Ordering number: EN2063A

SANYO

No.2063A

2SB1143/2SD1683

PNP/NPN Epitaxial Planar Silicon Transistors

50V/4A Switching Applications

Applications

. Voltage regulators, relay drivers, lamp drivers, electrical equipment

Features

. Adoption of FBET, MBIT processes
. Low saturation voltage
. Large current capacity and wide ASO

( ): 2SB1143

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		(-)4	A
Collector Current (Pulse)	I_{CP}		(-)6	A
Collector Dissipation	P_C		1.5	W
		Tc=25°C	10	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	40			
Gain-Bandwidth Product	f_T	V_{CE}=(-)10V, I_C=(-)50mA		150		MHz
Output Capacitance	Cob	V_{CB}=(-)10V, f=1MHz		(39)		pF
				25		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(-)2A, I_B=(-)100mA		(-350)	(-700)	mV
				190	500	mV
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(-)2A, I_B=(-)100mA		(-)0.94	(-)1.2	V

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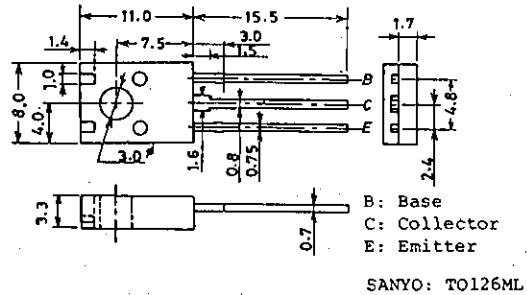
*: The 2SB1143/2SD1683 are classified by 100mA h_{FE} as follows:

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

Package Dimensions 2042A
(unit:mm)



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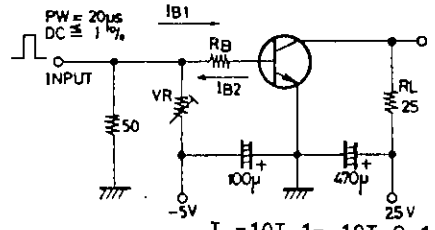
			min	typ	max	unit
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0	(-)60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)1mA, R_{BE}=∞	(-)50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)10μA, I_C=0	(-)6			V
Turn-on Time	t_{on}	See specified Test Circuit.		(70)		ns
		"		70		ns
Storage Time	tstg	"		(450)		ns
		"		650		ns
Fall Time	t_f	"		(30)		ns
		"		35		ns

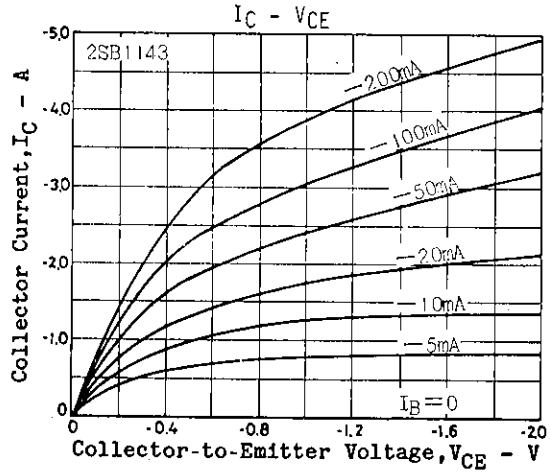
Switching Time Test Circuit

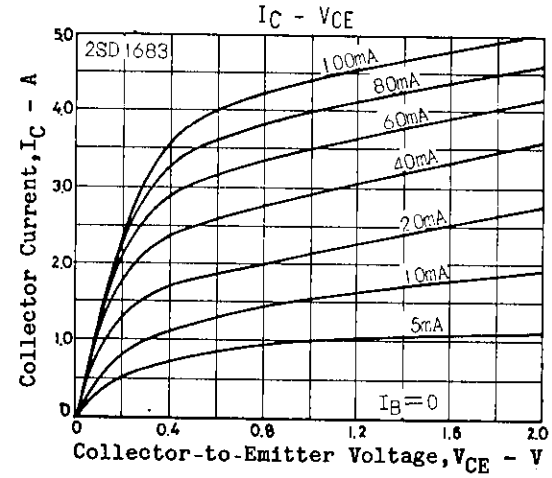


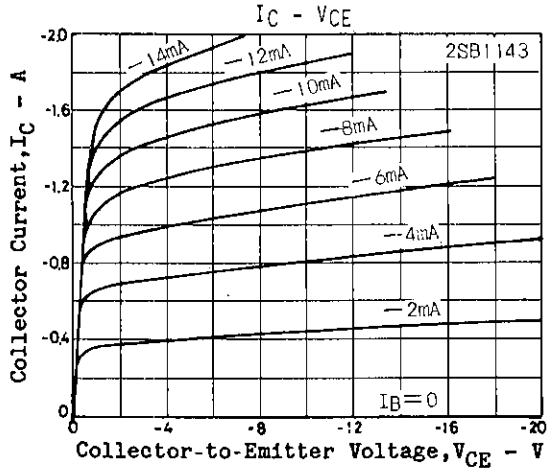
I_C=10I_B1=-10I_B2=1A

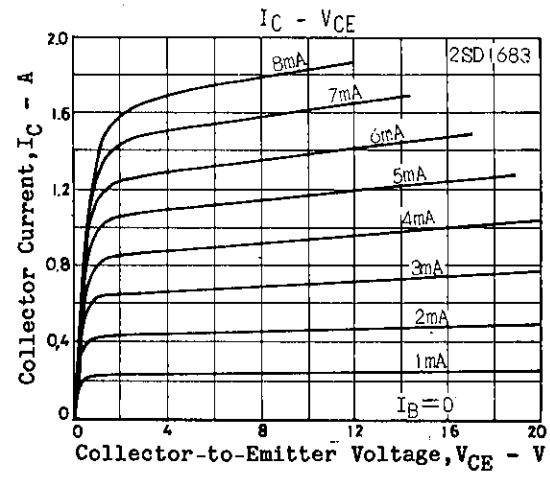
(For PNP, the polarity is reversed.)

Unit (Resistance : Ω, Capacitance : F)

