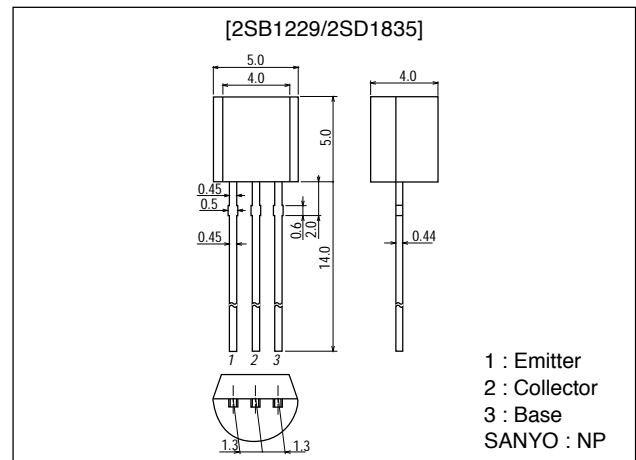
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =(-)50V, I _E =0			(-)100	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(-)100	nA
DC Current Gain	h _{FE1}	V _{CE} =(-)2V, I _C =(-)100mA	100*		560*	
	h _{FE2}	V _{CE} =(-)2V, I _C =(-)1.5A	40			
Gain-Bandwidth Product	f _T	V _{CE} =(-)10V, I _C =(-)50mA		150		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		12(22)		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)1A, I _B =(-)50mA		0.15	0.4	V
				(-)0.3	(-)0.7	V

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Package Dimensions

unit:mm

2003B



2SB1229/2SD1835

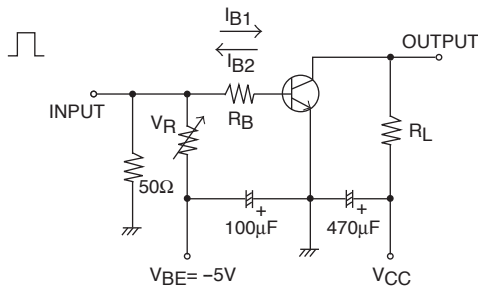
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1A, I_B=(-)50mA$		(-0.9)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-60)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-50)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-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

