

SANYO	No.2020A	2SB1141/2SD1681
		PNP/NPN Epitaxial Planar Silicon Transistors 18V/1.2A Switching Applications

Applications

- Converters, relay drivers, low-voltage and high power AF Amp.

Features

- Low saturation voltage and excellent linearity of h_{FE} .
- Wide ASO.

(): 2SB1141

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

			unit
Collector-to-Base Voltage	V_{CB0}	(-)20	V
Collector-to-Emitter Voltage	V_{CE0}	(-)18	V
Emitter-to-Base Voltage	V_{EB0}	(-)5	V
Collector Current	I_C	(-)1.2	A
Collector Current (Pulse)	I_{CP}	(-)2.0	A
Collector Dissipation	P_C	1.5	W
	$T_c = 25^\circ\text{C}$	10	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

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

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)15\text{V}, I_E = 0$			(-)100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$	70*		400*	
	$h_{FE(2)}$	$V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$	40			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$		150		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(30)20		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)500\text{mA}, I_B = (-)50\text{mA}$		(-)170	(-)400	mV
				120	300	mV
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)500\text{mA}, I_B = (-)50\text{mA}$		(-)0.85	(-)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$	(-)20			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	(-)18			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu\text{A}, I_C = 0$	(-)5			V

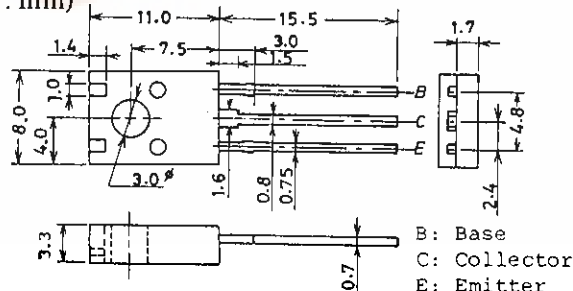
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* : The 2SB1141/2SD1681 are classified by 100mA h_{FE} as follows

70 Q	140	100 R	200	140 S	280	200 T	400
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Package Dimensions 2042A

(unit : mm)



