Ordering number: EN 2158A

SANYO

No.2158A

2SB1229/2SD1835

PNP/NPN Epitaxial Planar Silicon Transistors

High-Current Switching 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

Absolute Maximum Ratings at Ta=25°C

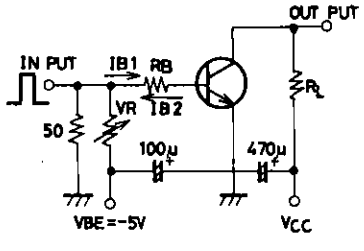
			unit
Collector to Base Voltage	V_{CBO}	(-)60	V
Collector to Emitter Voltage	V_{CEO}	(-)50	V
Emitter to Base Voltage	V_{EBO}	(-)6	V
Collector Current	I_C	(-)2	A
Collector Current(Pulse)	I_{CP}	(-)3	A
Collector Dissipation	P_C	0.75	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Electrical Characteristics at Ta=25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=(-)50V, I_E=0			(-)100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(-)4V, I_C=0			(-)100	nA
DC Current Gain	$h_{FE}(1)$	V_{CE}=(-)2V, I_C=(-)100mA	100*		560*	
	$h_{FE}(2)$	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		pF
				(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

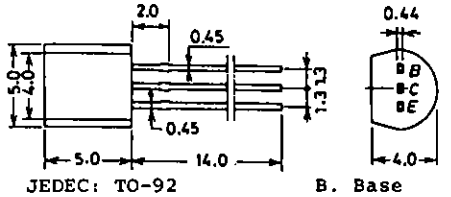
Continued on next page.

Switching Time Test Circuit



10IB1=-10IB2=IC=500mA, VCC=25V
(For PNP, the polarity is reversed.)

Package Dimensions 2003A
(unit: mm)



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

B. Base
C. Collector
E. Emitter

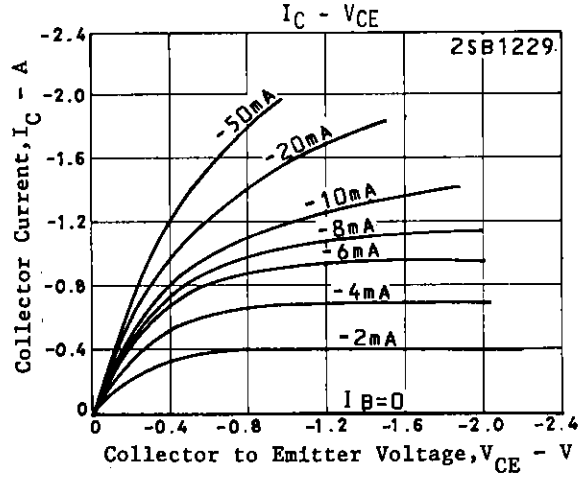
Unit(Resistance : Ω, Capacitance : F)

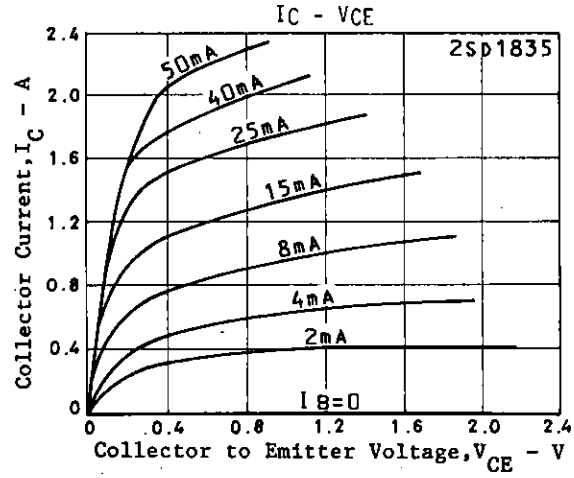
Continued from preceding page.

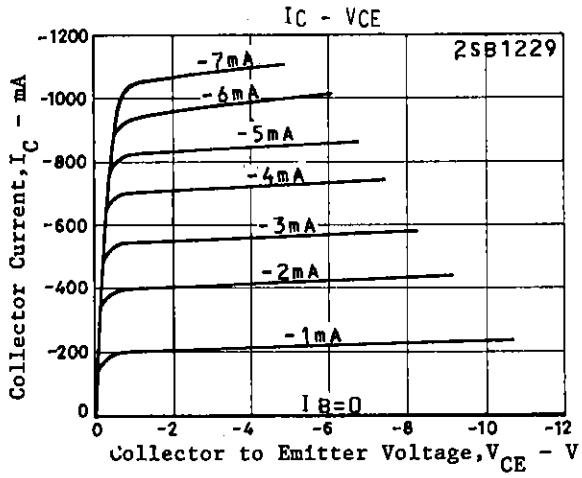
			min	typ	max	unit
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(-)1A, I_B=(-)50mA		(-)0.9	(-)1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0	(-)60			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)1mA, R_{BE}=∞	(-)50			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)10μA, 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

