



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.

() : 2SB1141

Specifications

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

Parameter	Symbol	Conditions	Ratings	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
		$T_c=25^\circ C$	10	W
Junction Temperature	T_j		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +125	$^\circ C$

Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB} = (-)15V, I_E = 0$			(-)100	nA
Emitter Cutoff Current	I_{EB0}	$V_{EB} = (-)4V, I_C = 0$			(-)100	nA
DC Current Gain	h_{FE1}	$V_{CE} = (-)2V, I_C = (-)100mA$	70*		400*	
	h_{FE2}	$V_{CE} = (-)2V, I_C = (-)1A$	40			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10V, I_C = (-)50mA$		150		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1MHz$		(30)20		pF

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

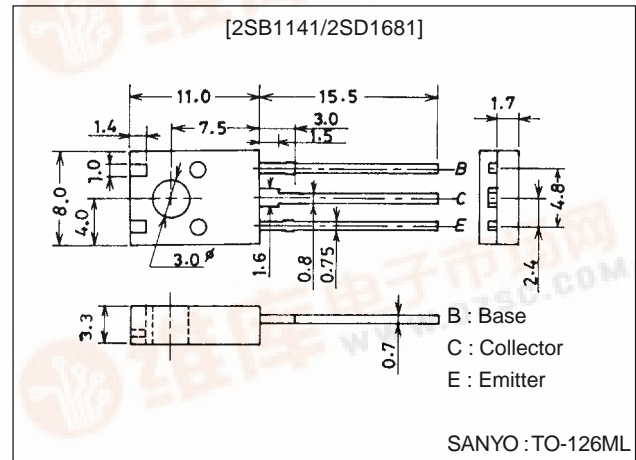
70	Q	140	100	R	200	140	S	280	200	T	400
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Package Dimensions

