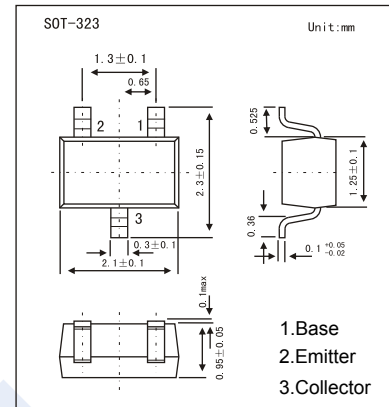


PNP Transistors

2SA1685

■ Features

- Fast switching speed.
- High gain-bandwidth product.
- Low saturation voltage.
- Complementary to 2SC4443

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	-40	V
Collector - Emitter Voltage	V_{CE0}	-20	
Emitter - Base Voltage	V_{EB0}	-5	
Collector Current - Continuous	I_C	-150	mA
Collector Current - Pulse	I_{Cp}	-300	
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-55 to 150	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CB0}	$I_C = -100\text{ }\mu\text{A}$, $I_E = 0$	-40			V
Collector-emitter breakdown voltage	V_{CE0}	$I_C = -1\text{ mA}$, $R_{BE} = \infty$	-20			
Emitter-base breakdown voltage	V_{EB0}	$I_E = -100\text{ }\mu\text{A}$, $I_C = 0$	-5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -30\text{ V}$, $I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{ V}$, $I_C = 0$			-0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}$, $I_B = -1\text{ mA}$		-0.07	-0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{ mA}$, $I_B = -1\text{ mA}$		-0.75	-1	
DC current gain	h_{FE}	$V_{CE} = -1\text{ V}$, $I_C = -10\text{ mA}$	60		180	
Delay Time	t_d	See specified Test Circuit		14	20	ns
Rise Time	t_r			11	20	
Storage time	t_{stg}			80	180	
Fall time	t_f			16	25	
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{ V}$, $f = 1\text{ MHz}$		2.9		pF
Transition frequency	f_T	$V_{CE} = -10\text{ V}$, $I_C = -10\text{ mA}$		400		MHz

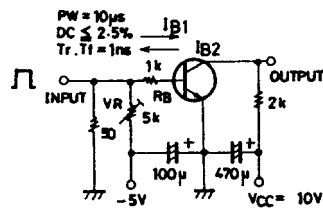
■ Classification of h_{FE}

Type	2SA1685-YL3	2SA1685-YL4
Range	60-120	90-180
Marking	YL3	YL4

PNP Transistors

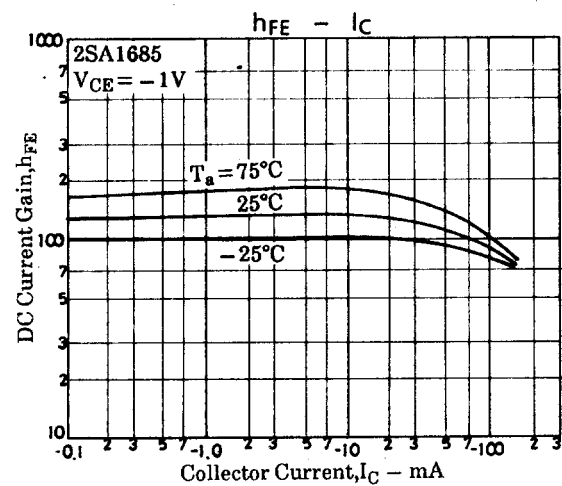
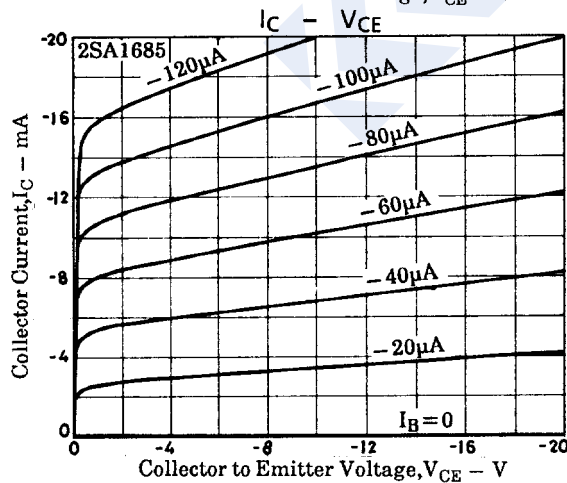
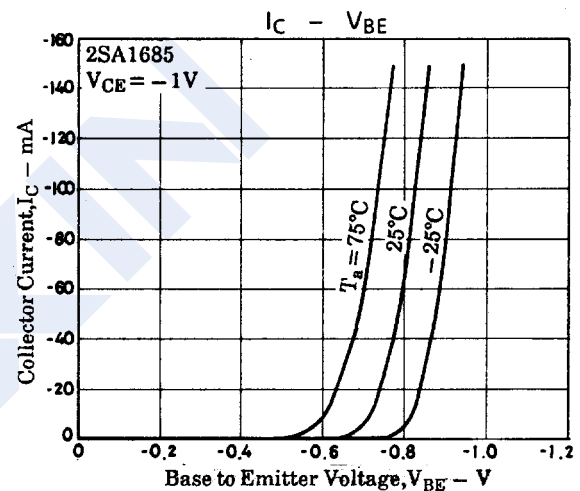
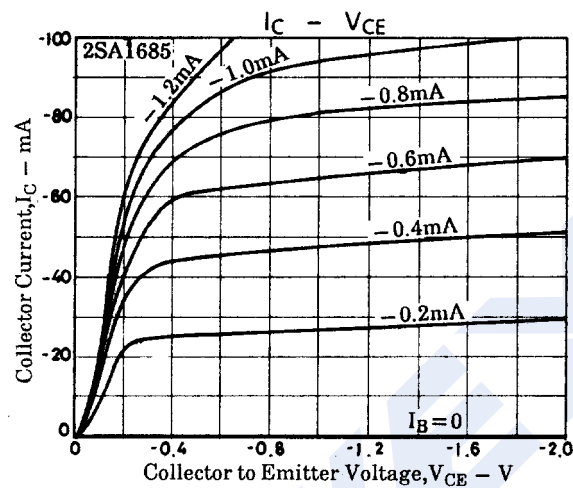
2SA1685

Switching Time Test Circuit



$5I_{B1} = -5I_{B2} = I_C = 50\text{mA}$
 (For PNP, the polarity is reversed.)
 Unit (resistance : Ω , capacitance : F)

■ Typical Characteristics



PNP Transistors

2SA1685

■ Typical Characteristics