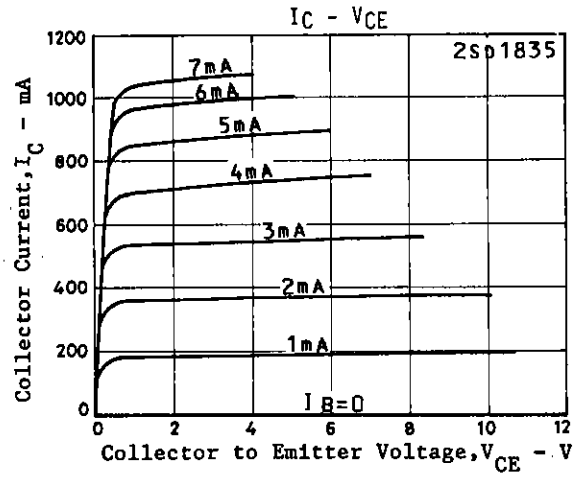
*: The 2SB1229/2SD1835 are classified by 100mA h_{FE} as follows:

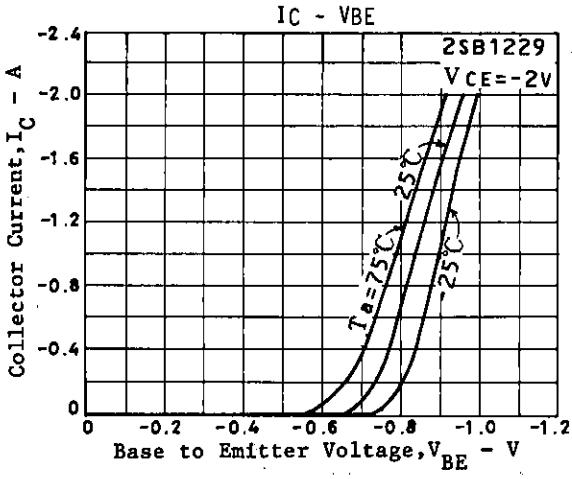
100 R 200	140 S 280	200 T 400	280 U 560

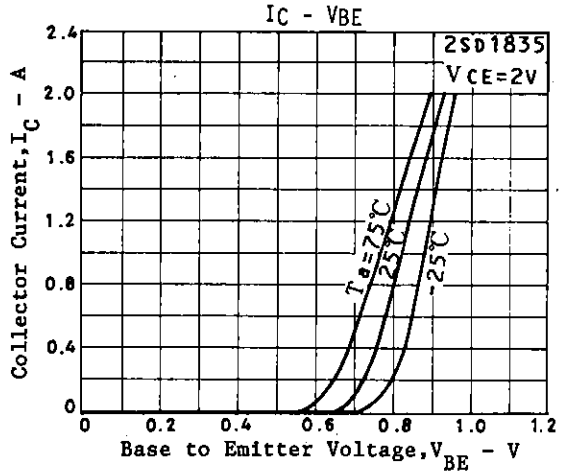


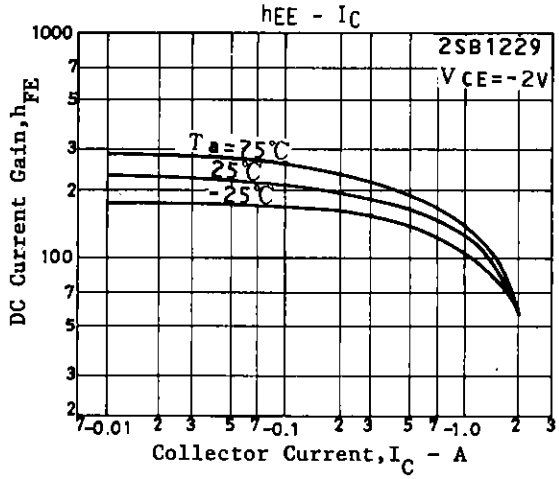


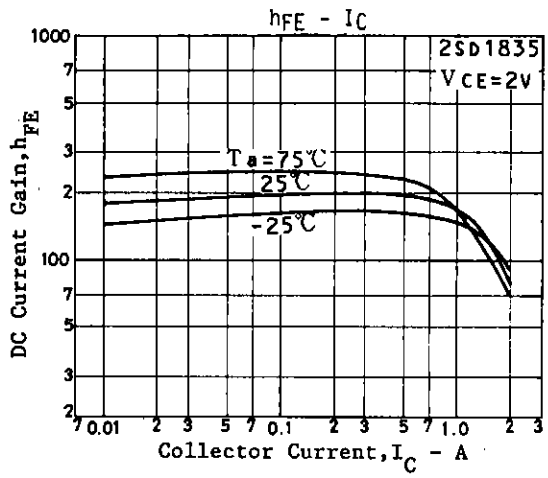


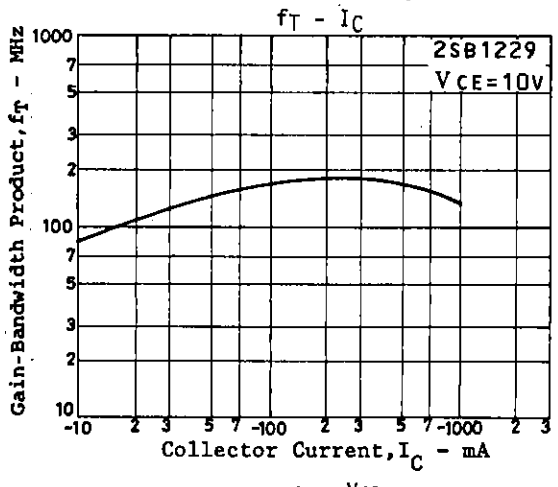


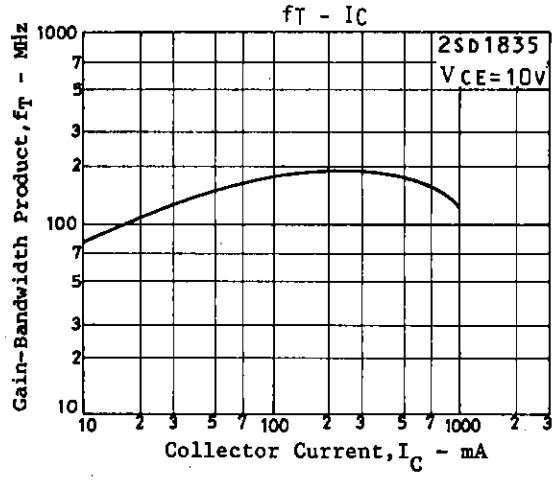

IC - VBE
2SB1229
VCE=-2V
Ta=75℃
25℃
-25℃
Collector Current, IC - A
Base to Emitter Voltage, VBE - V

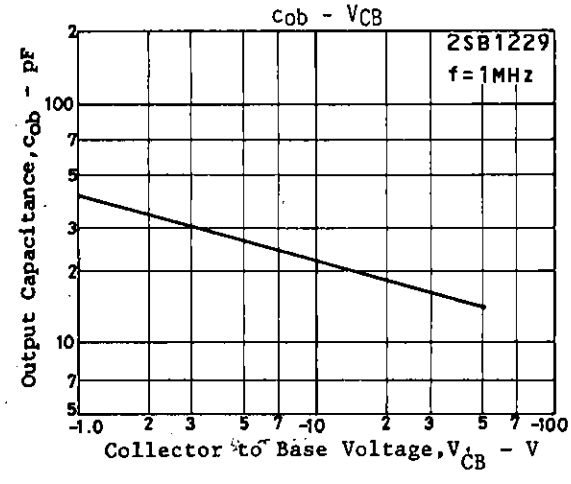

IC - VBE
2SD1835
VCE=2V
Ta=75℃
25℃
-25℃
Collector Current, IC - A