unit:mm

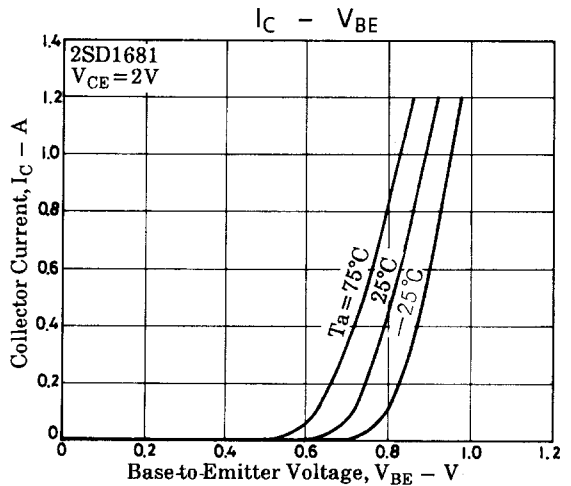
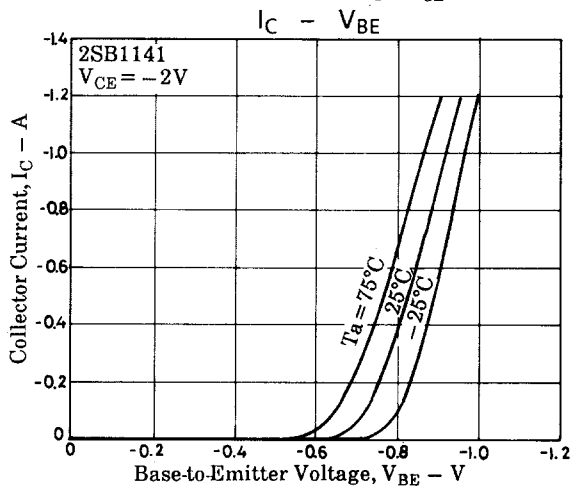
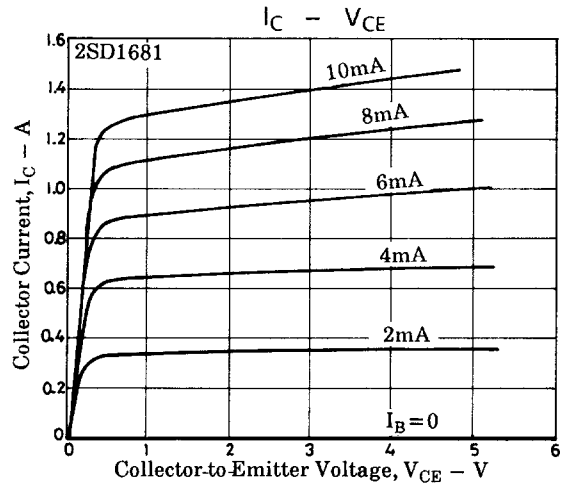
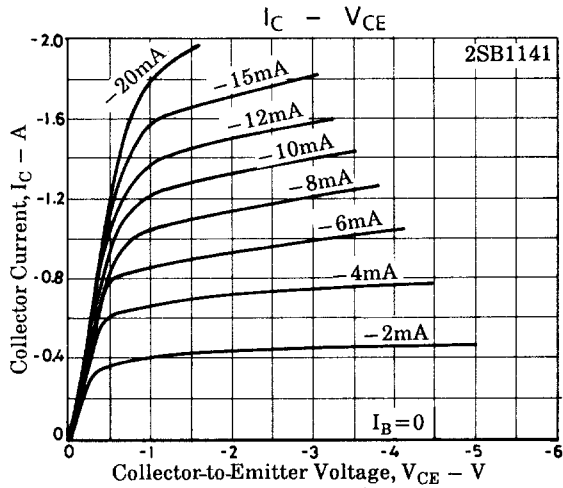
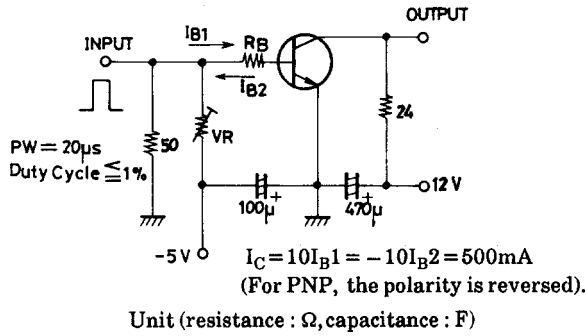
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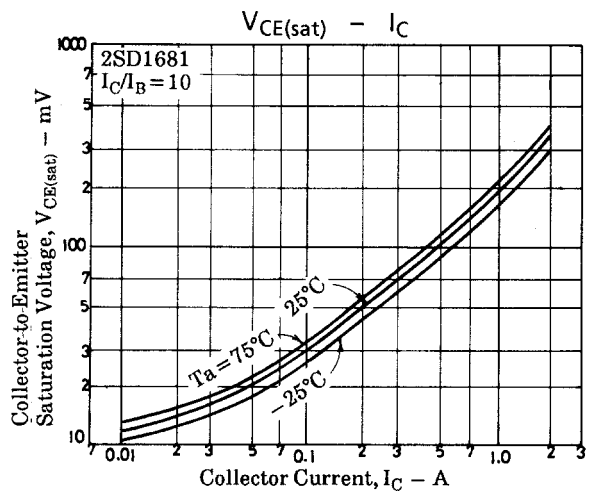
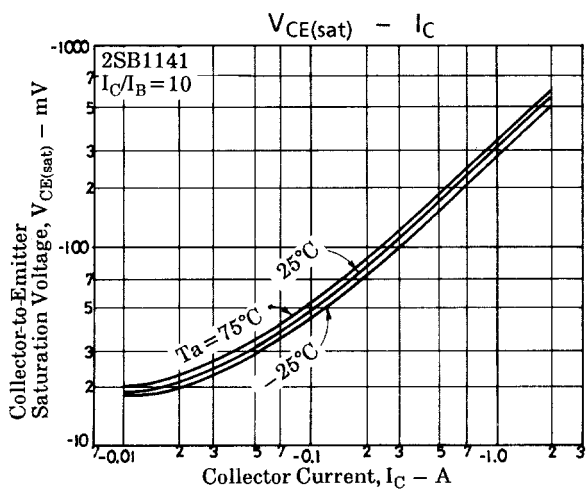
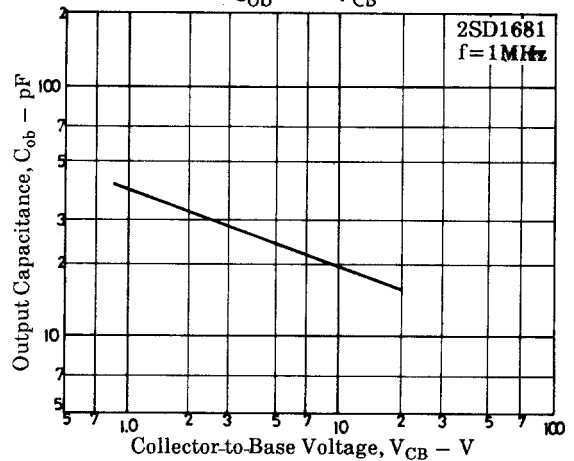
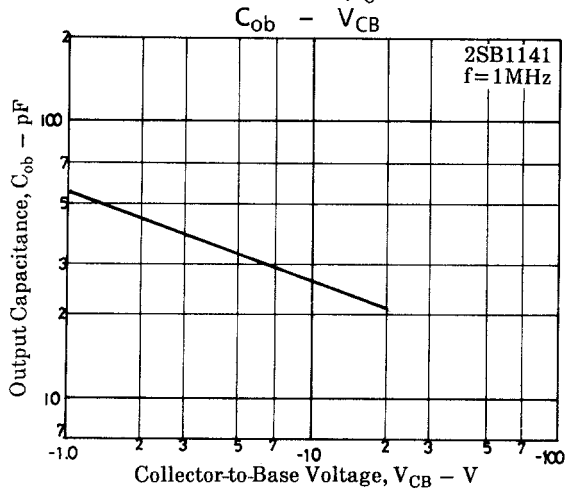
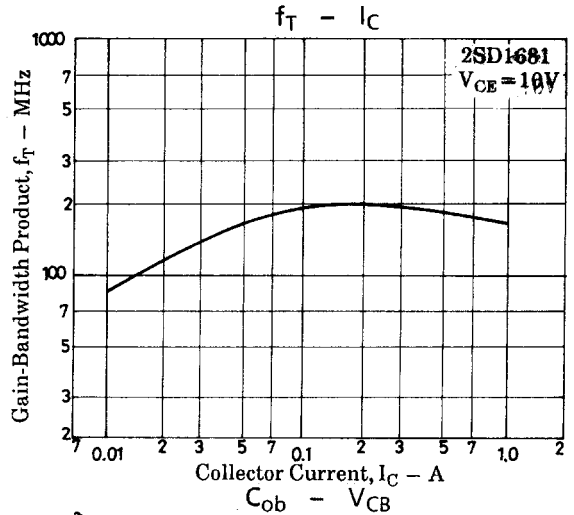
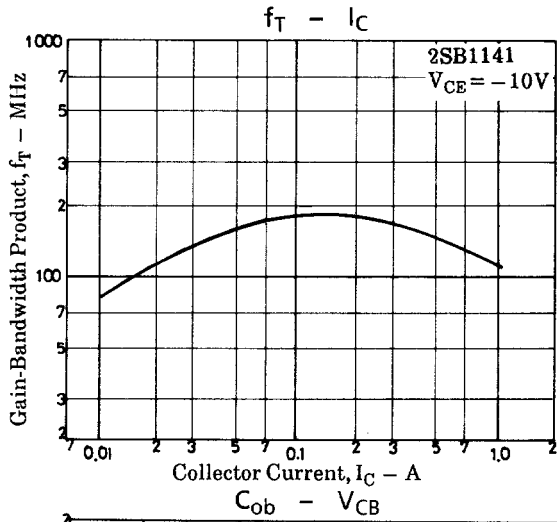
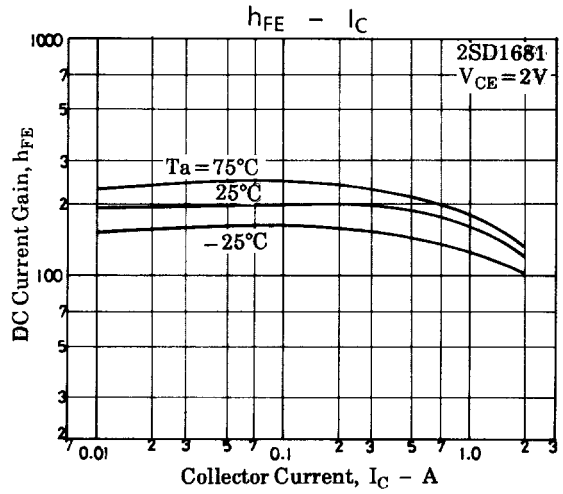
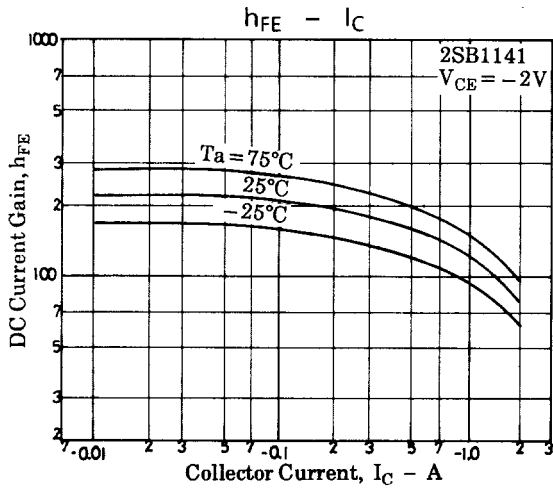
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500\text{mA}, I_B=(-)50\text{mA}$		(-170)	(-400)	mV
				120	300	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500\text{mA}, I_B=(-)50\text{mA}$		(-0.85)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-20)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-18)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0$	(-5)			V
Turn-ON Time	t_{on}	See specified Test Circuit		50		ns
Storage Time	t_{stg}	See specified Test Circuit		(60)		ns
				200		ns
Fall Time	t_f	See specified Test Circuit		70		ns

