SANYO

No.2085B

2SB1203/2SD1803

PNP/NPN Epitaxial Planar Silicon Transistors

High-Current Switching Applications

Applications

· Relay drivers, high-speed inverters, converters, and other general high-current switching applications

Features

. Low collector-to-emitter saturation voltage
· High current and high f_T
· Excellent linearity of h_{FE}
· Fast switching time
· Small and slim package making it easy to make 2SB1203/2SD1803-applied sets smaller

( ) : 2SB1203

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		(−)5	A
Collector Current(Pulse)	I_{CP}		(−)8	A
Collector Dissipation	P_C		1	W
		Tc = 25°C	20	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 = (−)0.5A	70※		400※	
	$h_{FE}(2)$	V_{CE} = (−)2V, I_C = (−)4A	35			
Gain-Bandwidth Product	f_T	V_{CE} = (−)5V, I_C = (−)1A		(130)		MHz
				180		MHz
Output Capacitance	c_{ob}	V_{CE} = (−)10V, f = 1MHz		(60)		pF
				40		pF

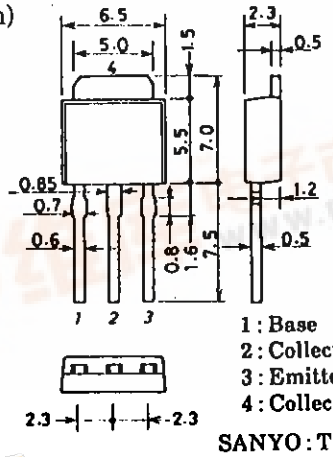
Continued on next page.

※ : The 2SB1203/2SD1803 are classified by 0.5A h_{FE} as follows :

70 Q 140	100 R 200	140 S 280	200 T 400

Package Dimensions 2045B

(unit : mm)

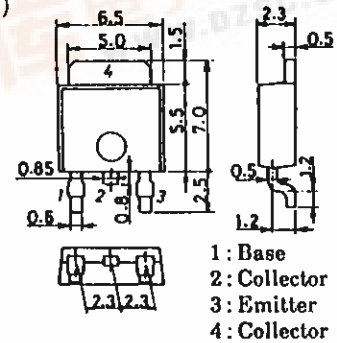


1 : Base
2 : Collector
3 : Emitter
4 : Collector

SANYO : TP

Pckage Dimensions 2044B

(unit : mm)



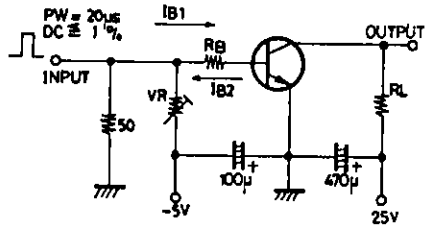
1 : Base
2 : Collector
3 : Emitter
4 : Collector

SANYO : TP-FA

Continued from preceding page.

			min	typ	max	unit
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3A, I_B=(-)0.15A$		(-280)	(-550)	mV
				220	400	mV
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)3A, I_B=(-)0.15A$		$(-)0.95$	$(-)1.3$	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.		(50)		ns
		〃		50		ns
Storage Time	t_{stg}	〃		(450)		ns
		〃		500		ns
Fall Time	t_f	〃		(20)		ns
		〃		20		ns

