

<b>SANYO</b>	No.2060A	<b>2SB1142/2SD1682</b>
	PNP/NPN Epitaxial Planar Silicon Transistors	
<b>50V/2.5A High-Speed Switching Applications</b>		

**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 Ta = 25°C**

			unit
Collector-to-Base Voltage	V <sub>CB0</sub>	(-)60	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>	(-)50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>	(-)6	V
Collector Current	I <sub>C</sub>	(-)2.5	A
Collector Current (Pulse)	I <sub>CP</sub>	(-)5.0	A
Collector Dissipation	P <sub>C</sub>	1.5	W
		10	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

T<sub>c</sub> = 25°C

**Electrical Characteristics at Ta = 25°C**

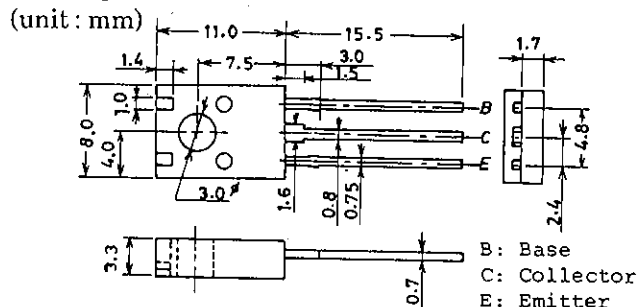
			min	typ	max	unit
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> = (-)50V, I <sub>E</sub> = 0			(-)100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = (-)4V, I <sub>C</sub> = 0			(-)100	nA
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> = (-)2V, I <sub>C</sub> = (-)100mA	(100)※		(400)	
			100※		560	
	h <sub>FE</sub> (2)	V <sub>CE</sub> = (-)2V, I <sub>C</sub> = (-)2A	35			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = (-)10V, I <sub>C</sub> = (-)50mA		140		MHz
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = (-)1A, I <sub>B</sub> = (-)50mA		(-)250	(-)500	mV
				110	300	mV
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = (-)1A, I <sub>B</sub> = (-)50mA		(-)0.85	(-)1.2	V
Output Capacitance	C <sub>ob</sub>	V <sub>CE</sub> = (-)10V, f = 1MHz		(25)16		pF

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※ : The 2SB1142/2SD1682 are classified by 100mA h<sub>FE</sub> 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**



SANYO: TO126ML

**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

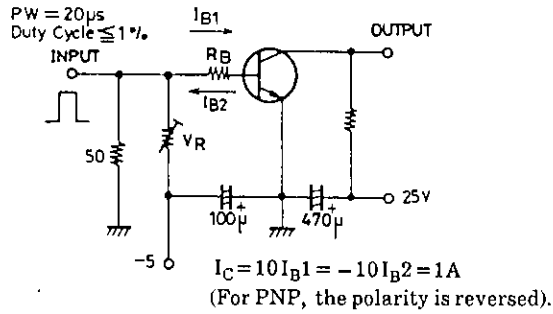
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