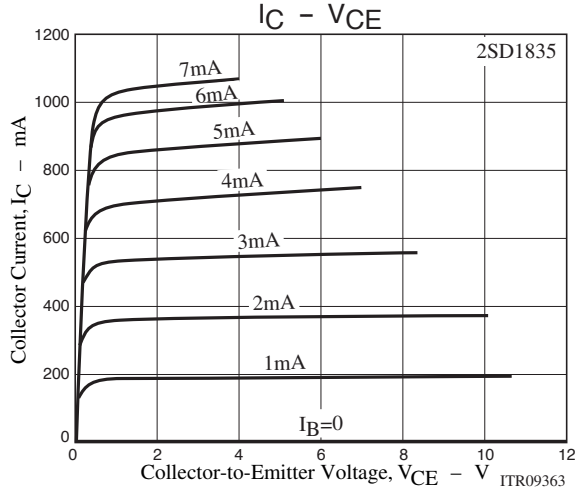
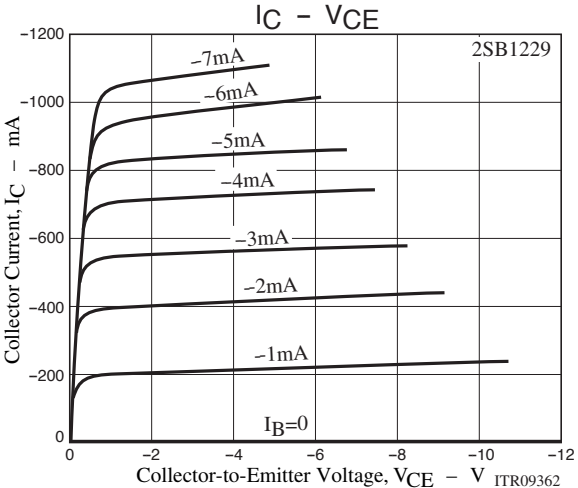
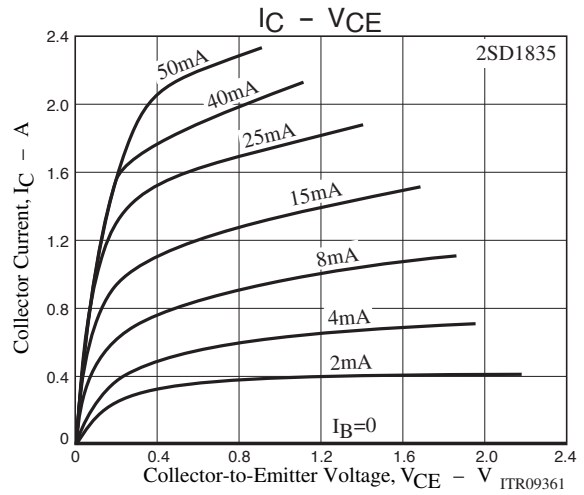
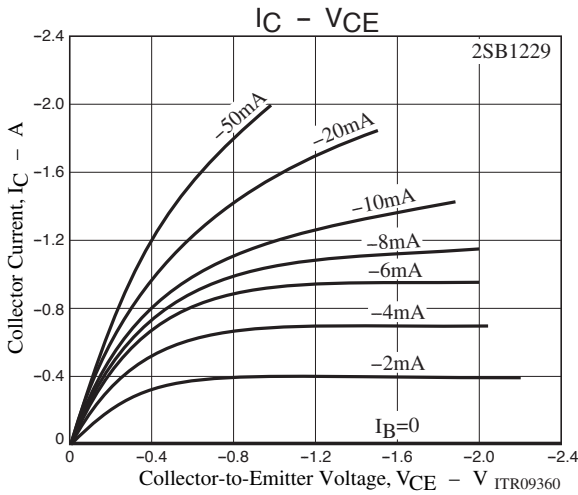
* : The 2SB1229/2SD1835 are classified by 100mA h_{FE} as follows :

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

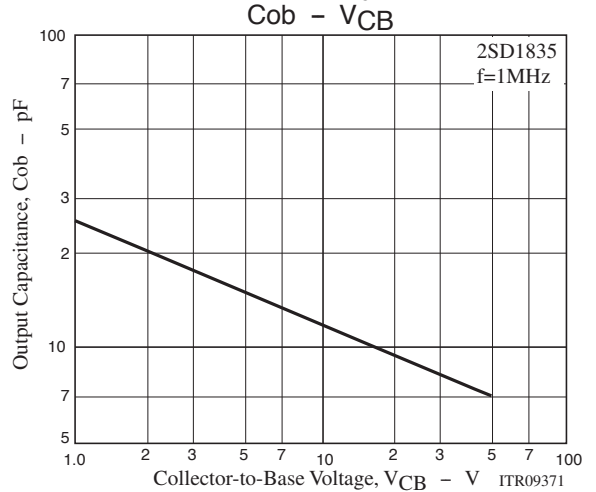
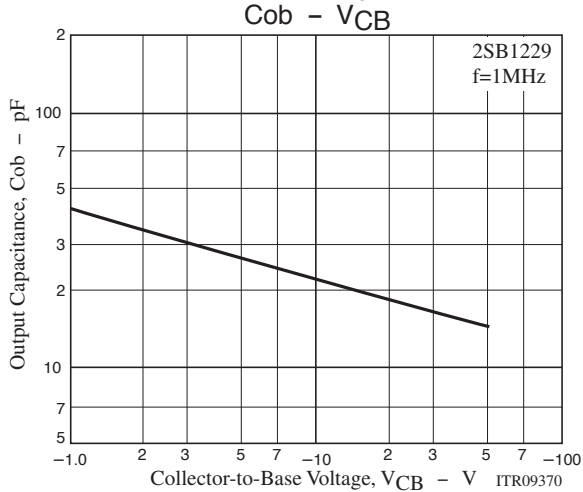
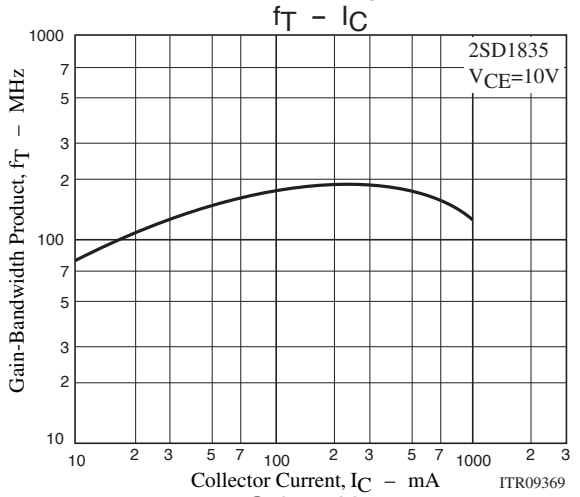
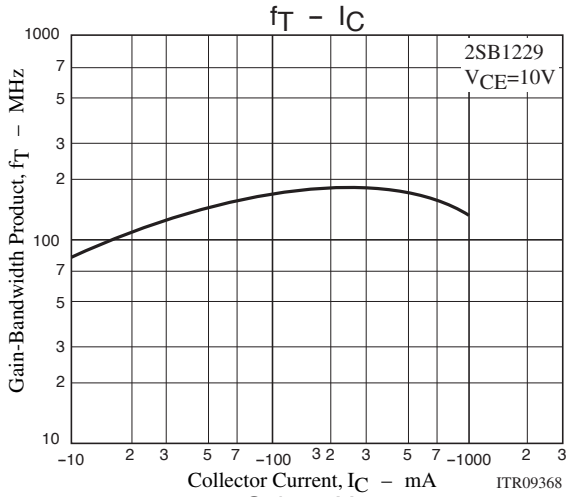
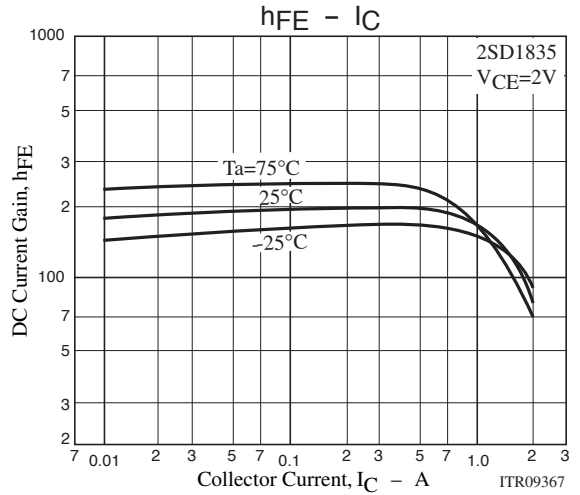
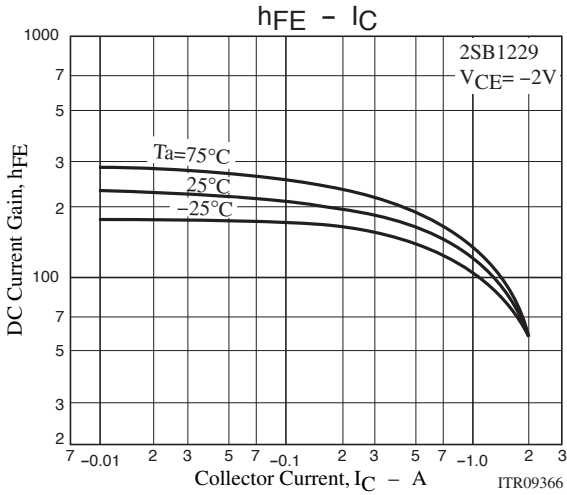
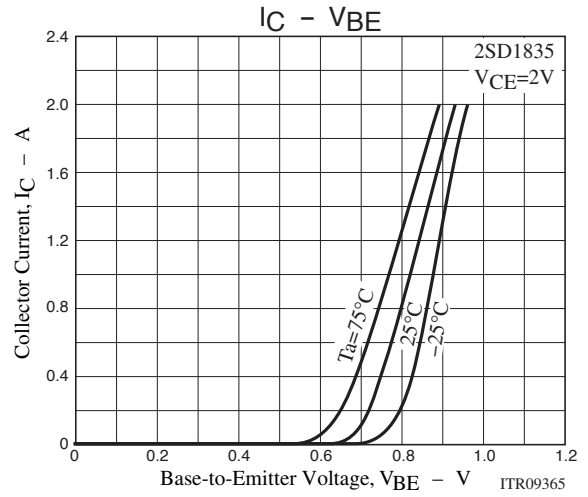
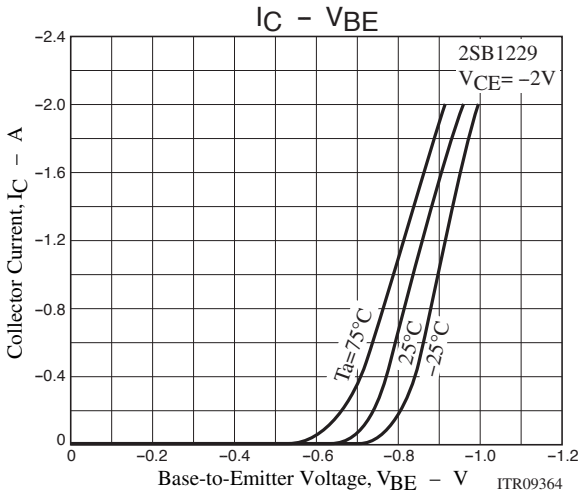
Switching Time Test Circuit