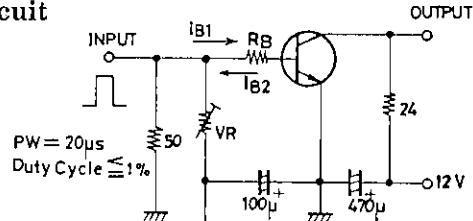
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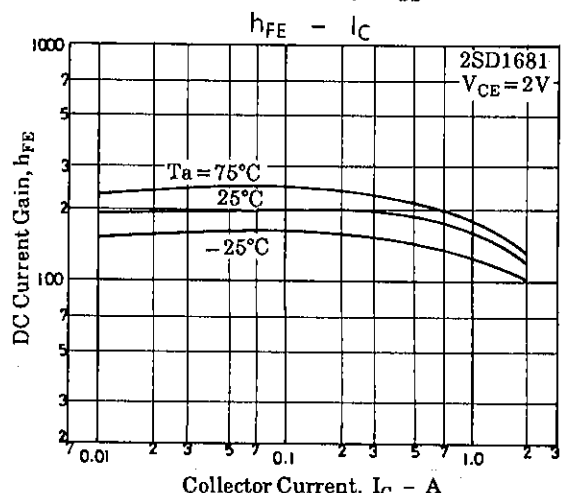
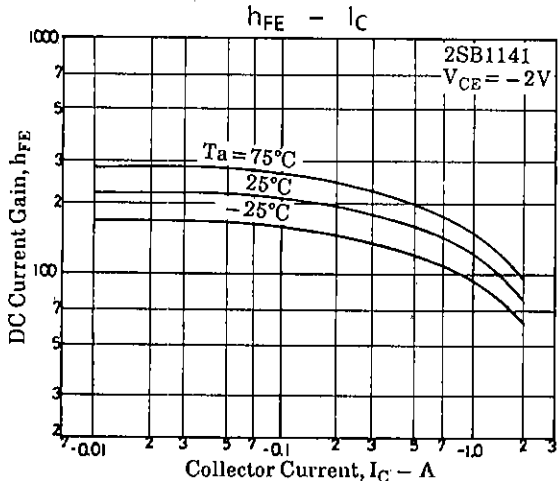
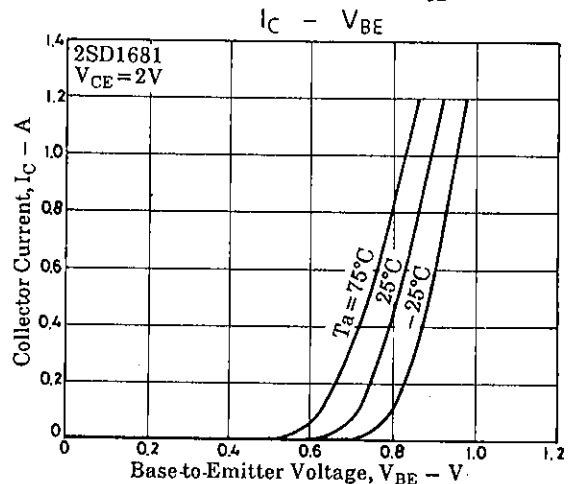
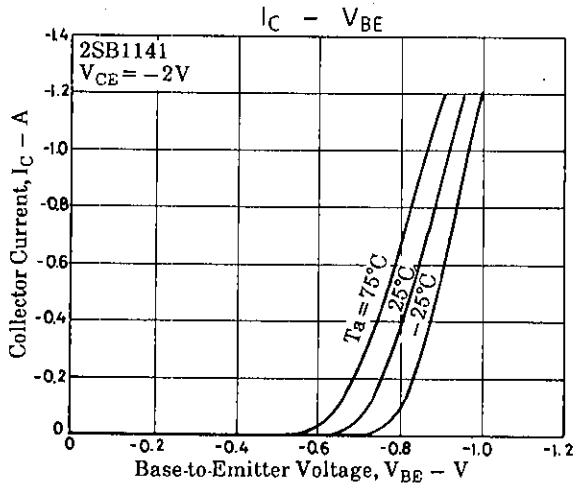
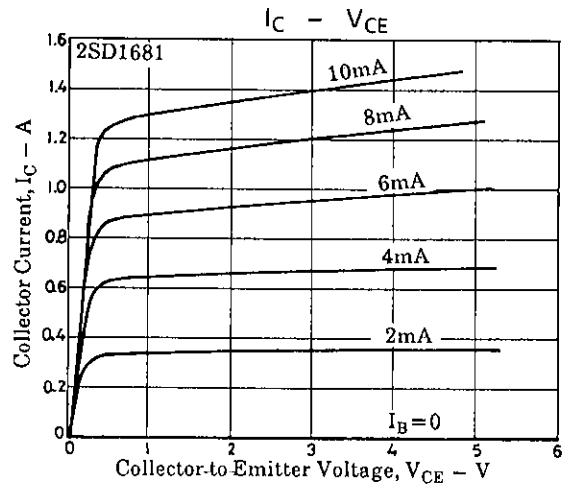
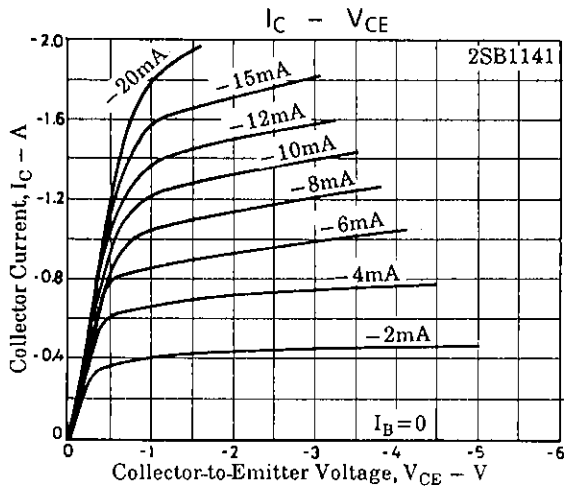
			min	typ	max	unit
Turn-on Time	t_{on}	See specified Test Circuit.		50		ns
Storage Time	t_{stg}	"		(60)200		ns
Fall Time	t_f	"		70		ns

