

<b>SANYO</b>	No.2158A	<b>2SB1229/2SD1835</b>
	PNP/NPN Epitaxial Planar Silicon Transistors	
<b>High-Current Switching Applications</b>		

**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

Absolute Maximum Ratings at Ta=25°C

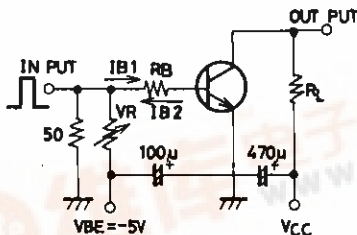
			unit
Collector to Base Voltage	V <sub>CB0</sub>	(-) 60	V
Collector to Emitter Voltage	V <sub>CEO</sub>	(-) 50	V
Emitter to Base Voltage	V <sub>EBO</sub>	(-) 6	V
Collector Current	I <sub>C</sub>	(-) 2	A
Collector Current(Pulse) :nt	I <sub>CP</sub>	(-) 3	A
Collector Dissipation	P <sub>C</sub>	0.75	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

Electrical Characteristics at Ta=25°C

		min	typ	max	unit
Collector Cutoff Current	I <sub>CB0</sub> V <sub>CB</sub> = (-) 50V, I <sub>E</sub> = 0			(-) 100	nA
Emitter Cutoff Current	I <sub>EBO</sub> V <sub>EB</sub> = (-) 4V, I <sub>C</sub> = 0			(-) 100	nA
DC Current Gain	h <sub>FE</sub> (1) V <sub>CE</sub> = (-) 2V, I <sub>C</sub> = (-) 100mA	100*		560*	
	h <sub>FE</sub> (2) V <sub>CE</sub> = (-) 2V, I <sub>C</sub> = (-) 1.5A	40			
Gain-Bandwidth Product	f <sub>T</sub> V <sub>CE</sub> = (-) 10V, I <sub>C</sub> = (-) 50mA		150		MHz
Output Capacitance	C <sub>ob</sub> V <sub>CE</sub> = (-) 10V, f <sub>C</sub> = 1MHz		12		pF
			(22)		pF
Collector to Emitter Saturation Voltage	V <sub>CE(sat)</sub> I <sub>C</sub> = (-) 1A, I <sub>B</sub> = (-) 50mA		0.15	0.4	V
			(-0.3)	(-0.7)	V

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**Switching Time Test Circuit**

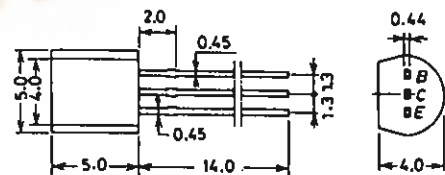


10 I<sub>B1</sub> = -10 I<sub>B2</sub> = I<sub>C</sub> = 500mA, V<sub>CC</sub> = 25V  
(For PNP, the polarity is reversed.)

Unit(Resistance : Ω, Capacitance : F)

**Package Dimensions 2003A**

(unit: mm)



