



2SB1141/2SD1681

18V/1.2A Switching Applications

Applications

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

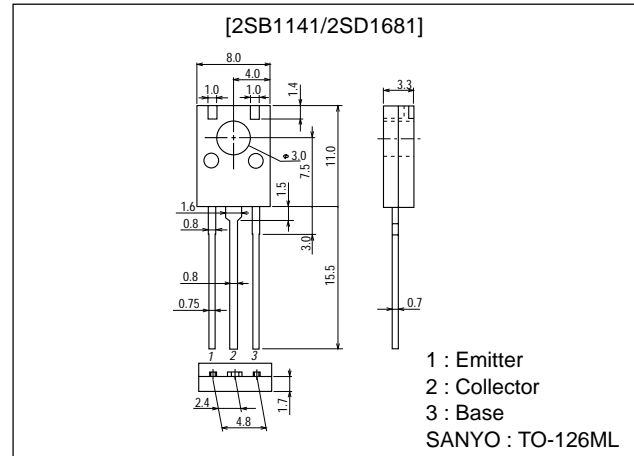
Features

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

Package Dimensions

unit:mm

2042B



() : 2SB1141

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)20	V
Collector-to-Emitter Voltage	V_{CEO}		(-)18	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)1.2	A
Collector Current (Pulse)	I_{CP}		(-)2.0	A
Collector Dissipation	P_C	$T_c=25^\circ\text{C}$	1.5	W
			10	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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_{FE1}	$V_{CE}=(-)2\text{V}, I_C=(-)100\text{mA}$	70*		400*	
	h_{FE2}	$V_{CE}=(-)2\text{V}, I_C=(-)1\text{A}$	40			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		150		MHz

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

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Rank	Q	R	S	T
h_{FE}	70 to 140	100 to 200	140 to 280	200 to 400

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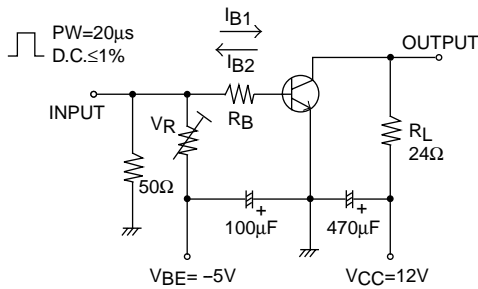
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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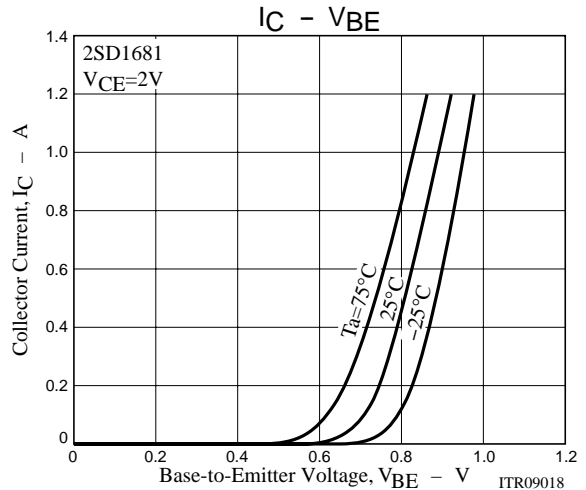
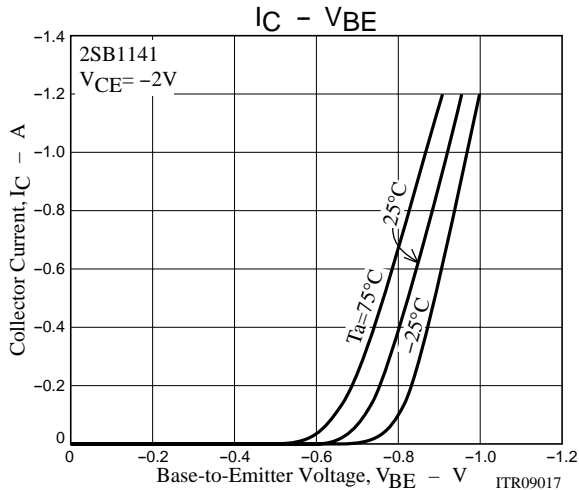
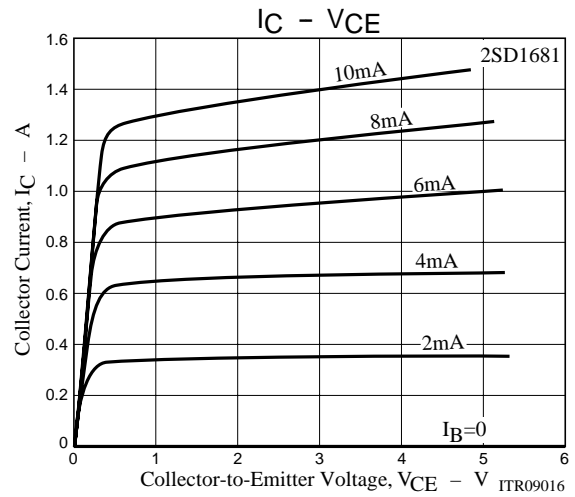
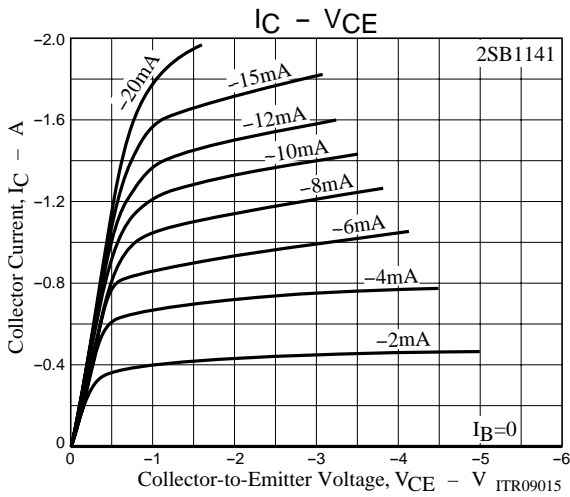
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(30)20		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		(-170)	(-400)	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		120	300	mV
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)18			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)5			V
Turn-ON Time	t_{on}	See specified Test Circuit		50		ns
Storage Time	t_{stg}	See specified Test Circuit		(60)		ns
Fall Time	t_f	See specified Test Circuit		200		ns
				70		ns