Switching Time Test Circuit

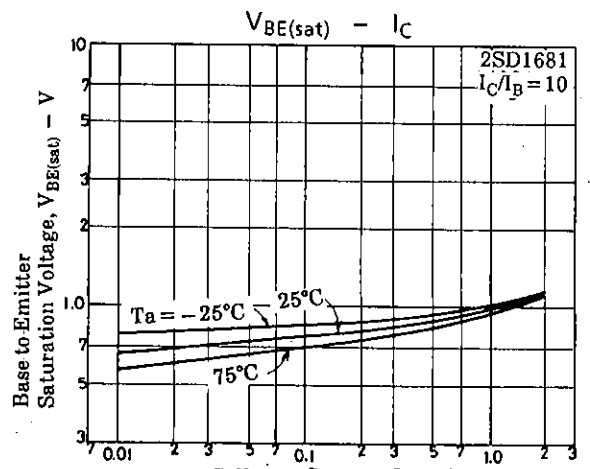
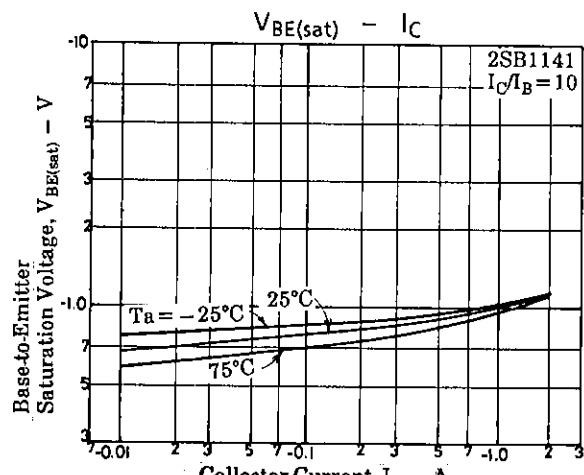
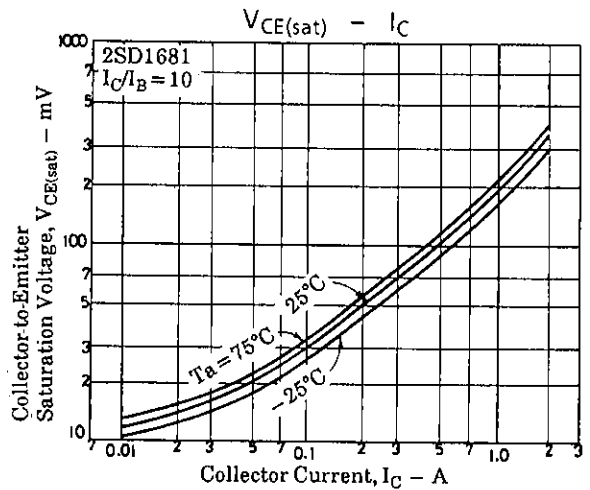
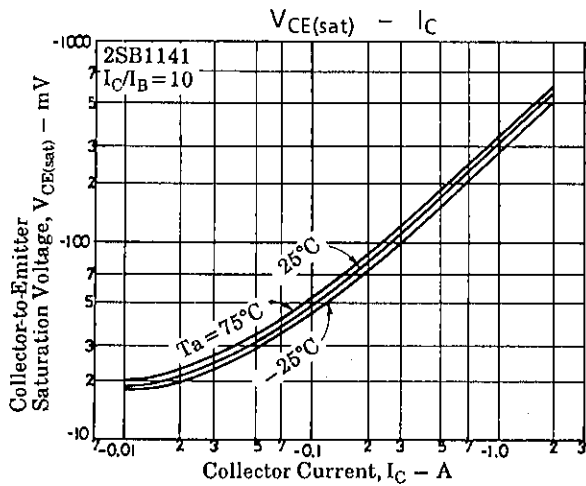
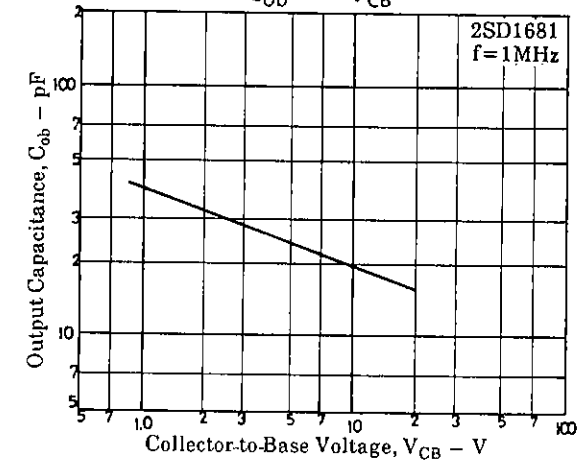
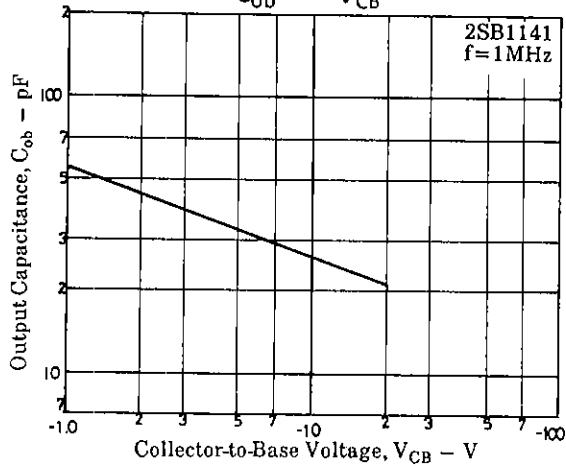
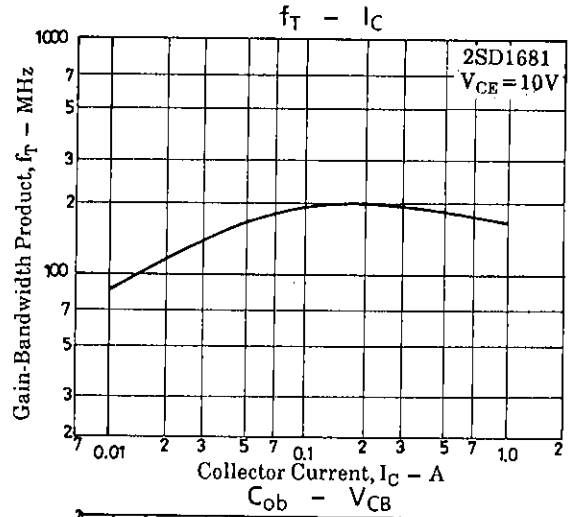
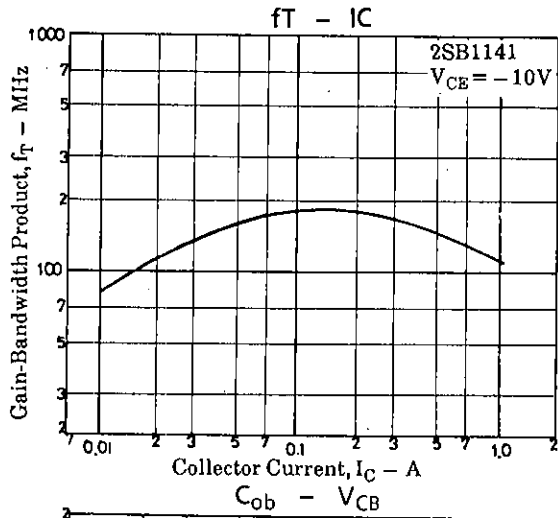