JEDEC: TO-92  
EIAJ: SC-43  
SANYO: NP

B. Base  
C. Collector  
E. Emitter



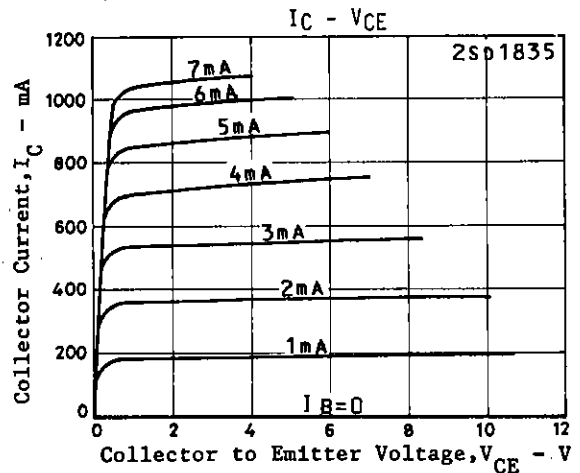
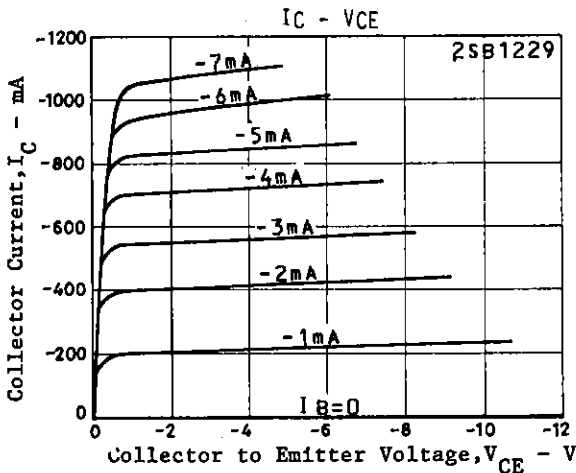
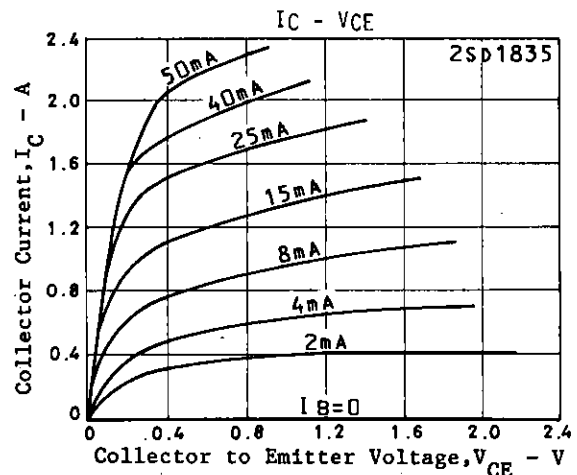
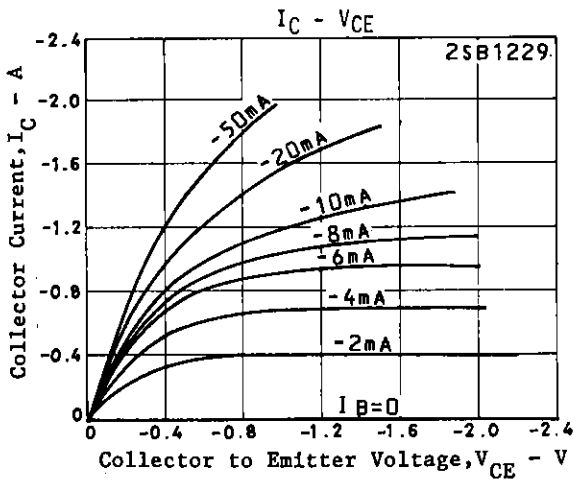
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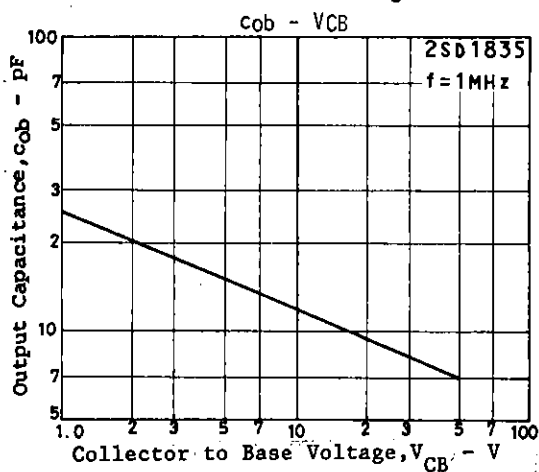
