

Power Transistor (80V, 0.5A)

2SD1782K

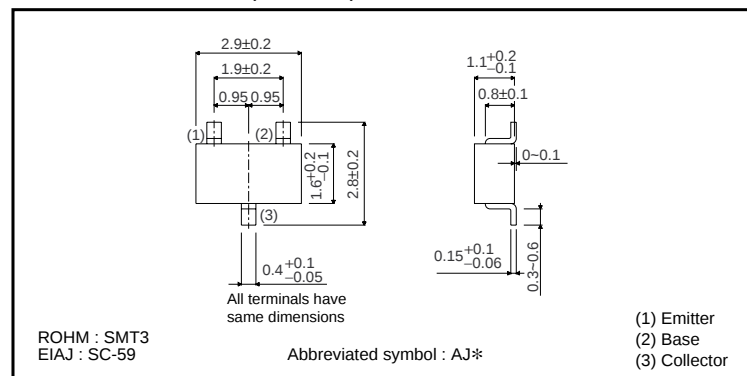
●Features

- 1) Low $V_{CE(sat)}$.
 $V_{CE(sat)} = 0.2V$ (Typ.)
 $(I_C / I_B = 0.5A / 50mA)$
- 2) High V_{CEO} , $V_{CEO} = 80V$
- 3) Complements the 2SB1198K.

●Structure

Epitaxial planar type
 NPN silicon transistor

●External dimensions (Unit : mm)



* Denotes h_{FE}

●Absolute maximum ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	80	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	0.5	A
Collector power dissipation	P_C	0.2	W
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CBO}	80	–	–	V	I _C =50μA
Collector-emitter breakdown voltage	BV _{CEO}	80	–	–	V	I _C =2mA
Emitter-base breakdown voltage	BV _{EBO}	5	–	–	V	I _E =50μA
Collector cutoff current	I _{CBO}	–	–	0.5	μA	V _{CB} =50V
Emitter cutoff current	I _{EBO}	–	–	0.5	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	–	0.2	0.5	V	I _C /I _B =500mA/50mA
DC current transfer ratio	h _{FE}	120	–	390	–	V _{CE} =3V, I _C =100mA
Transition frequency	f _T	–	120	–	MHz	V _{CE} =10V, I _E = –50mA, f=100MHz
Output capacitance	C _{ob}	–	7.5	–	pF	V _{CB} =10V, I _E =0A, f=1MHz

●Packaging specifications and h_{FE}

Type	h _{FE}	Package	Taping
		Code	T146
		Basic ordering unit (pieces)	3000
2SD1782K	QR		○

h_{FE} values are classified as follows :