2SB1142/2SD1682

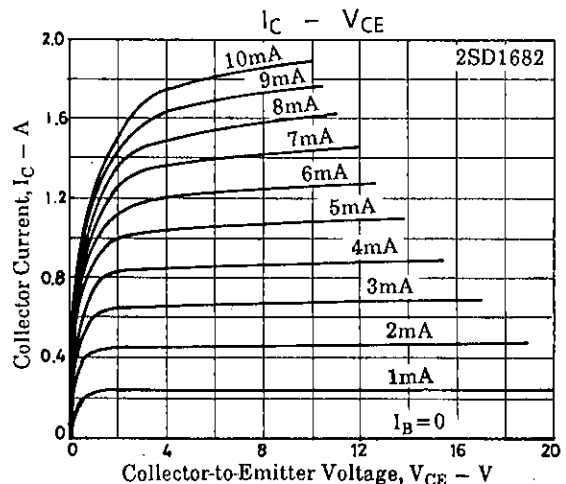
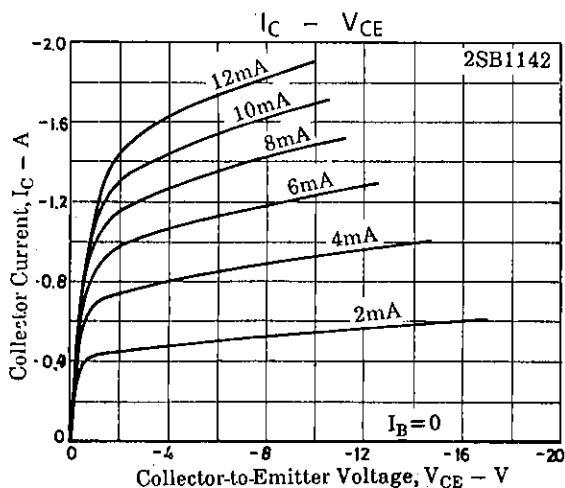
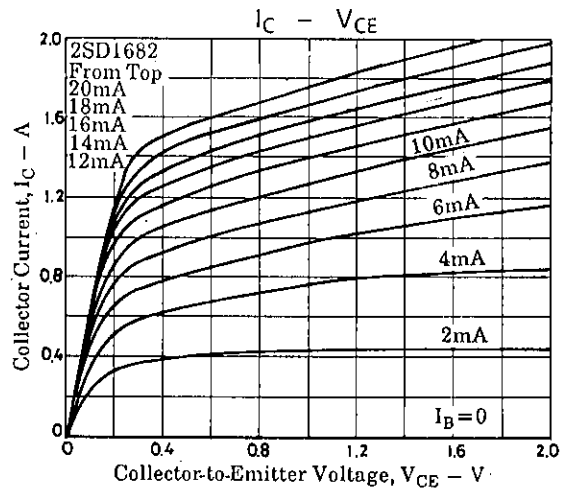
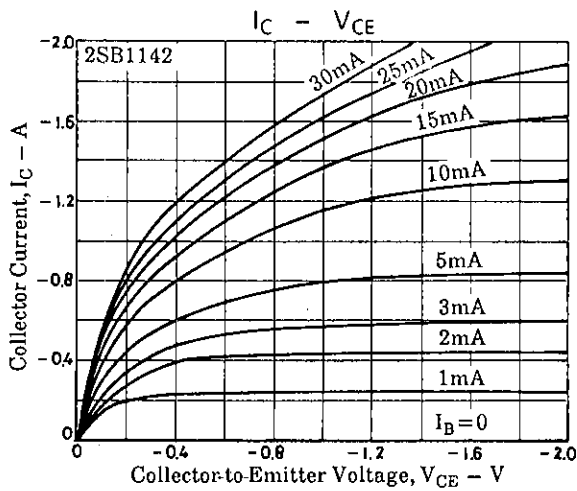
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			min	typ	max	unit
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)6			V
Turn-on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