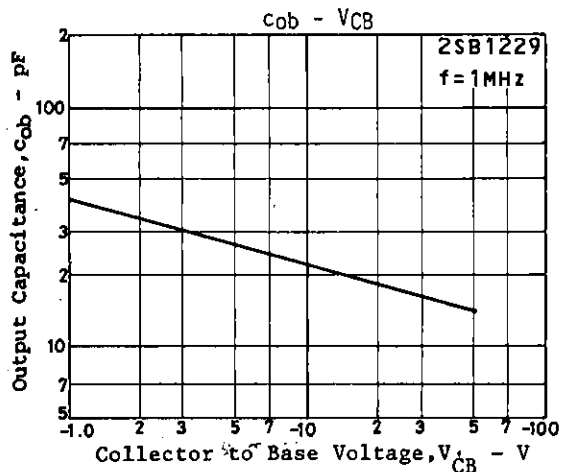
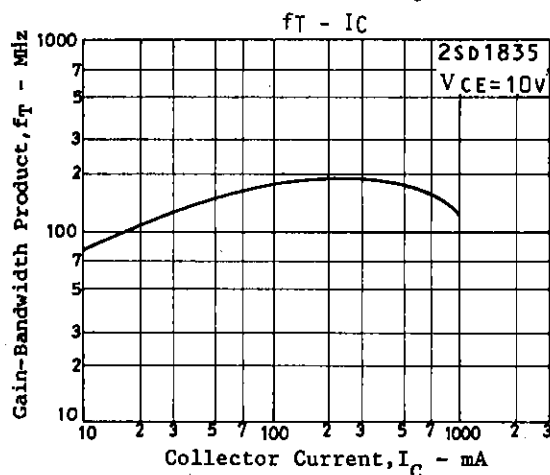
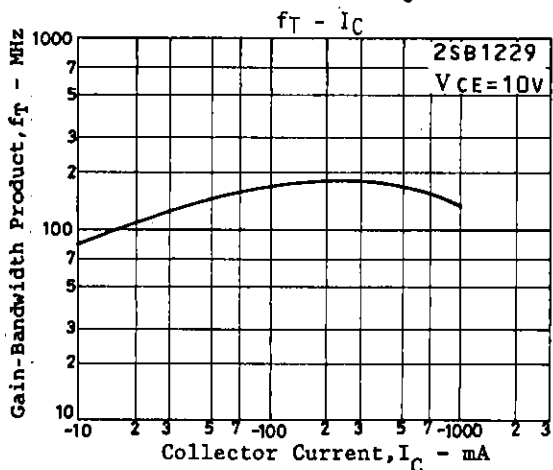
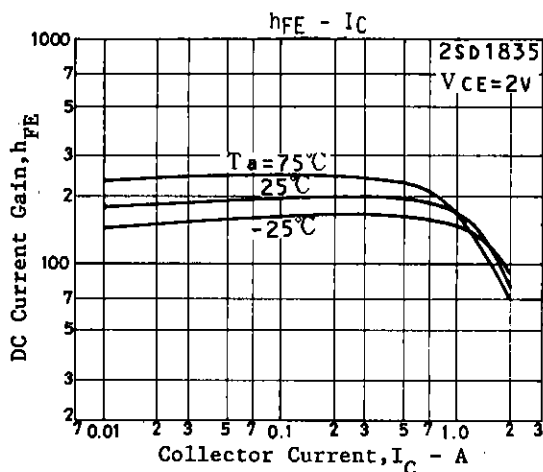
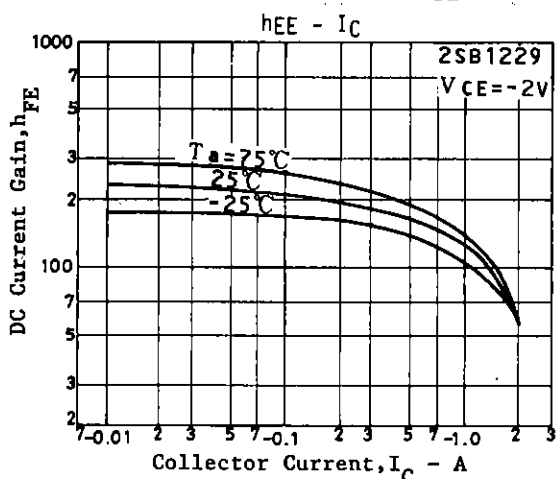
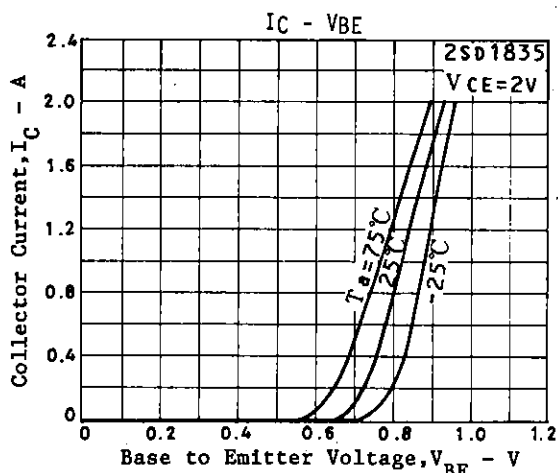
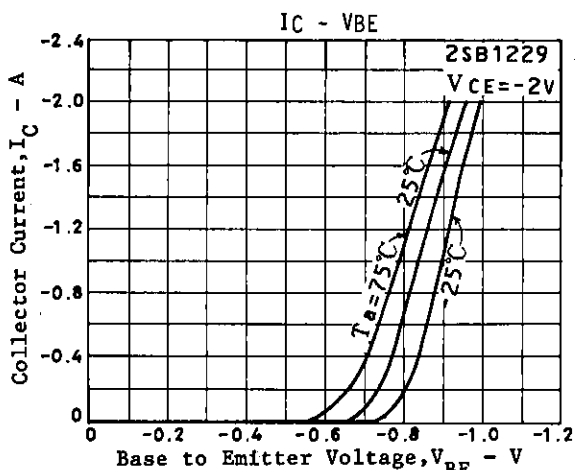
			min	typ	max	unit
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)1A, I_B = (-)50mA$		(-)0.9	(-)1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)60			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)6			V
Turn-on Time	ton	See specified Test Circuit.		60		ns
				(60)		ns
Storage Time	tstg	"		550		ns
				(450)		ns
Fall Time	tf	"		30		ns
				30		ns