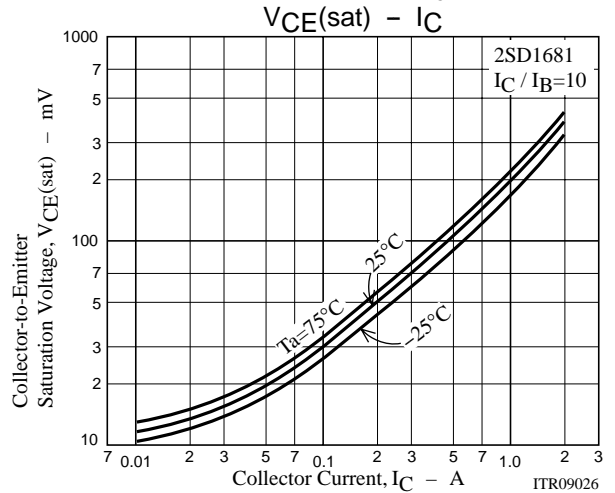
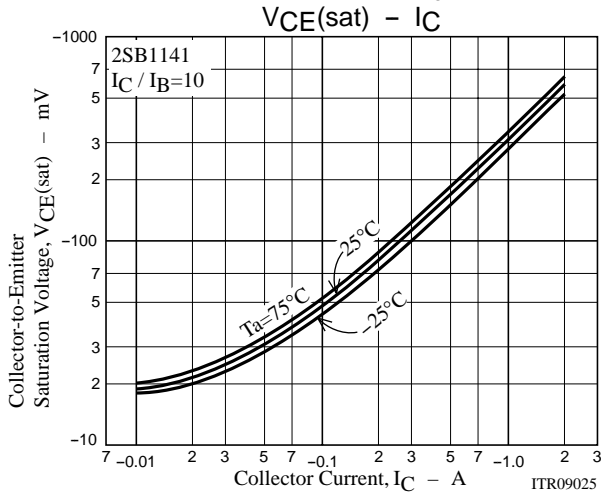
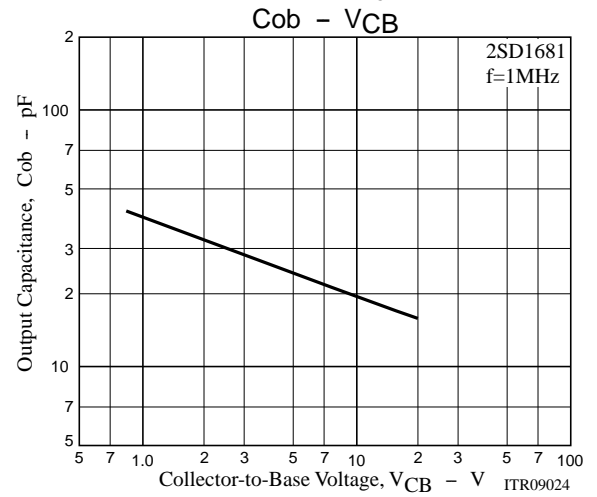
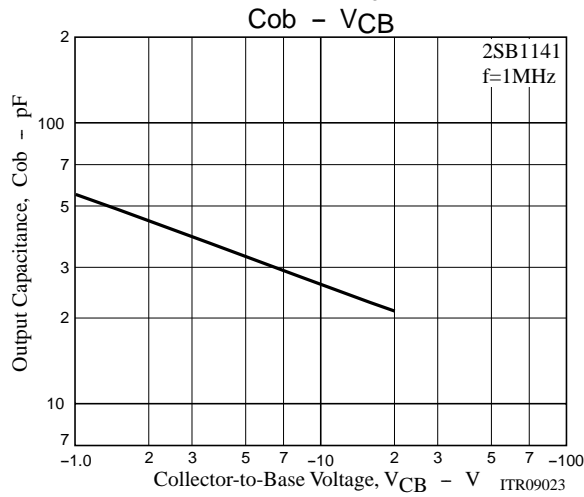
