Ordering number: EN 2113B

SANYO

No.2113B

2SB1202/2SD1802

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 and wide ASO
· Low collector-to-emitter saturation voltage
· Fast switching speed
· Small and slim package making it easy to make 2SB1202/2SD1802-used sets smaller

( ) : 2SB1202

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		(−)3	A
Collector Current(Pulse)	I_{CP}		(−)6	A
Collector Dissipation	P_C		1	W
		Tc = 25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

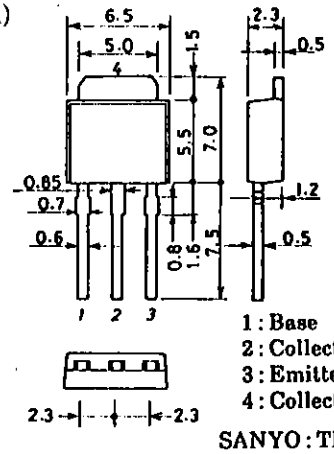
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = (−)40V, I_E = 0			(−)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = (−)4V, I_C = 0			(−)1	μA
DC Current Gain	$h_{FE}(1)$	V_{CE} = (−)2V, I_C = (−)100mA	100※		560※	
	$h_{FE}(2)$	V_{CE} = (−)2V, I_C = (−)3A	35			
Gain-Bandwidth Product	f_T	V_{CE} = (−)10V, I_C = (−)50mA		150		MHz
Output Capacitance	c_{ob}	V_{CE} = (−)10V, f = 1MHz		(39)25		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C = (−)2A, I_B = (−)100mA		0.19 (−0.35)	0.5 (−0.7)	V

Continued on next page.

※ : The 2SB1202/2SD1802 are classified by 100mA h_{FE} as follows :

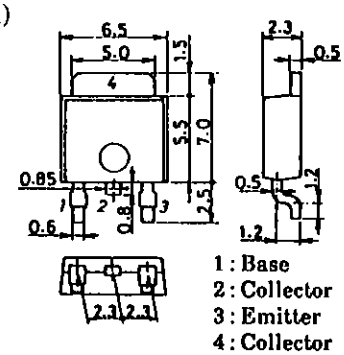
100 R 200	140 S 280	200 T 400	280 U 560

Package Dimensions 2045B
(unit : mm)



1 : Base
2 : Collector
3 : Emitter
4 : Collector
SANYO : TP

Pckage Dimensions 2044B
(unit : mm)



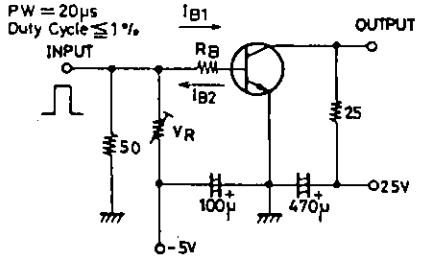
1 : Base
2 : Collector
3 : Emitter
4 : Collector
SANYO : TP-FA

SANYO Electric Co.,Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

Continued from preceding page.

			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)100mA$		$(-)0.94$	$(-)1.2$	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	$(-)60$			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	$(-)50$			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	$(-)6$			V
Turn-on Time	t_{on}	See specified Test Circuit.		70		ns
Storage Time	t_{stg}	〃		(450)650		ns
Fall Time	t_f	〃		35		ns

