

SANYO

No.2060A

2SB1142/2SD1682

PNP/NPN Epitaxial Planar Silicon Transistors

50V/2.5A High-Speed Switching Applications**Applications**

- Power supplies, relay drivers, lamp drivers.

Features

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

(): 2SB1142

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

			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	(-)2.5	A
Collector Current (Pulse)	I_{CP}	(-)5.0	A
Collector Dissipation	P_C	1.5	W
		10	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

 $T_c = 25^\circ\text{C}$ **Electrical Characteristics at $T_a = 25^\circ\text{C}$**

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)50\text{V}, I_E = 0$			(-)100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$	(100)※		(400)	
			100※		560	
	$h_{FE(2)}$	$V_{CE} = (-)2\text{V}, I_C = (-)2\text{A}$	35			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$		140		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)1\text{A}, I_B = (-)50\text{mA}$		(-250)	(-500)	mV
				110	300	mV
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)1\text{A}, I_B = (-)50\text{mA}$		(-)0.85	(-)1.2	V
Output Capacitance	C_{ob}	$V_{CE} = (-)10\text{V}, f = 1\text{MHz}$		(25)16		pF

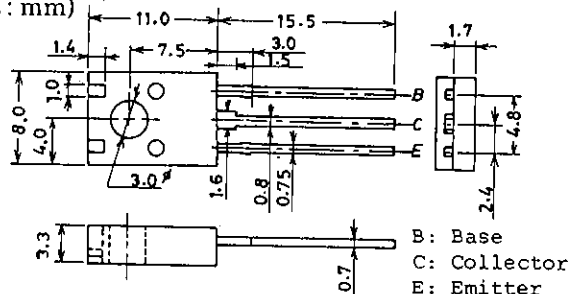
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※: The 2SB1142/2SD1682 are classified by 100mA h_{FE} as follows

2SB1142	100	R	200	140	S	280	200	T	400			
2SD1682	100	R	200	140	S	280	200	T	400	280	U	560

Package Dimensions 2042A

(unit: mm)



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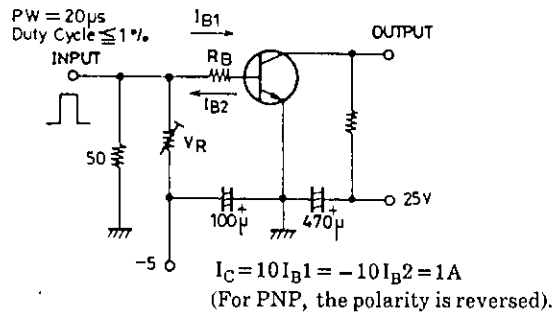
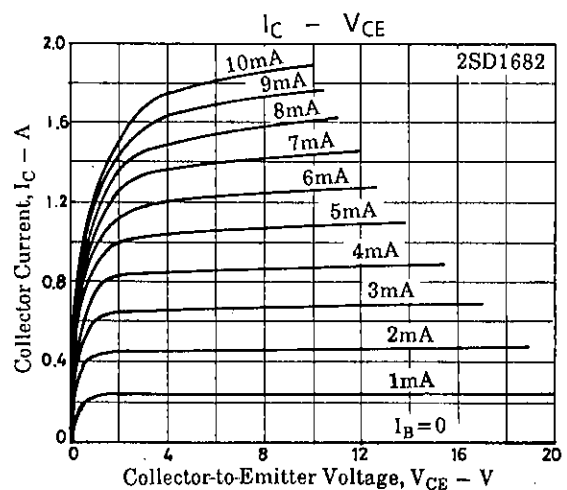
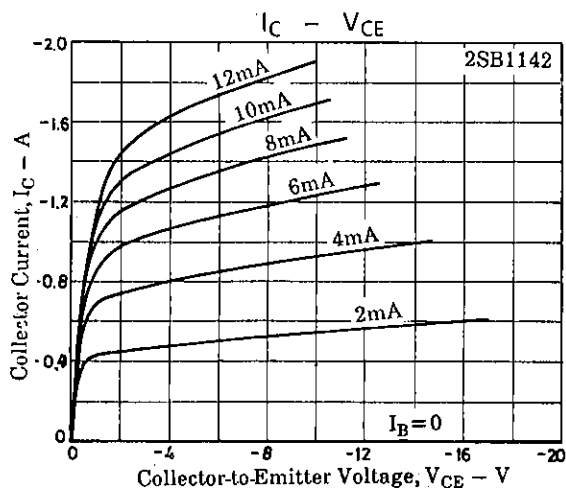
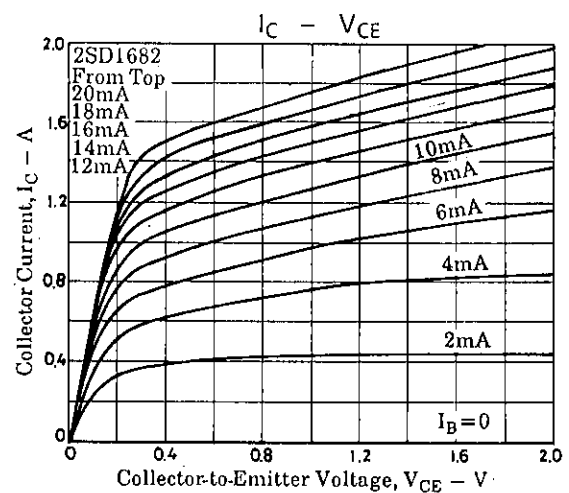
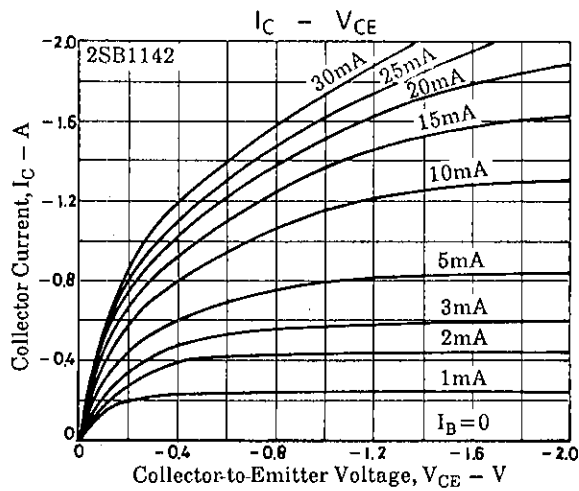
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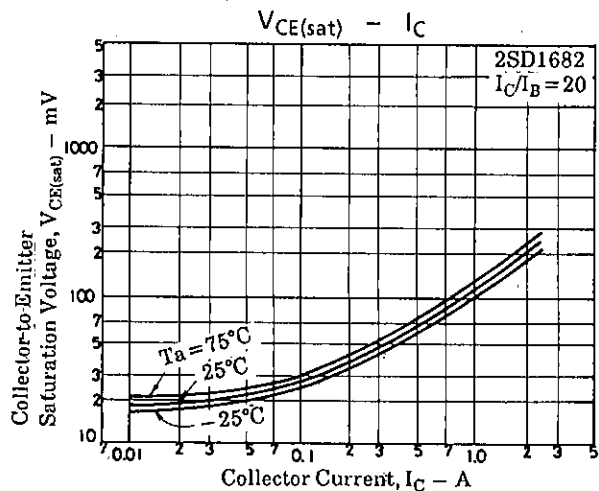
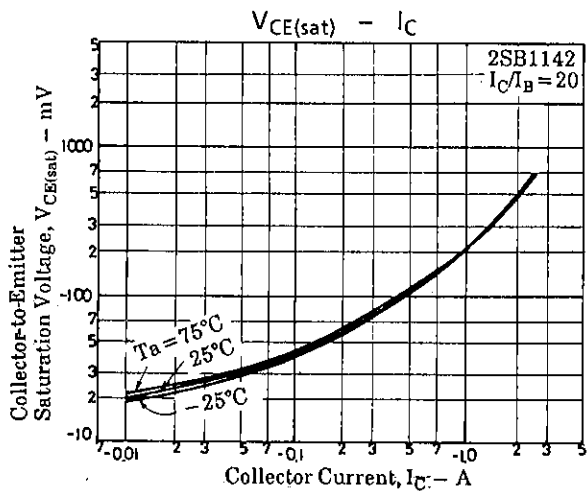
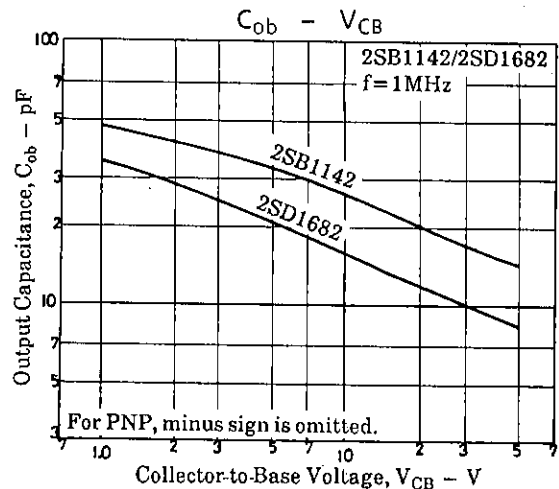