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

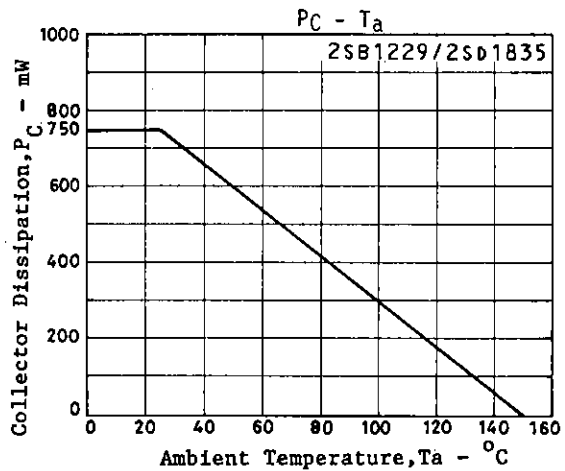
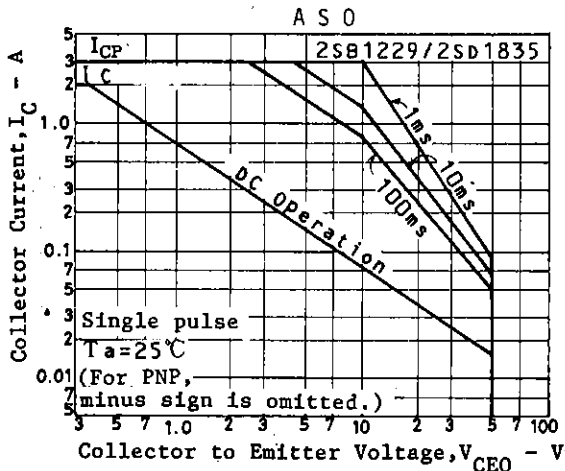
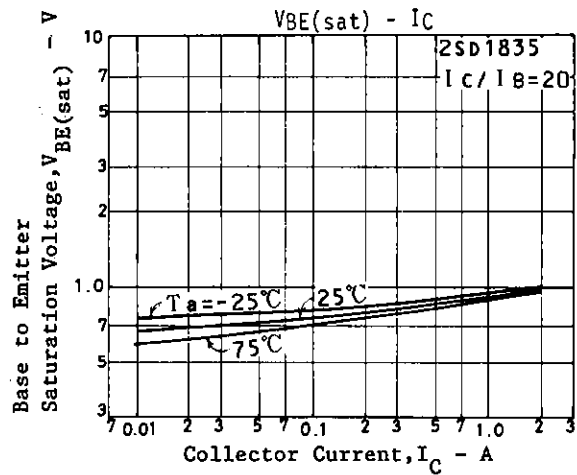
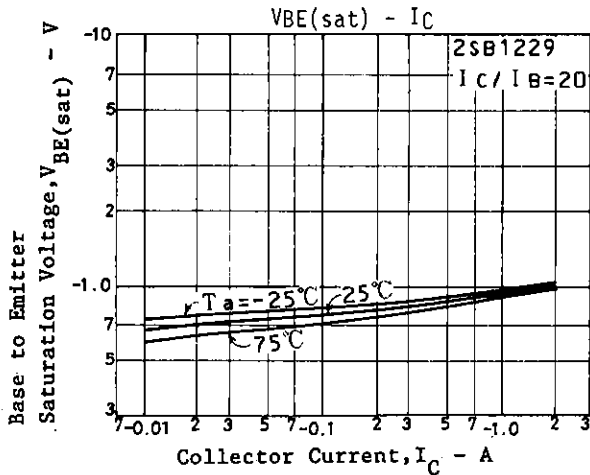
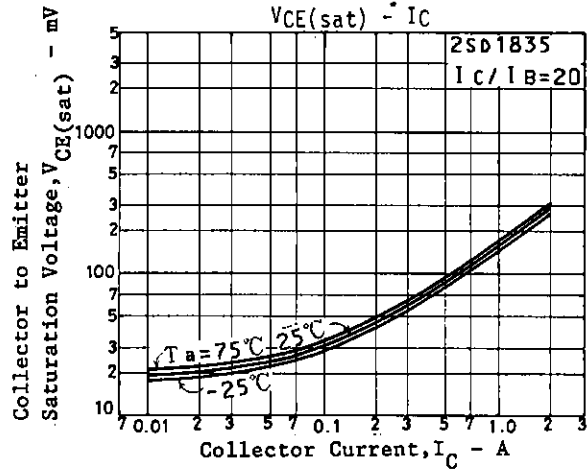
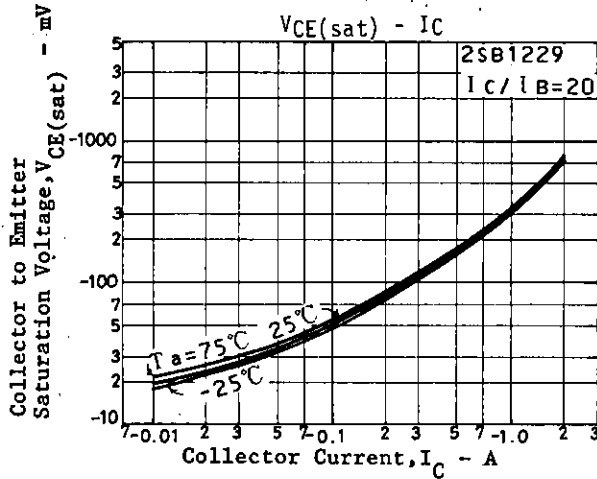
100 R	200	140 S	280	200 T	400	280 U	560
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