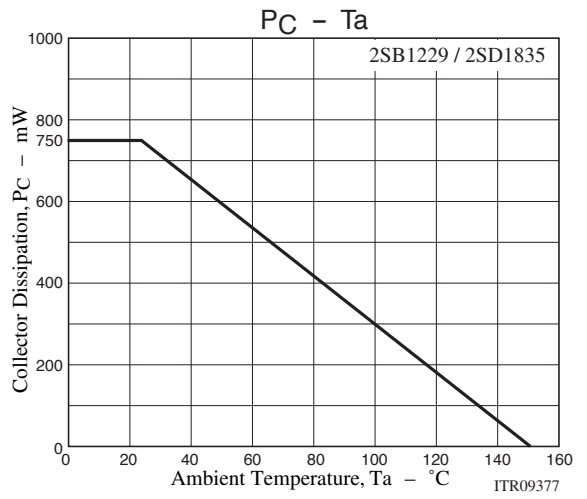
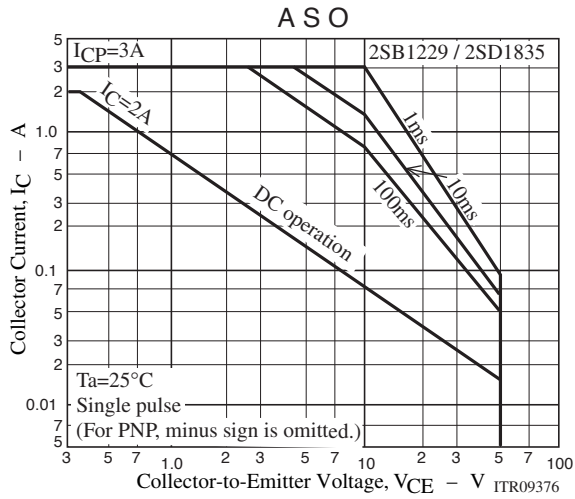
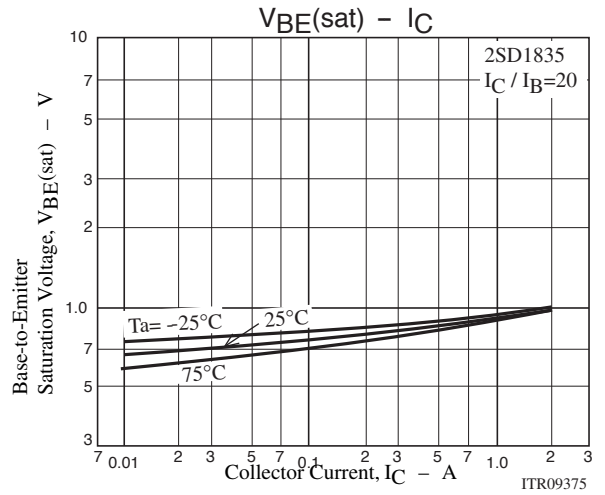
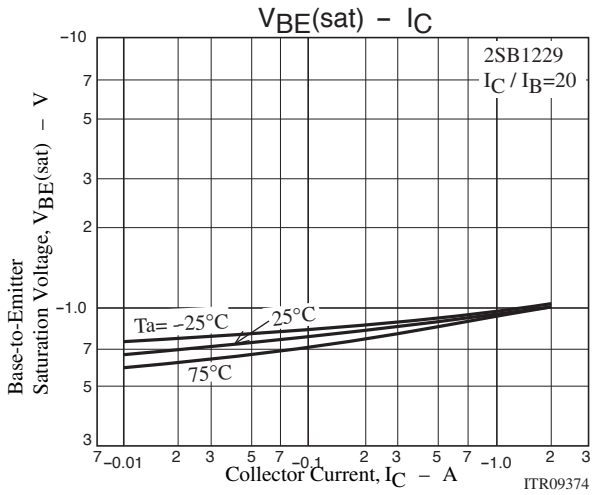
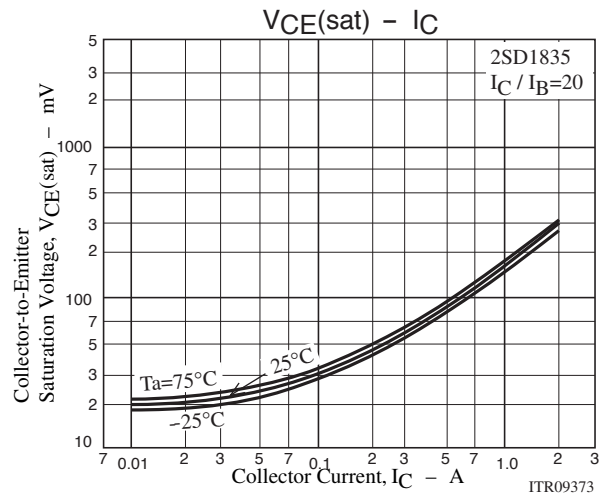
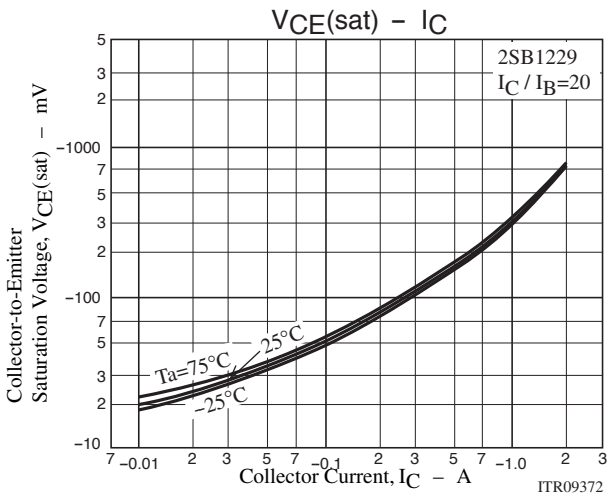
$I_C=10I_{B1} = -10I_{B2}=500mA, V_{CC}=25V$
(For PNP, the polarity is reversed.)



2SB1229/2SD1835



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