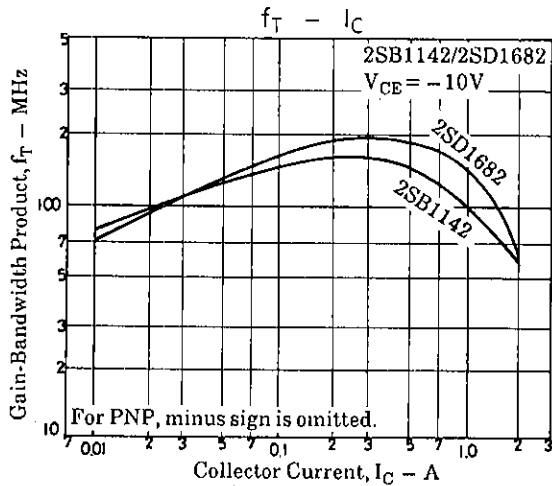
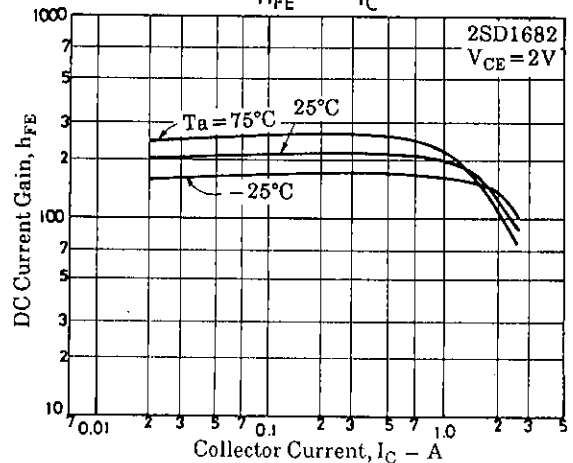
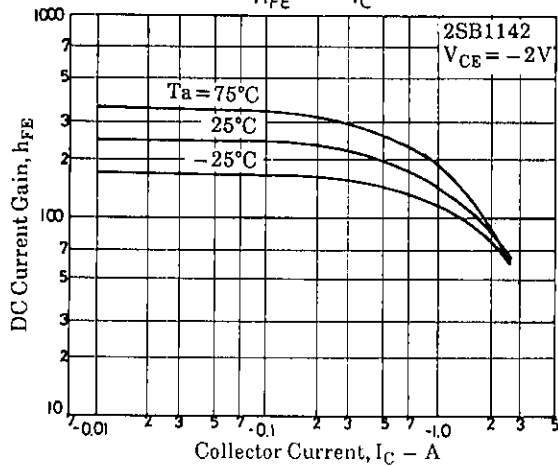
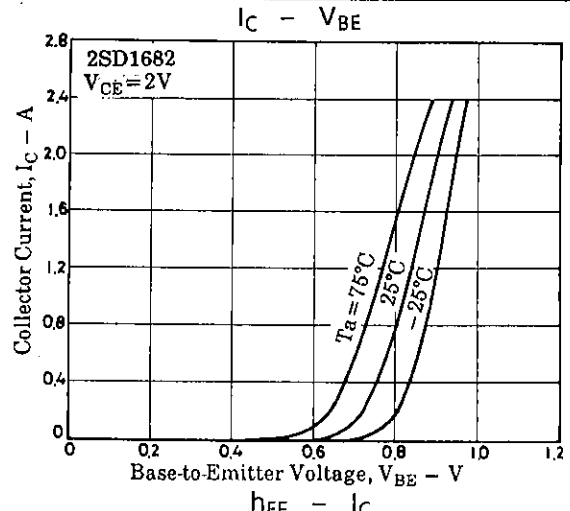
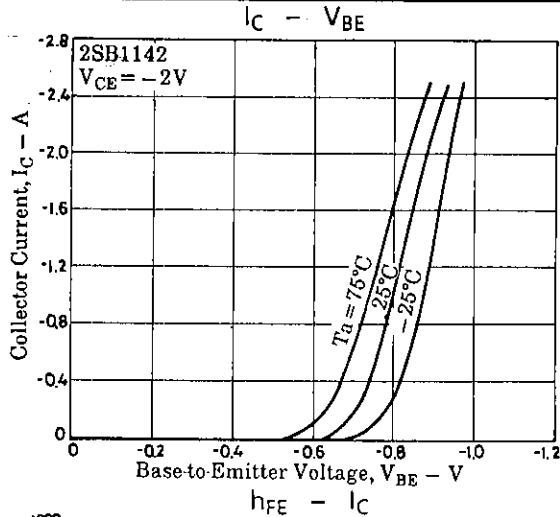
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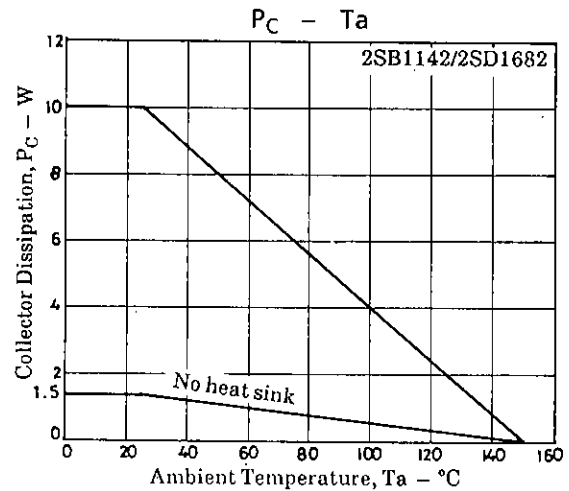
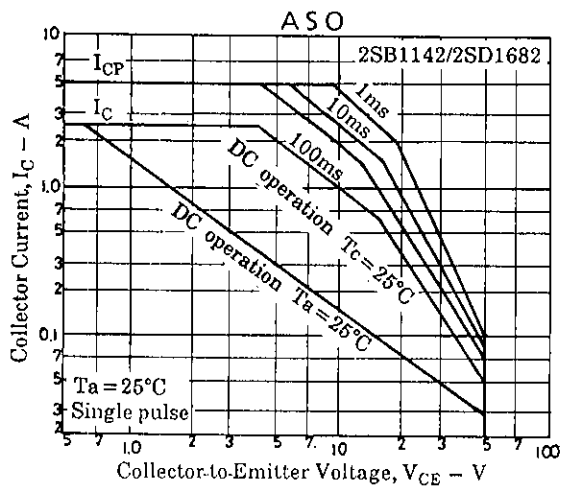
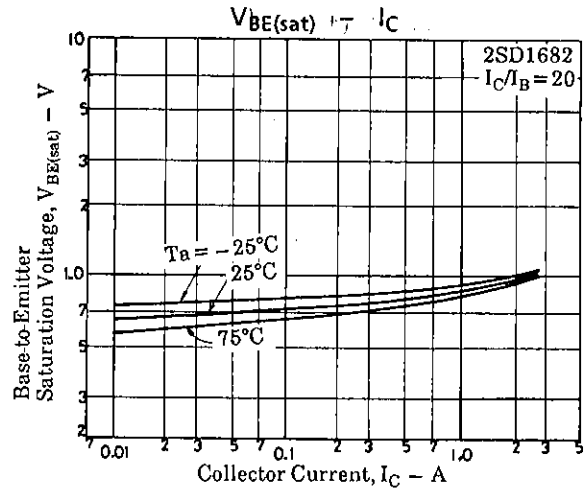
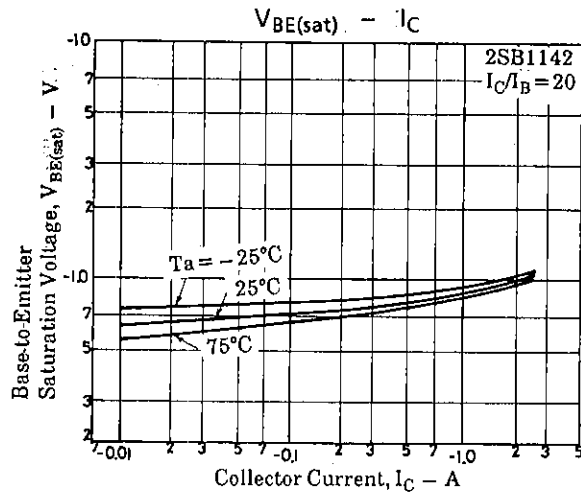
			min	typ	max	unit
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	$(-)60$			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	$(-)50$			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	$(-)6$			V
Turn-on Time	t_{on}	See specified Test Circuit.		(35)35		ns
Storage Time	t_{stg}	"		(350)550		ns
Fall Time	t_f	"		(30)30		ns

Switching Time Test Circuit

Unit (Resistance : Ω , Capacitance : F)

2SB1142/2SD1682





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