Base to Emitter Voltage, VBE - V

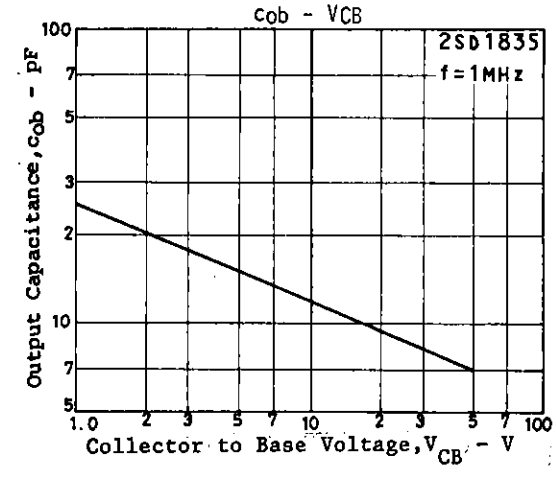

hEE - IC
2SB1229
VCE=-2V
Ta=75℃
25℃
-25℃
DC Current Gain, hFE
Collector Current, IC - A


hFE - IC
2SD1835
VCE=2V
Ta=75℃
25℃
-25℃
DC Current Gain, hFE
Collector Current, IC - A


fT - IC
2SB1229
VCE=10V
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA


fT - IC
2SD1835
VCE=10V
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA


Cob - VCB
2SB1229
f=1MHz
Output Capacitance, Cob - pF
Collector to Base Voltage, VCB - V


Cob - VCB
2SD1835
f=1MHz
Output Capacitance, Cob - pF
Collector to Base Voltage, VCB - V