Unit (Resistance : Ω , Capacitance : F)

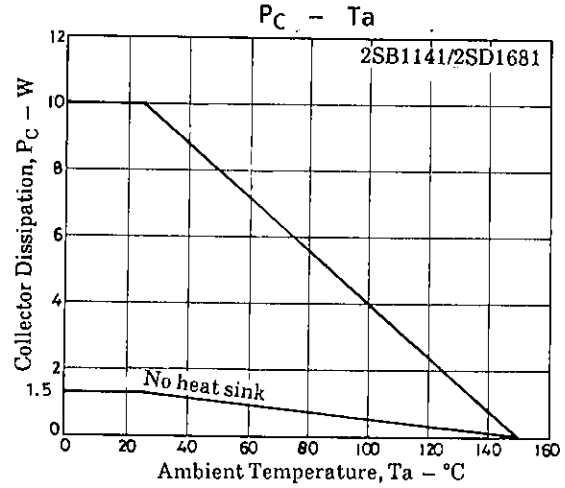
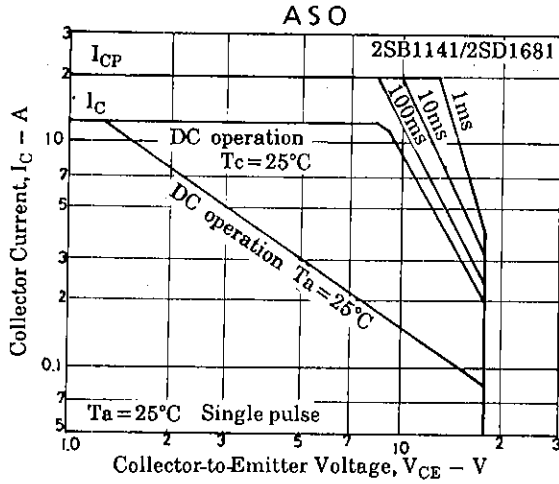
$I_C = 10I_{B1} = -10I_{B2} = 500\text{mA}$
(For PNP, the polarity is reversed).



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