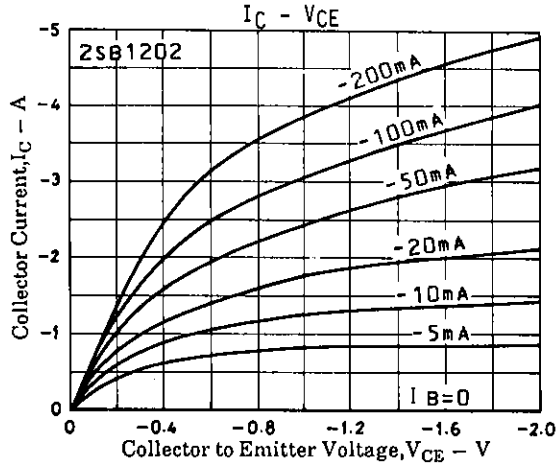
Switching Time Test Circuit

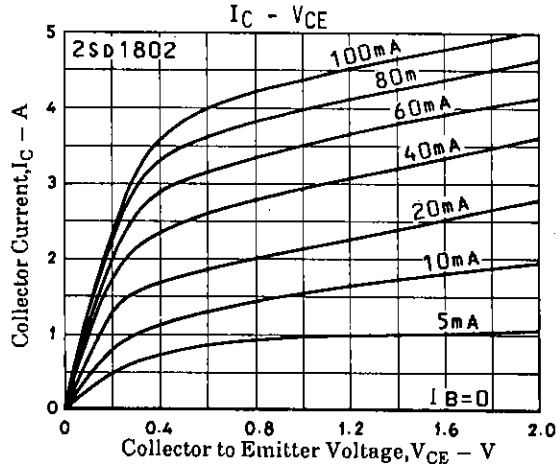


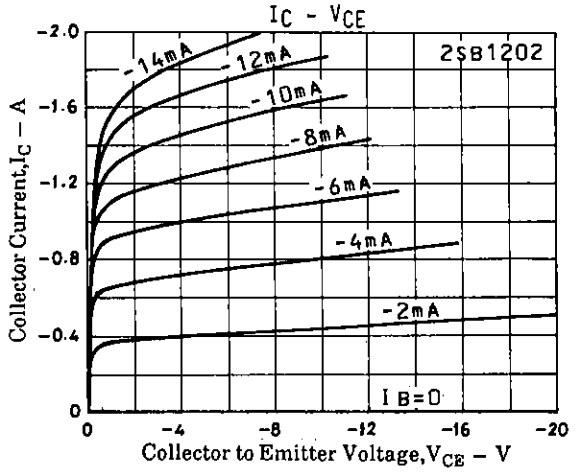
$I_C=10I_{B1}=-10I_{B2}=1A$

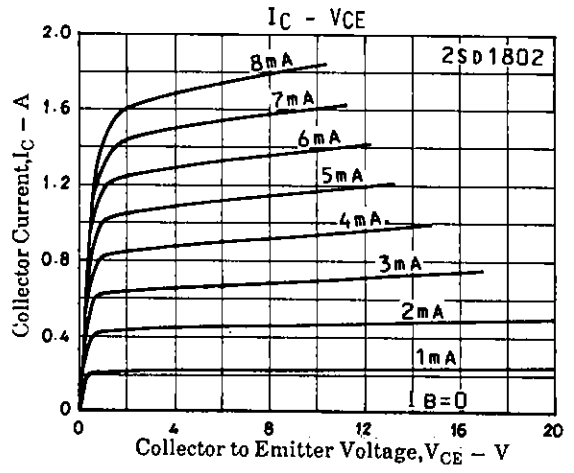
(For PNP, the polarity is reversed.)

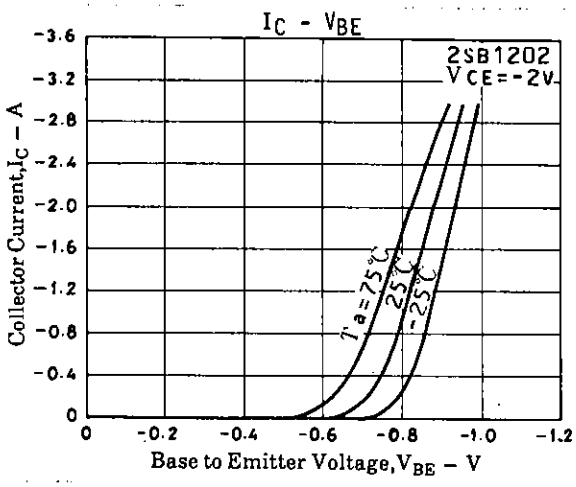
Unit (Resistance : Ω, Capacitance : F)