Item	Q	R
h _{FE}	120 to 270	180 to 390

●Electrical characteristic curves

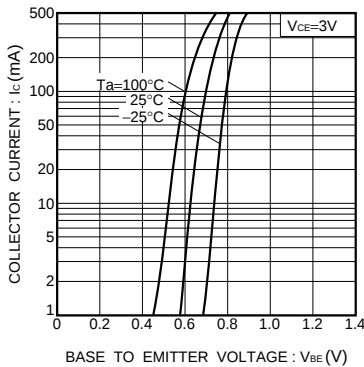


Fig.1 Grounded emitter propagation characteristics

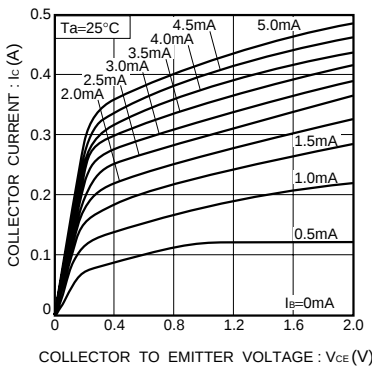


Fig.2 Grounded emitter output characteristics

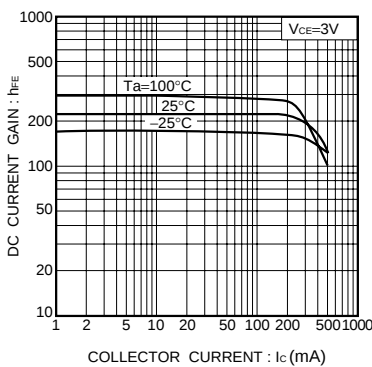


Fig.3 DC current gain vs. collector current

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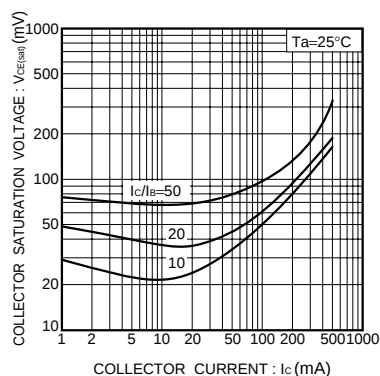


Fig. 4 Collector-emitter saturation voltage vs. collector current (I)

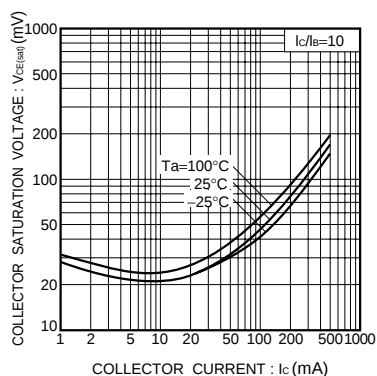


Fig. 5 Collector-emitter saturation voltage vs. collector current (II)

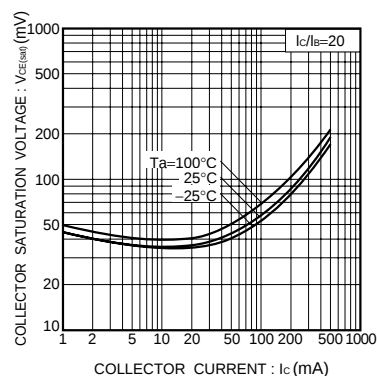


Fig. 6 Collector-emitter saturation voltage vs. collector current (III)

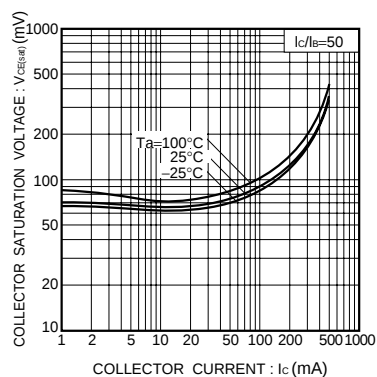


Fig. 7 Collector-emitter saturation voltage vs. collector current (IV)

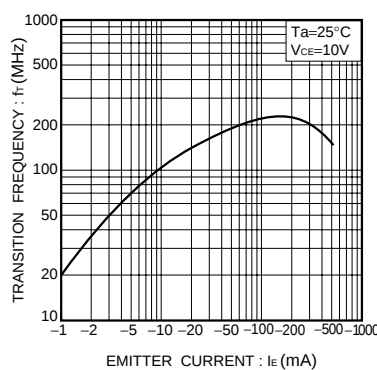
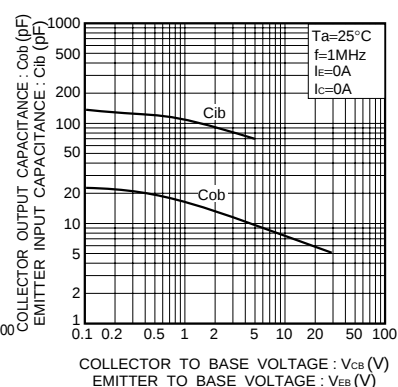


Fig. 8 Gain bandwidth product vs. emitter current

Fig. 9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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