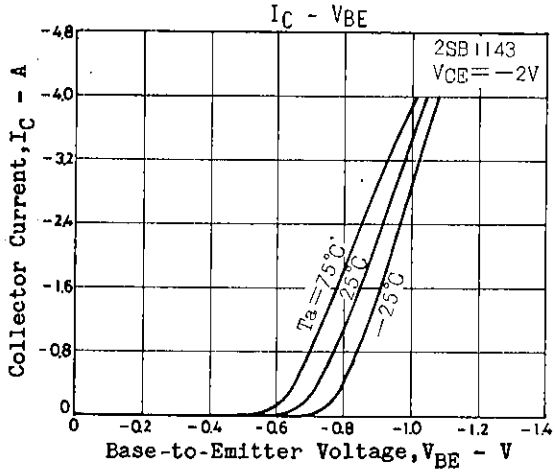




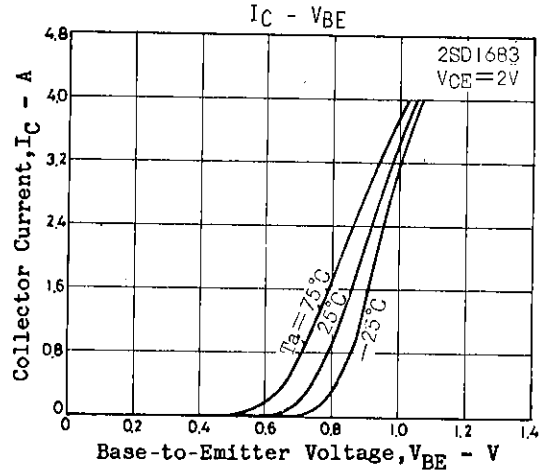




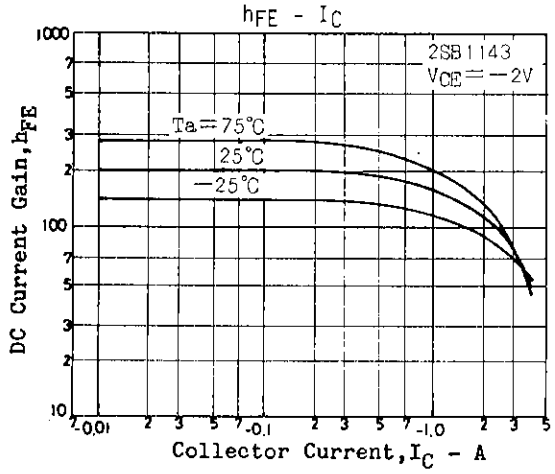
I_C - V_{BE}



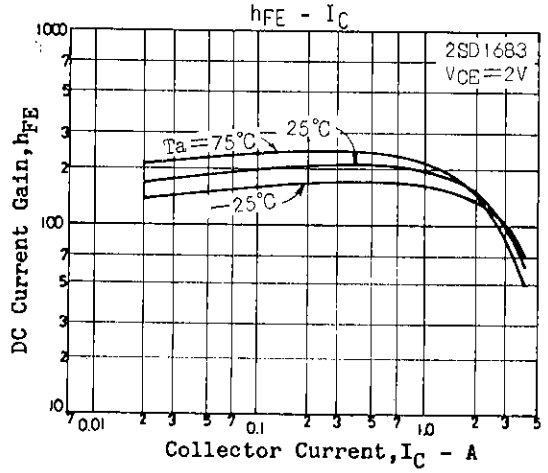
I_C - V_{BE}



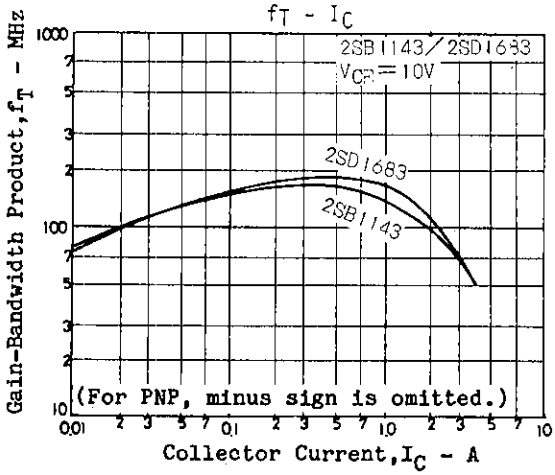
h_{FE} - I_C



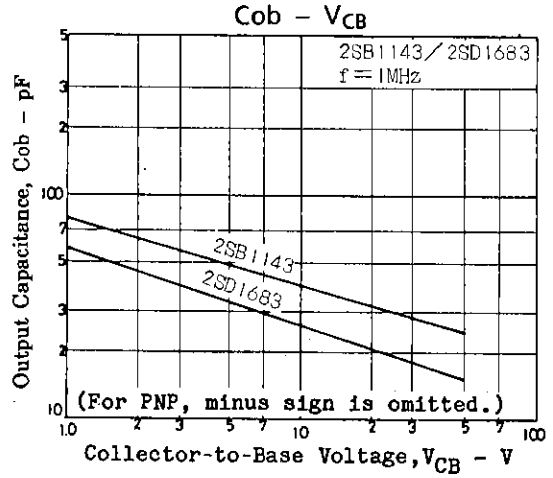
h_{FE} - I_C



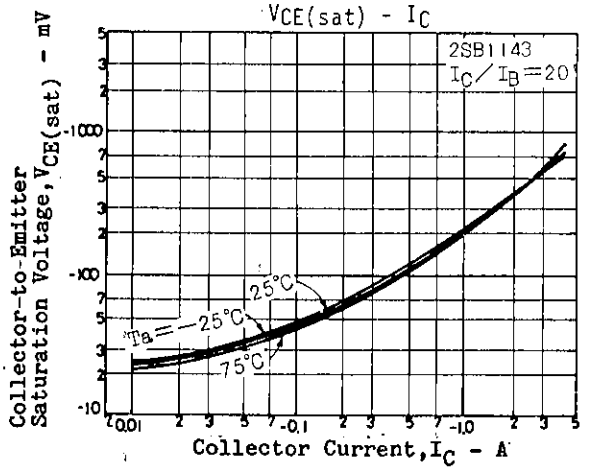
f_T - I_C



Cob - V_{CB}



$V_{CE(sat)}$ - I_C



$V_{CE(sat)}$ - I_C