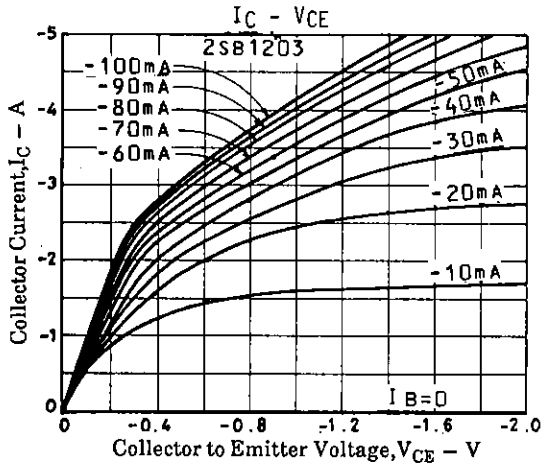
Switching Time Test Circuit

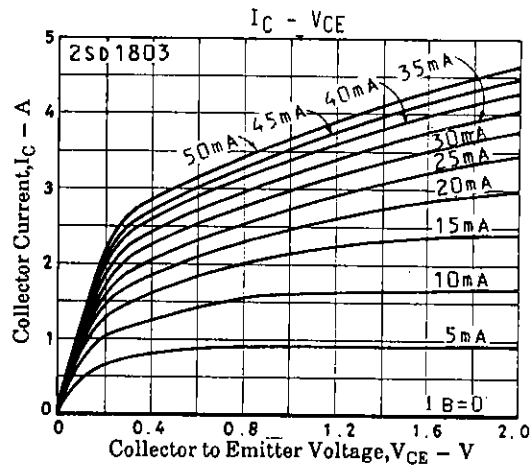


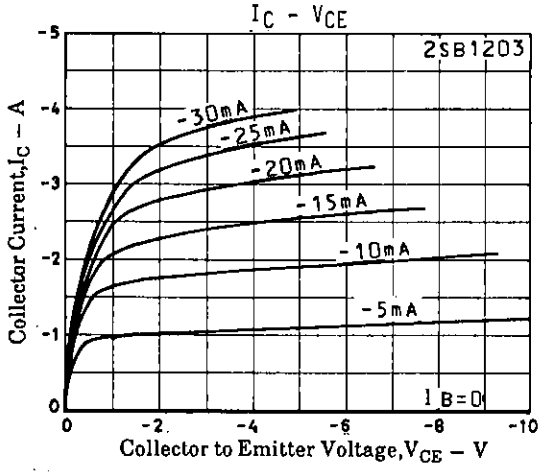
$I_C=10I_{B1}=-10I_{B2}=2A$

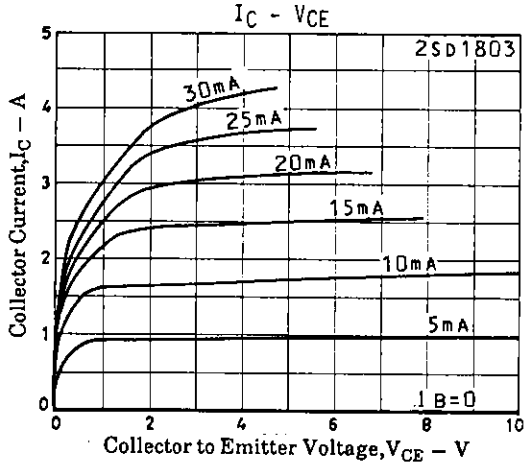
(For PNP, the polarity is reversed.)

Unit (Resistance : Ω, Capacitance : F)