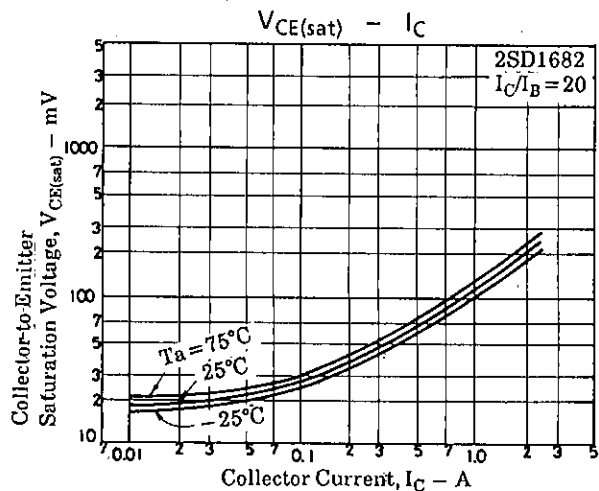
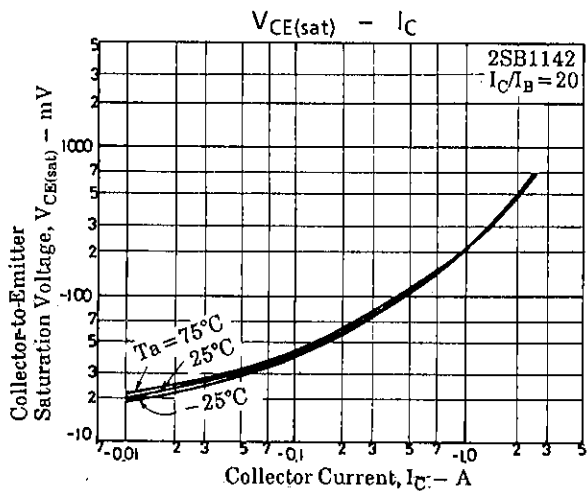
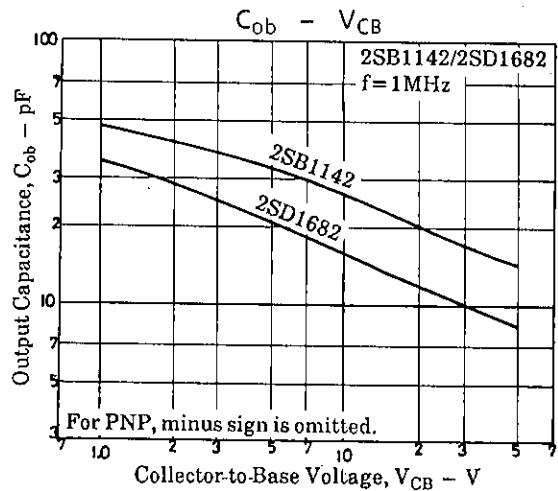
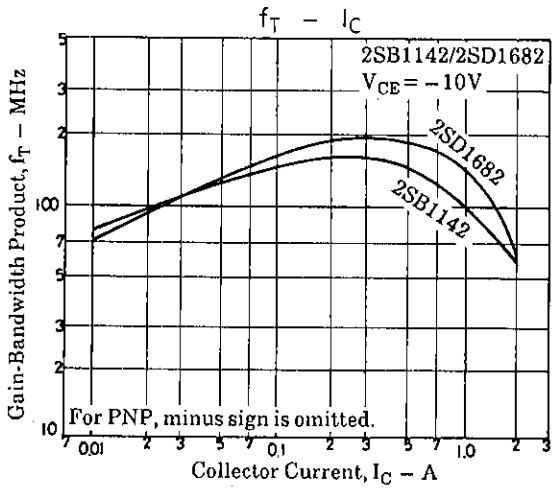
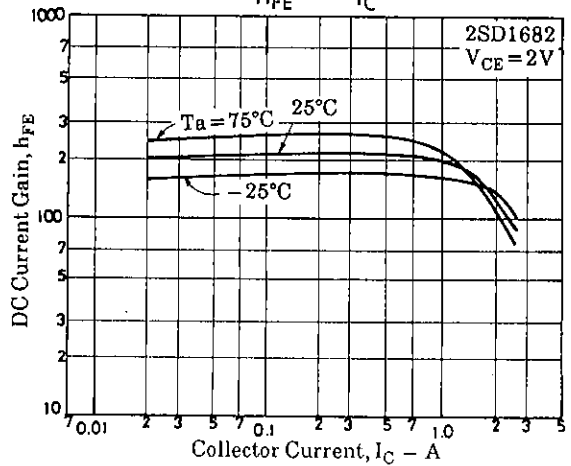
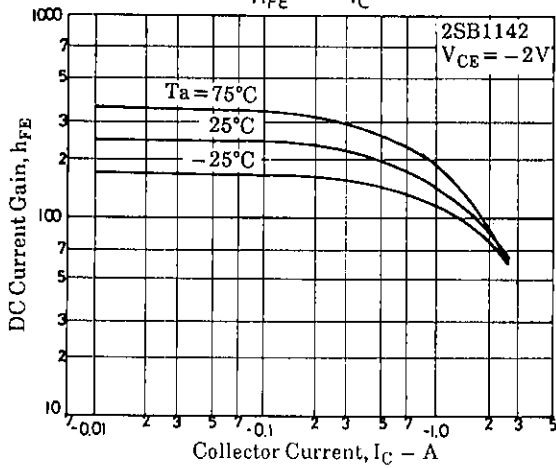
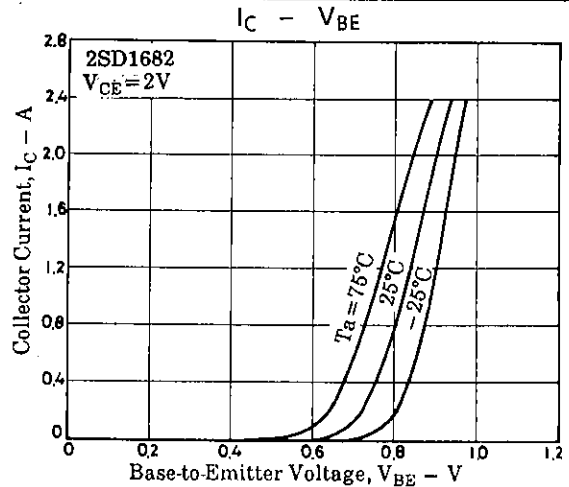
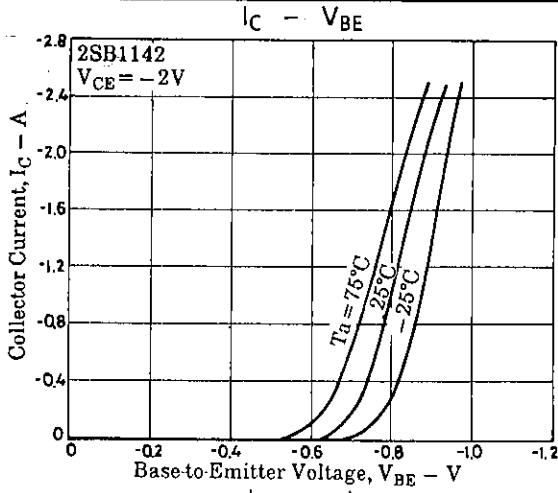
Switching Time Test Circuit



