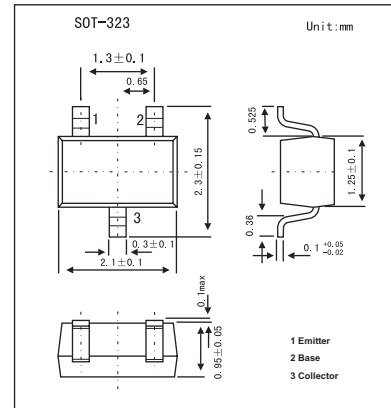


PNP Epitaxial Planar Silicon Transistors

2SA1685

■ Features

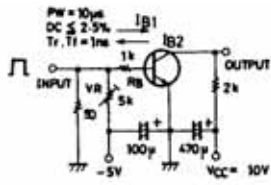
- Fast switching speed.
- High gain-bandwidth product.
- Low saturation voltage.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	-40	V
Collector-emitter voltage	V_{CEO}	-20	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-150	mA
Collector current (pulse)	I_{CP}	-300	mA
Base current	I_B	-30	mA
Collector dissipation	P_C	150	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

2SA1685

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	IcBO	V _{CB} = -30V , I _E = 0			-0.1	μA	
Emitter cutoff current	I _{EBO}	V _{EB} = -4V , I _C = 0			-0.1	μA	
DC current Gain	hFE	V _{CE} = -1V , I _C = -10mA	60		270		
Gain bandwidth product	f _T	V _{CE} = -10V , I _C = -10mA		400		MHz	
Common base output capacitance	C _{ob}	V _{CB} = -10V , f = 1MHz		2.9		pF	
Collector-to-emitter saturation voltage	V _{CE(sat)}	I _C = -10mA , I _B = -1mA		-0.07	-0.2	V	
Base-to-emitter saturation voltage	V _{BE(sat)}	I _C = -10mA , I _B = -1mA		-0.75	-1	V	
Collector-to-base breakdown voltage	V _{(BR)CBO}	I _C = -10μA , I _E = 0	-40			V	
Collector-to-emitter breakdown voltage	V _{(BR)CEO}	I _C = -1mA , R _{BE} = ∞	-20			V	
Emitter-to-base breakdown voltage	V _{(BR)EBO}	I _E = -10μA , I _C = 0	-5			V	
Delay time	t _d	 <p>PW = 10μs DC ≤ 2.5% Tr, Tt = 1ns</p> <p>IB1 IB2</p> <p>INPUT</p> <p>VR</p> <p>RB</p> <p>RC</p> <p>OUTPUT</p> <p>10</p> <p>1k</p> <p>5k</p> <p>2k</p> <p>100p</p> <p>470p</p> <p>VCC = 10V</p> <p>-5V</p> <p>5I_{B1} = -5I_{B2} = I_C = 50mA (For PNP, the polarity is reversed.) Unit (resistance : Ω, capacitance : F)</p>		14	20	ns	
Rise time	t _r				11	20	ns
Storage time	t _s				80	180	ns
Fall time	t _f				16	25	ns

■ hFE Classification

Marking	YL	
	Rank	3
hFE	60~120	90~180