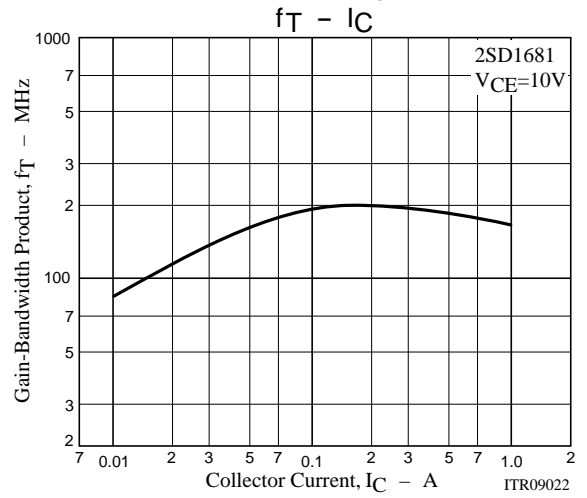
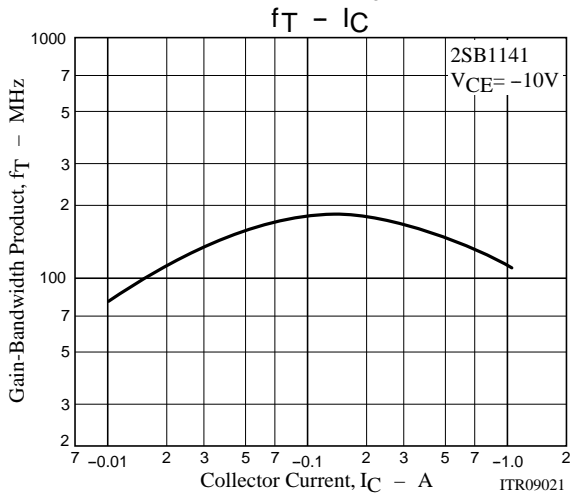
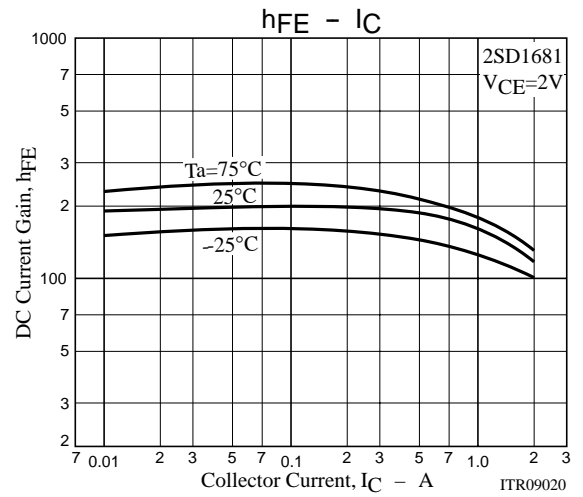
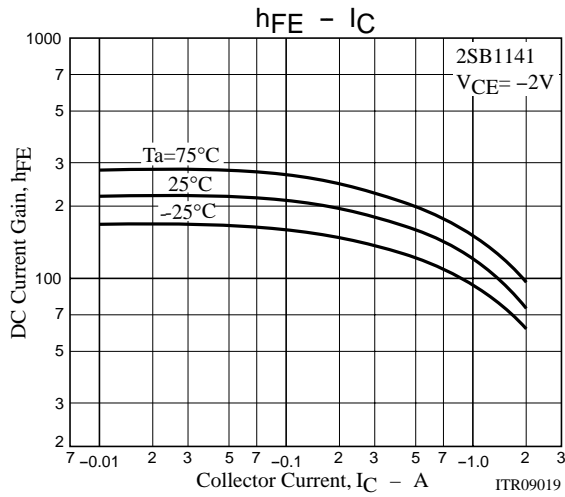
Switching Time Test Circuit