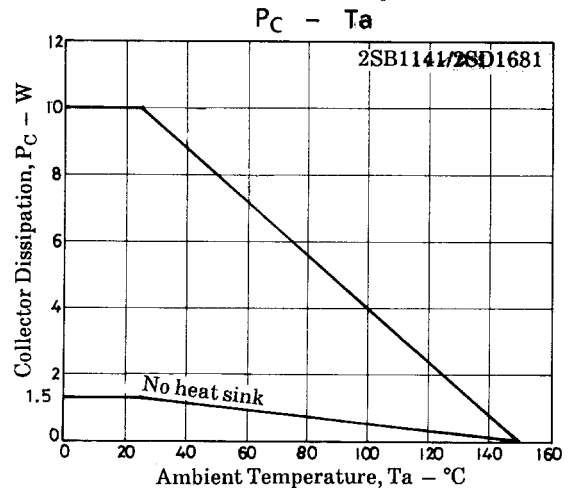
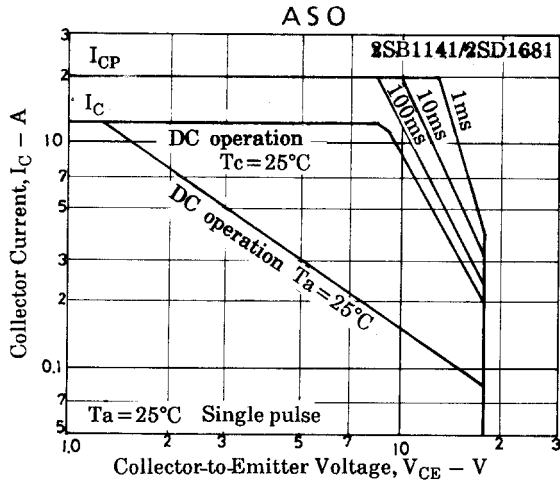
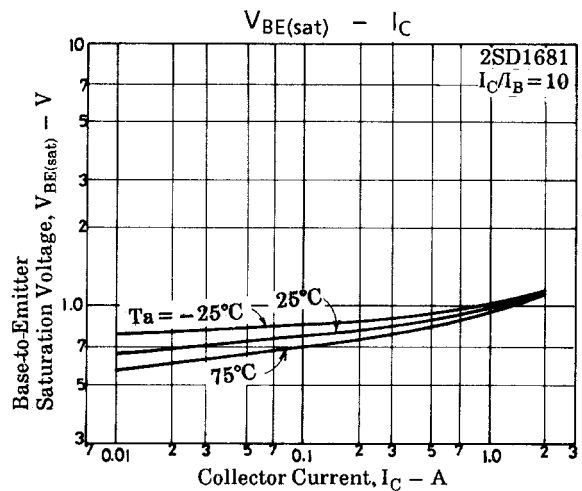
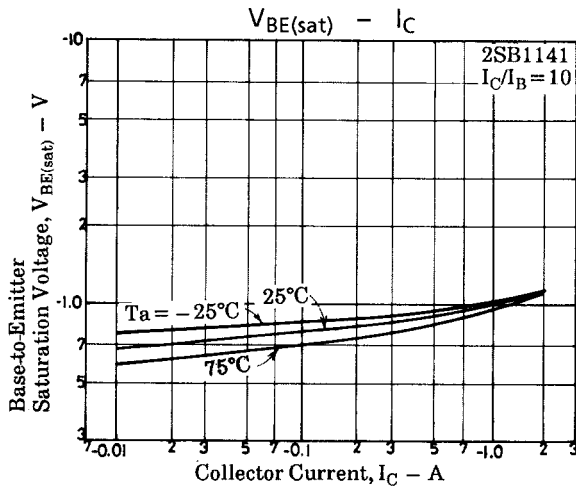
Switching Time Test Circuit



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