

High-gain Amplifier Transistor (−32V, −0.3A)

2SB852K

●Features

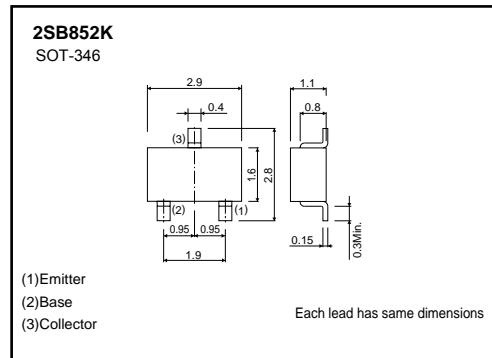
- 1) Darlington connection for high DC current gain.
- 2) Built-in 4kΩ resistor between base and emitter.
- 3) Complements the 2SD1383K.

●Packaging specifications

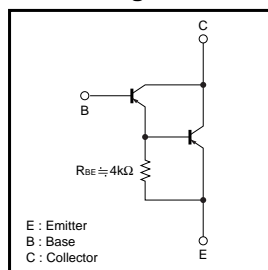
Type	2SB852K
Package	SMT3
hFE	B
Marking	U*
Code	T146
Basic ordering unit (pieces)	3000

* Denotes hFE

●External dimensions (Unit : mm)



●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	−40	V
Collector-emitter voltage	V _{CES}	−32	V *
Emitter-base voltage	V _{EBO}	−6	V
Collector current	I _C	−0.3	A
Collector power dissipation	P _C	0.2	W
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	−55 to +150	°C

* R_{BE}=0Ω

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	−40	−	−	V	I _C = −100μA
Collector-emitter breakdown voltage	BV _{CES}	−32	−	−	V	I _C = −1mA
Emitter-base breakdown voltage	BV _{EBO}	−6	−	−	V	I _E = −100μA
Collector cutoff current	I _{CB0}	−	−	−1	μA	V _{CB} = −24V
Emitter cutoff current	I _{EBO}	−	−	−1	μA	V _{EB} = −4.5V
DC current transfer ratio	hFE	5000	−	−	−	V _{CE} = −5V, I _C = −0.1A
Collector-emitter saturation voltage	V _{CE(sat)}	−	−	−1.5	V	I _C = −200mA, I _B = −0.4mA *1
Transition frequency	f _T	−	200	−	MHz	V _{CE} = −5V, I _E =10mA, f=100MHz *2
Output capacitance	C _{ob}	−	3	−	pF	V _{CB} = −10V, I _E =0A, f=1MHz

*1 Measured using pulse current.

*2 Transition frequency of the device.

Transistors

●Electrical characteristic curves

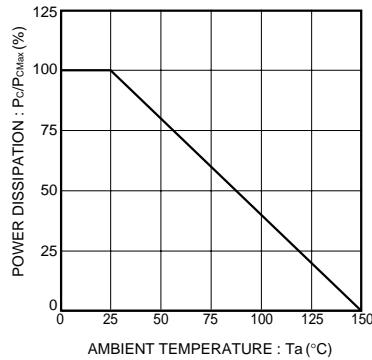


Fig.1 Power dissipation curves

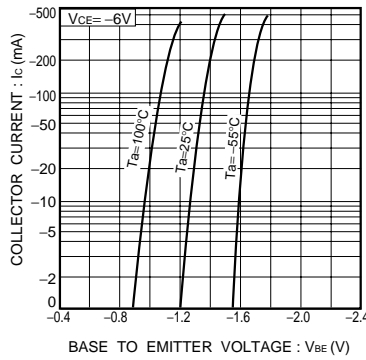


Fig.2 Ground emitter propagation characteristic

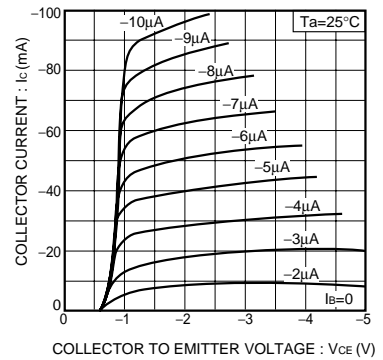


Fig.3 Ground emitter output characteristics

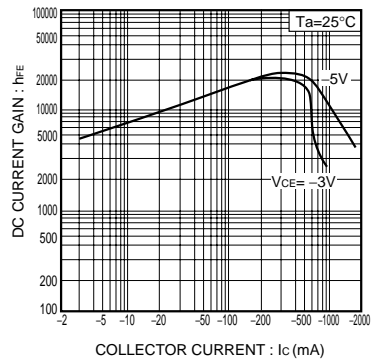


Fig.4 DC current gain vs. collector current (I)

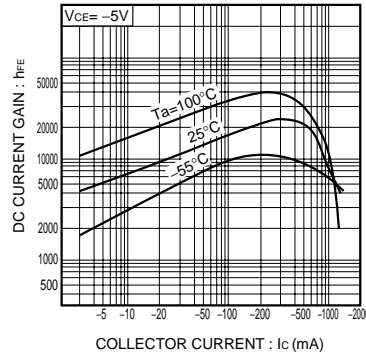


Fig.5 DC current gain vs. collector current (II)

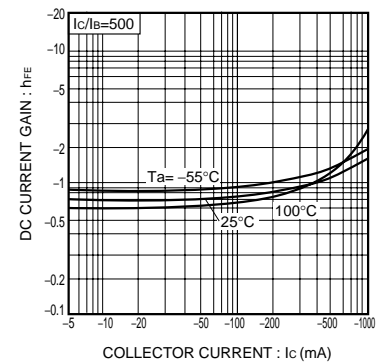


Fig.6 Collector-emitter saturation voltage vs. collector current

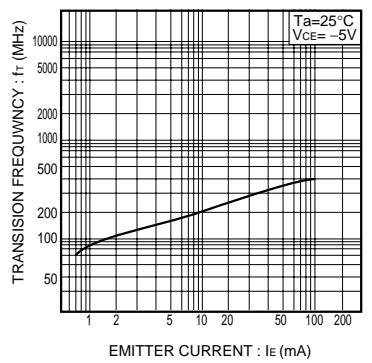


Fig.7 Gain bandwidth product vs. emitter current

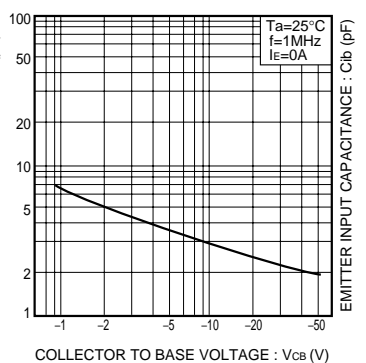


Fig.8 Collector output capacitance vs. collector-base voltage

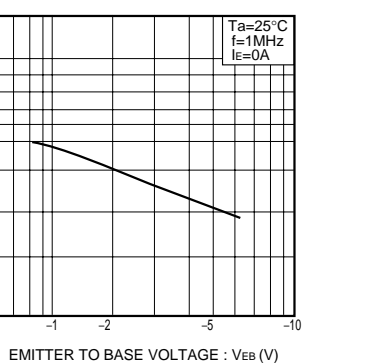


Fig.9 Emitter input capacitance vs. emitter-base voltage

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