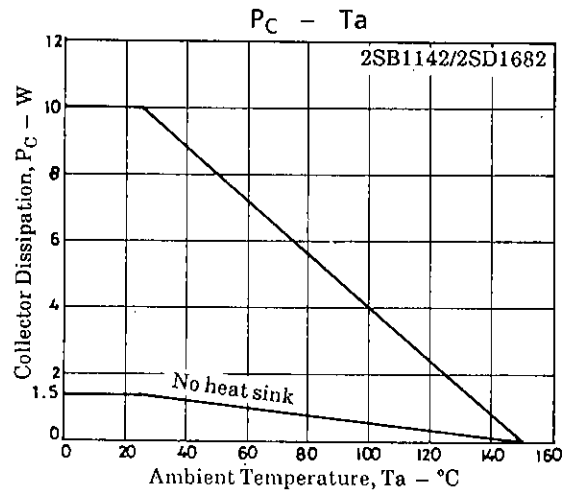
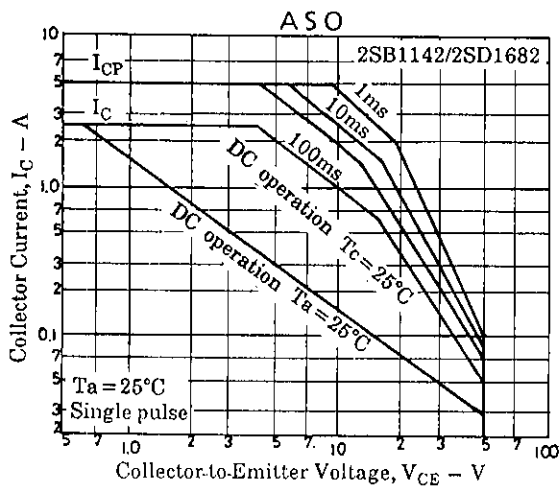
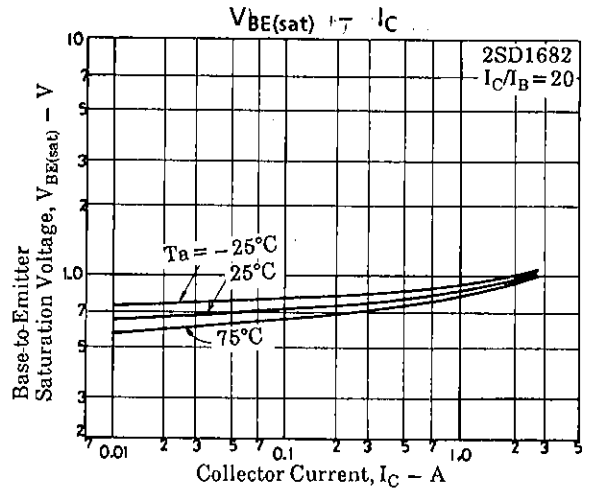
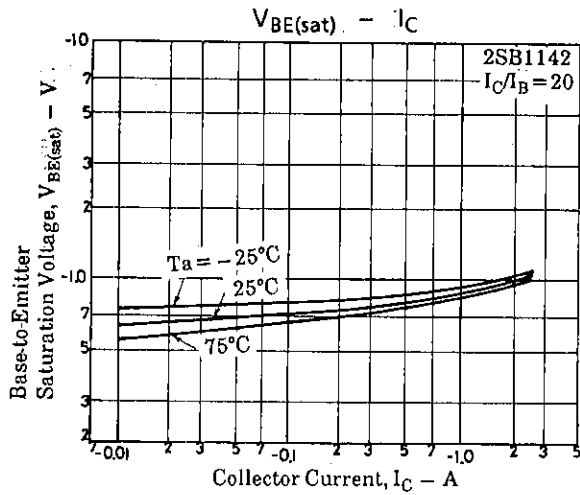
Unit (Resistance :  $\Omega$ , Capacitance : F)



2SB1142/2SD1682



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