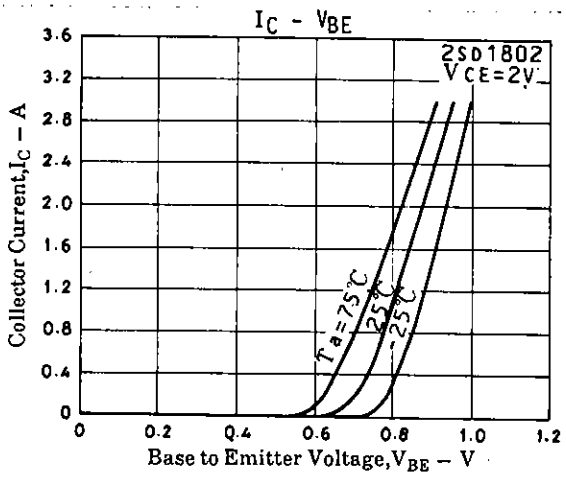


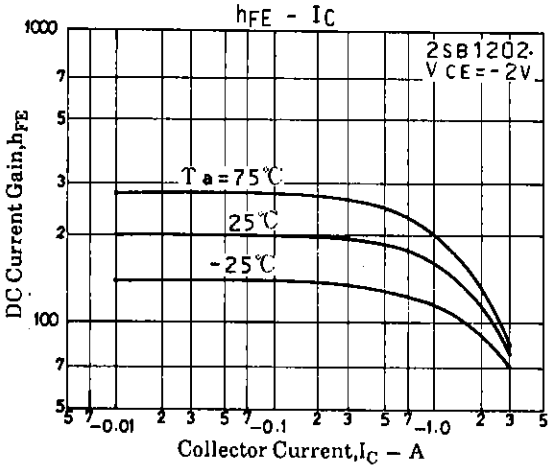


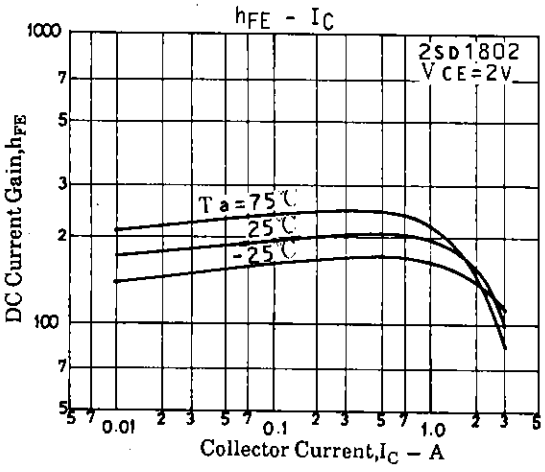


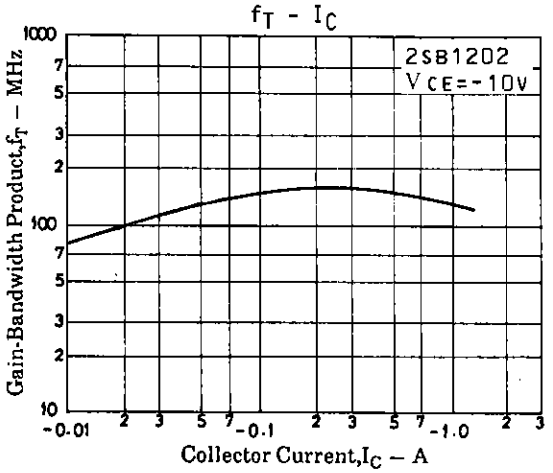


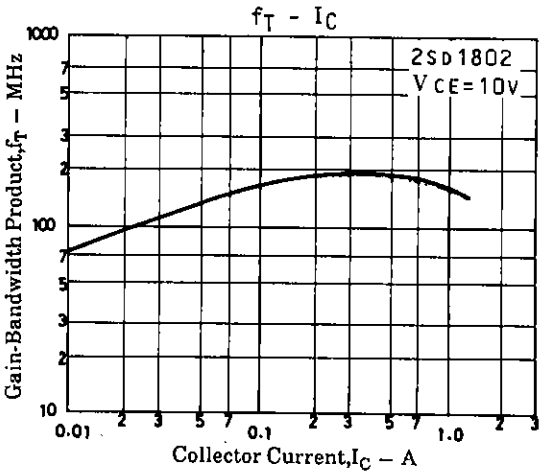

I_C - V_{BE}
2SB1202
VCE=-2V
Ta=75℃
25℃
-25℃
Collector Current,I_C – A
Base to Emitter Voltage,V_{BE} – V

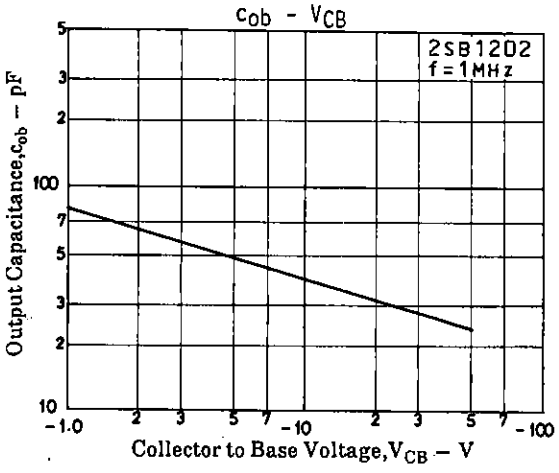

I_C - V_{BE}
2SD1802
VCE=2V
Ta=75℃
25℃
-25℃
Collector Current,I_C – A
Base to Emitter Voltage,V_{BE} – V

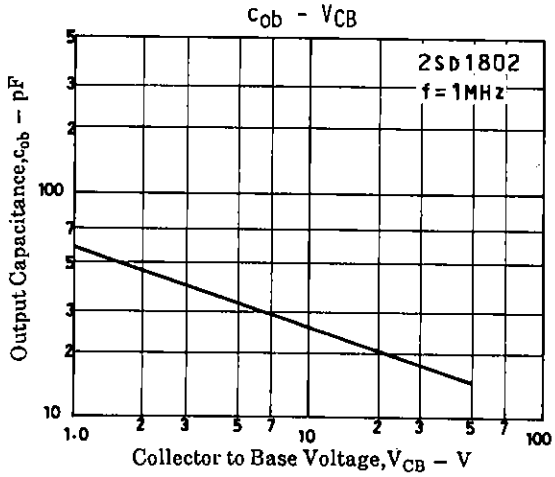

h_{FE} - I_C
2SB1202
VCE=-2V
Ta=75℃
25℃
-25℃
DC Current Gain,h_{FE}
Collector Current,I_C – A


h_{FE} - I_C
2SD1802
VCE=2V
Ta=75℃
25℃
-25℃
DC Current Gain,h_{FE}
Collector Current,I_C – A


f_T - I_C
2SB1202
VCE=-10V
Gain-Bandwidth Product,f_T – MHz
Collector Current,I_C – A


f_T - I_C
2SD1802
VCE=10V
Gain-Bandwidth Product,f_T – MHz
Collector Current,I_C – A


C_{ob} - V_{CB}
2SB1202
f=1MHz
Output Capacitance,C_{ob} – pF
Collector to Base Voltage,V_{CB} – V


C_{ob} - V_{CB}
2SD1802
f=1MHz
Output Capacitance,C_{ob} – pF
Collector to Base Voltage,V_{CB} – V