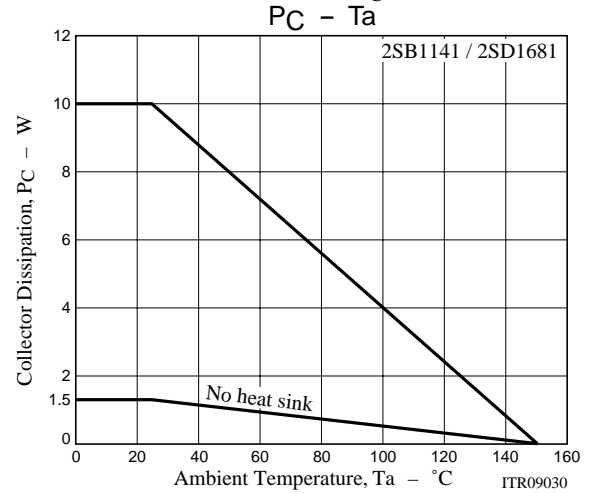
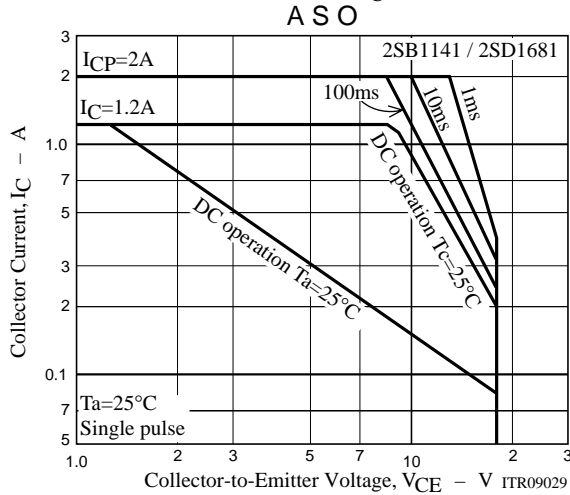
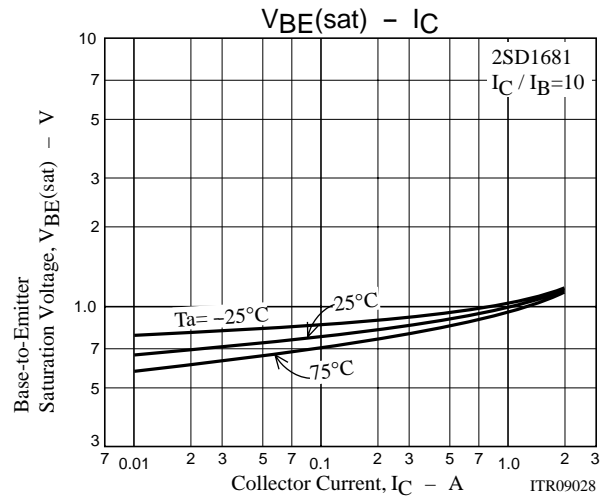
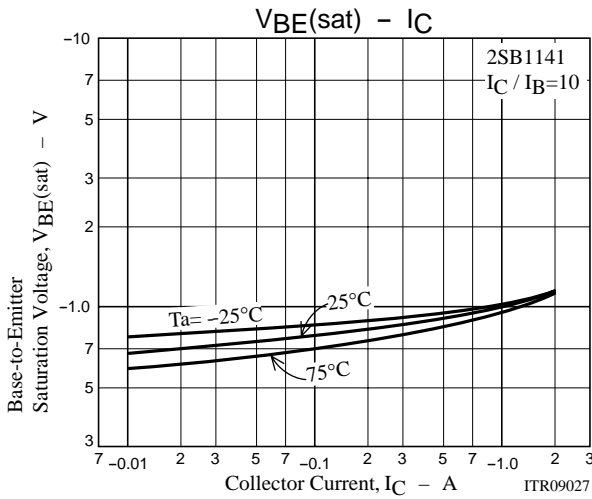
$I_C = 10I_{B1} = -10I_{B2} = 500mA$
 (For PNP, the polarity is reversed.)



2SB1141/2SD1681



2SB1141/2SD1681



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