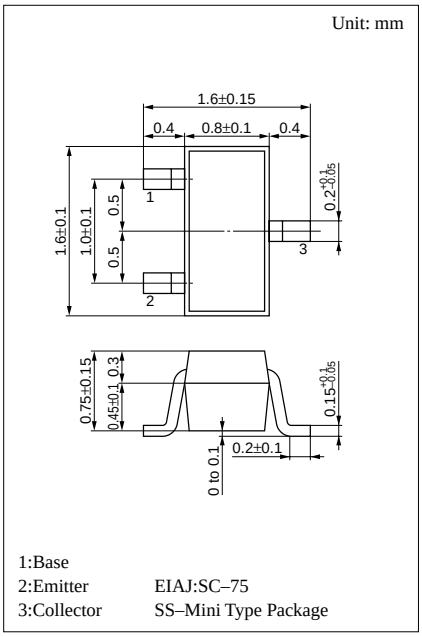
2SA1806

Silicon PNP epitaxial planer type

For high speed switching



Marking symbol : AK

Features

- High-speed switching.
- Low collector to emitter saturation voltage $V_{CE(sat)}$.
- SS-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–15	V
Collector to emitter voltage	V_{CEO}	–15	V
Emitter to base voltage	V_{EBO}	–4	V
Peak collector current	I_{CP}	–100	mA
Collector current	I_C	–50	mA
Collector power dissipation	P_C	125	mW
Junction temperature	T_j	125	˚C
Storage temperature	T_{stg}	–55 ~ +125	˚C

Electrical Characteristics (Ta=25˚C)

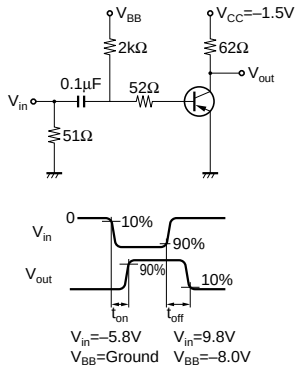
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = –8V, I_E = 0			– 0.1	μA
Emitter cutoff current	I_{EBO}	V_{EB} = –3V, I_C = 0			– 0.1	μA
Forward current transfer ratio	h_{FE1}*	V_{CE} = –1V, I_C = –10mA	50		150	
	h_{FE2}	V_{CE} = –1V, I_C = –1mA	30			
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = –10mA, I_B = – 1mA		– 0.1	– 0.2	V
Transition frequency	f_T	V_{CB} = –10V, I_E = 10mA, f = 200MHz	800	1500		MHz
Collector output capacitance	C_{ob}	V_{CB} = –5V, I_E = 0, f = 1MHz		1		pF
Turn-on time	t_{on}	(Note 1) Next page		12		ns
Turn-off time	t_{off}	(Note 1) Next page		20		ns
Storage time	t_{stg}	(Note 1) Next page		19		ns

*h_{FE1} Rank classification

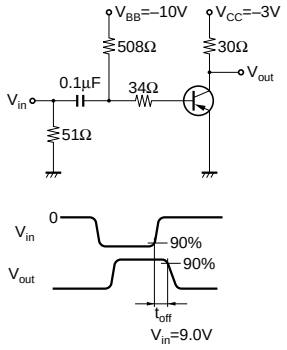
Rank	Q	R
h_{FE1}	50 ~ 120	90 ~ 150
Marking Symbol	AKQ	AKR

Switching time measurement circuit

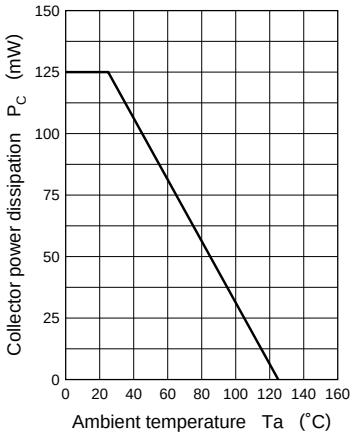
t_{on}, t_{off} Test Circuit



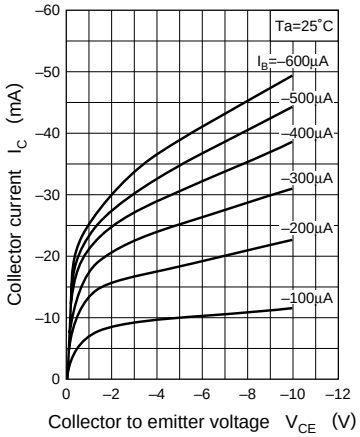
t_{stg} Test Circuit



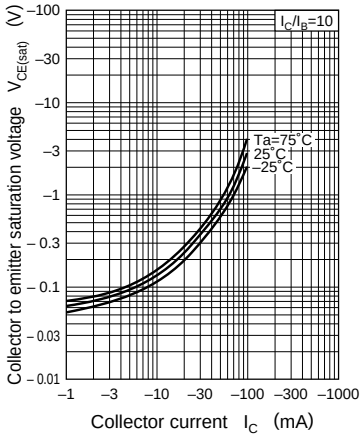
P_C — Ta



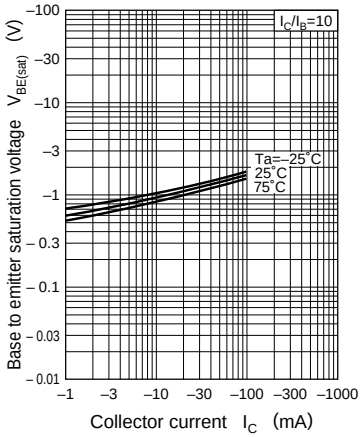
I_C — V_{CE}



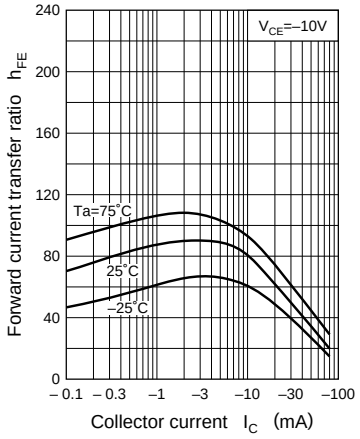
$V_{CE(sat)}$ — I_C



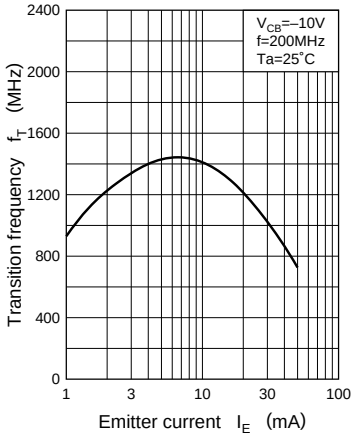
$V_{BE(sat)}$ — I_C



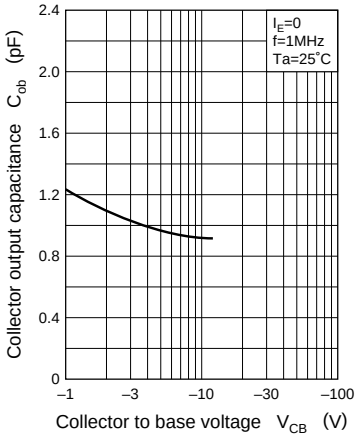
h_{FE} — I_C



f_T — I_E



C_{ob} — V_{CB}



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