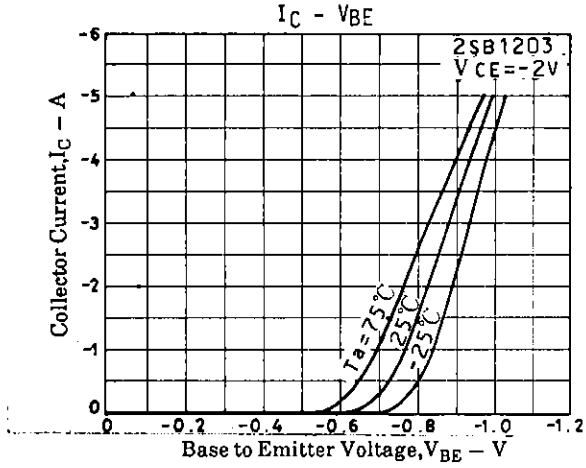




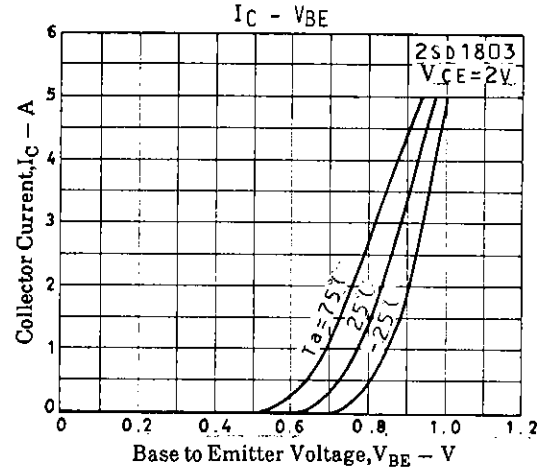




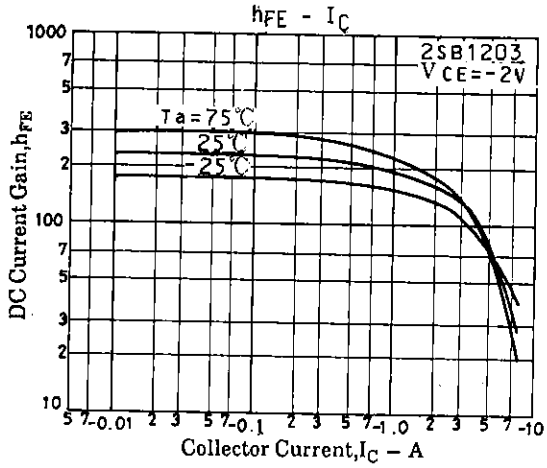
I_C - V_{BE}



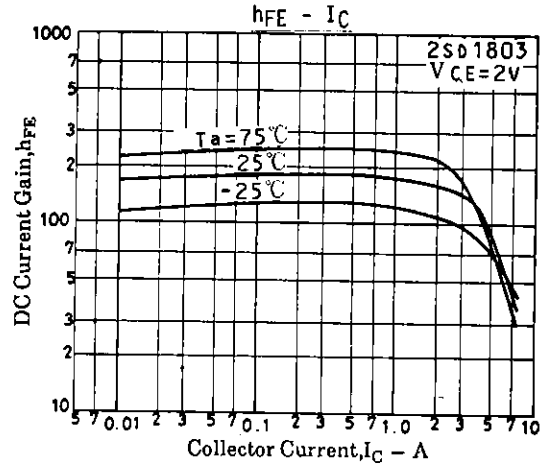
I_C - V_{BE}



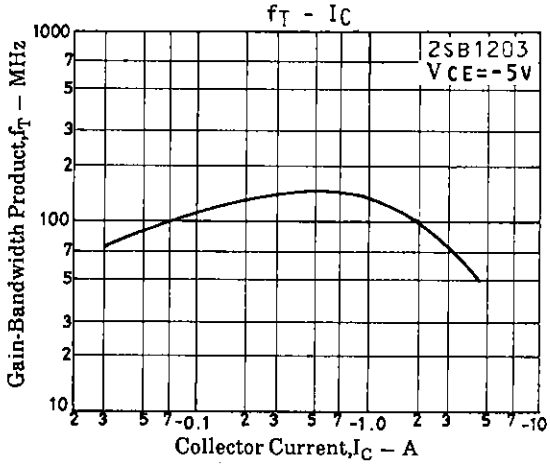
h_{FE} - I_C



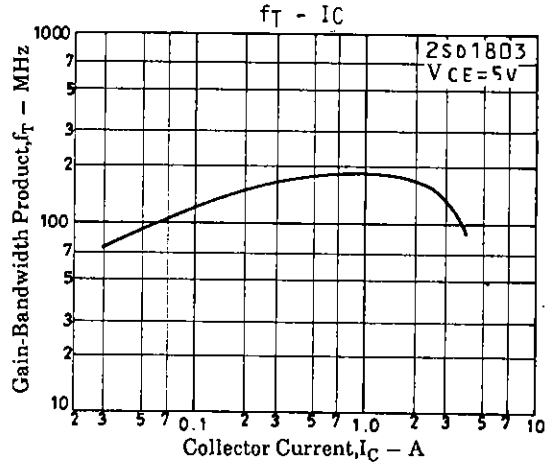
h_{FE} - I_C



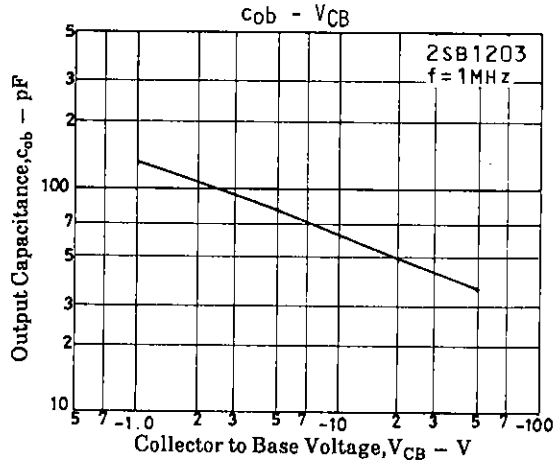
f_T - I_C



f_T - I_C



C_{ob} - V_{CB}



C_{ob} - V_{CB}