

Power Transistor (80V, 0.5A)

2SD1782K

●Features

1) Low $V_{CE(sat)}$.

$$V_{CE(sat)} = 0.2V \text{ (Typ.)}$$

$$(I_C / I_B = 0.5A / 50mA)$$

2) High V_{CEO} , $V_{CEO} = 80V$

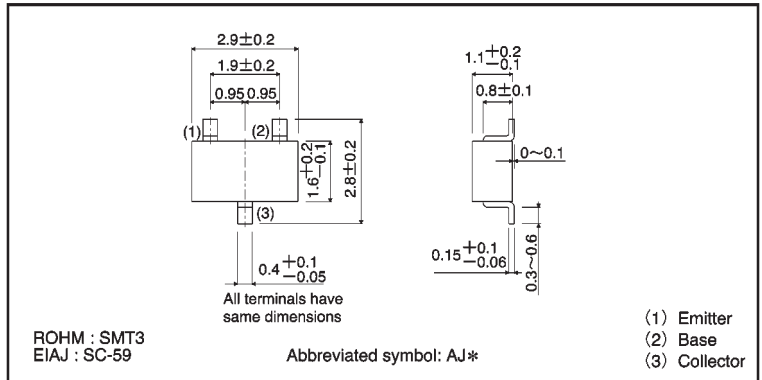
3) Complements the 2SB1198K.

●Structure

Epitaxial planar type

NPN silicon transistor

●External dimensions (Units: mm)



* Denotes hFE

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

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	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	80	—	—	V	I _c =50 μA
Collector-emitter breakdown voltage	BV _{CE0}	80	—	—	V	I _c =2mA
Emitter-base breakdown voltage	BV _{EB0}	5	—	—	V	I _E =50 μA
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	—	180	—	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}	120~270	180~390

●Electrical characteristic curves

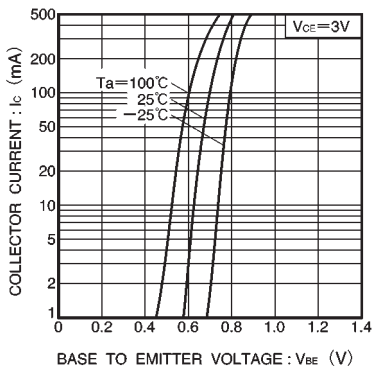


Fig.1 Grounded emitter propagation characteristics

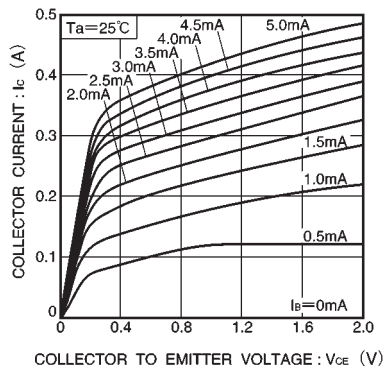


Fig.2 Grounded emitter output characteristics

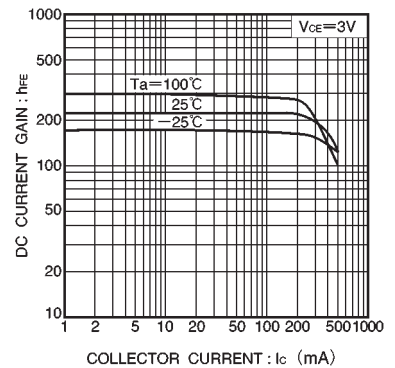


Fig.3 DC current gain vs. collector current

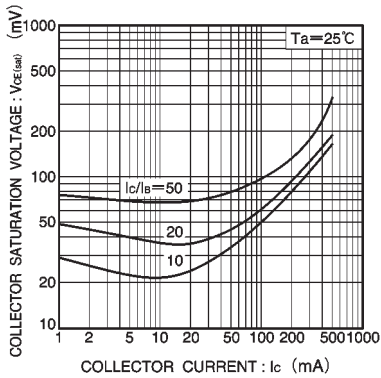


Fig.4 Collector-emitter saturation voltage vs. collector current (I)

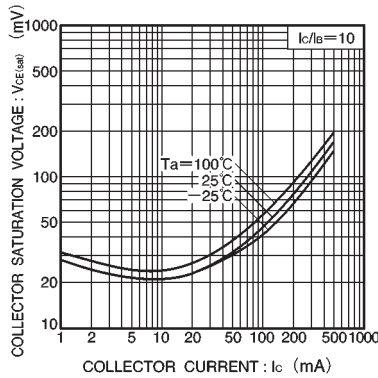


Fig.5 Collector-emitter saturation voltage vs. collector current (II)

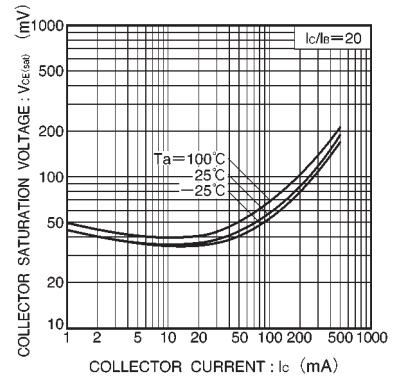


Fig.6 Collector-emitter saturation voltage vs. collector current (III)

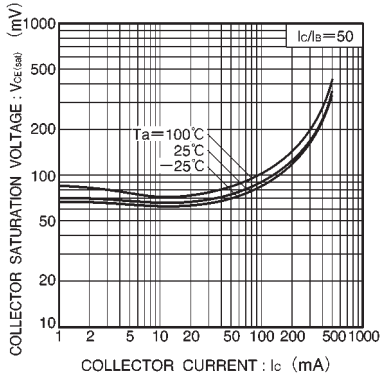


Fig.7 Collector-emitter saturation voltage vs. collector current (IV)

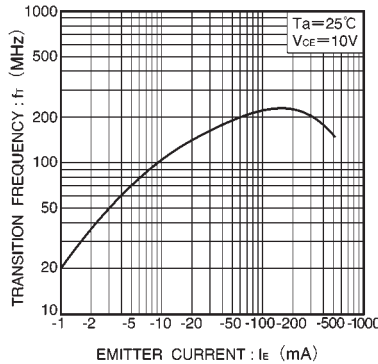


Fig.8 Gain bandwidth product vs. emitter current

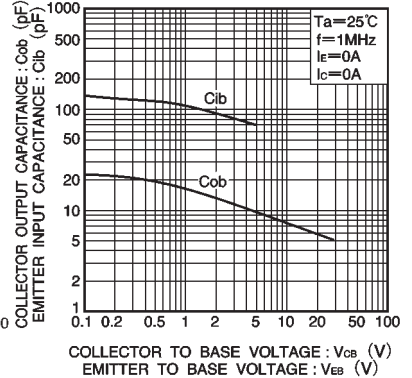


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage