

Power Transistor (80V, 1A)

2SD1898 / 2SD1733 / 2SD1768S / 2SD1863 / 2SD1381F

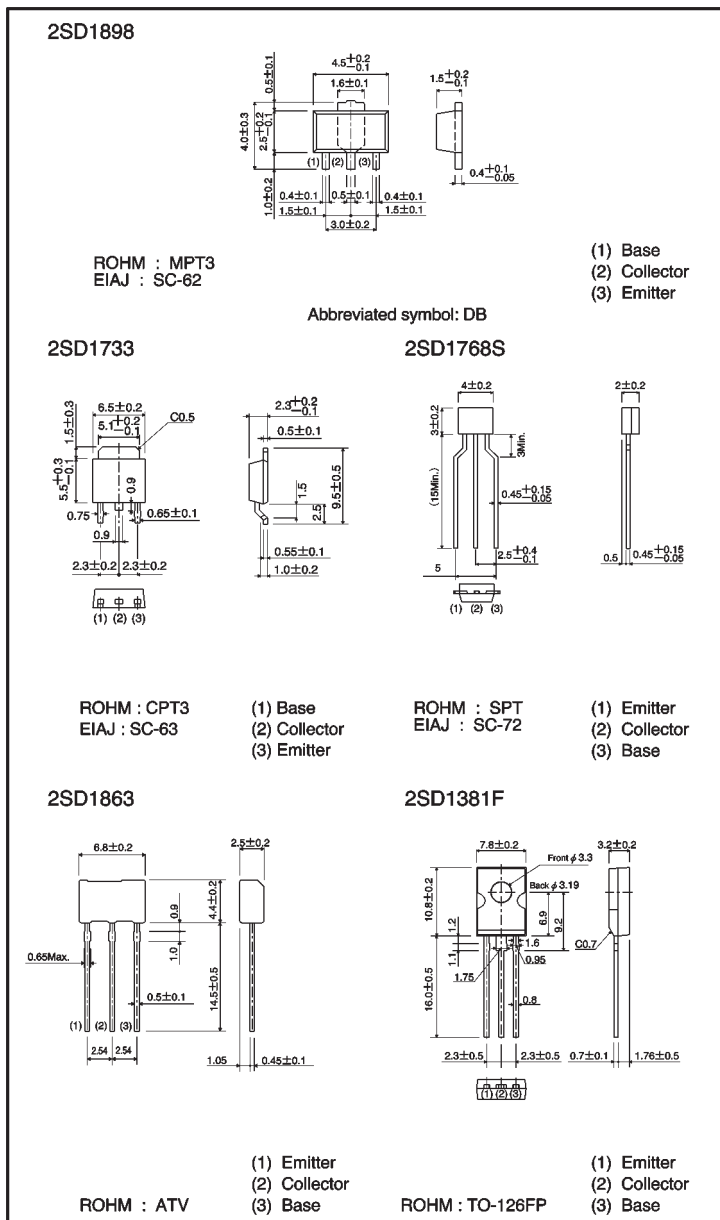
●Features

- 1) High V_{CEO} , $V_{CEO} = 80V$
- 2) High I_C ,
 $I_C = 1A$ (DC)
- 3) Good h_{FE} linearity.
- 4) Low $V_{CE(sat)}$.
- 5) Complements the
2SB1260 / 2SB1241 / 2SB1181.

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V _{CBO}	100	V
Collector-emitter voltage		V _{CEO}	80	V
Emitter-base voltage		V _{EBO}	5	V
Collector current		I _c	1	A (DC)
			2	A (Pulse) *1
Collector power dissipation	2SD1893	P _c	0.5	W *3
			2	
	2SD1733		1	
	2SD1768S		0.3	
	2SD1863		1	W *2
			1.2	
	2SD1381F		5	W (T _c =25℃)
	Junction temperature		T _j	150
Storage temperature		T _{stg}	−55~+150	℃

*1 P_w=20ms,duty=1 / 2

*2 Printed circuit board 1.7mm thick, collector copper plating 1cm² or larger.

*3 When mounted on a 40×40×0.7mm ceramic board.

●Electrical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV _{CBO}	100	—	—	V	I _c =50 μA
Collector-emitter breakdown voltage		BV _{CEO}	80	—	—	V	I _c =1mA
Emitter-base breakdown voltage		BV _{EBO}	5	—	—	V	I _E =50 μA
Collector cutoff current		I _{CBO}	—	—	1	μA	V _{CB} =80V
Emitter cutoff current		I _{EBO}	—	—	1	μA	V _{EB} =4V
DC current transfer ratio	2SD1863	h _{FE}	180	—	390	—	V _{CE} =3V, I _c =0.5A * V _{CE} =10V, I _E =−50mA, f=100MHz
	2SD1733, 2SD1898		82	—	390	—	
	2SD1768S		120	—	390	—	
	2SD1381F		82	—	270	—	
Collector-emitter saturation voltage		V _{CE(sat)}	—	0.15	0.4	V	I _c /I _B =500mA/20mA
Transition frequency		f _r	—	100	—	MHz	V _{CE} =10V, I _E =−50mA, f=100MHz
Output capacitance		C _{ob}	—	20	—	pF	V _{CB} =10V, I _E =0A, f=1MHz

* Measured using pulse current

●Packaging specifications and h_{FE}

Type	h_{FE}	Package	Taping				Bulk
		Code	T100	TL	TP	TV2	—
		Basic ordering unit (pieces)	1000	2500	5000	2500	2000
2SD1898	PQR		○	—	—	—	—
2SD1733	PQR		—	○	—	—	—
2SD1768S	QR		—	—	○	—	—
2SD1863	R		—	—	—	○	—
2SD1381F	PQ		—	—	—	—	○

h_{FE} values are classified as follows :

Item	P	Q	R
h_{FE}	82~180	120~270	180~390

●Electrical characteristic curves

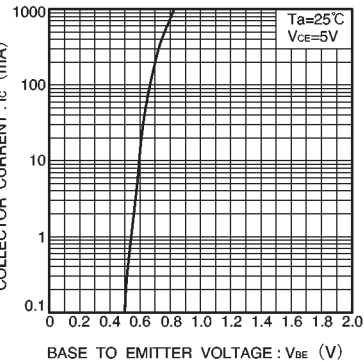


Fig.1 Grounded emitter propagation characteristics

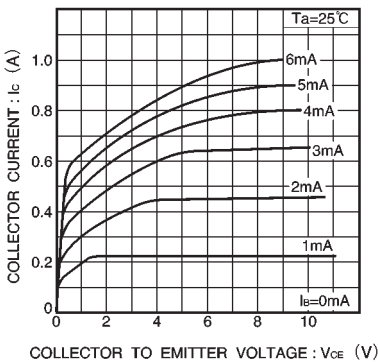


Fig.2 Grounded emitter output characteristics

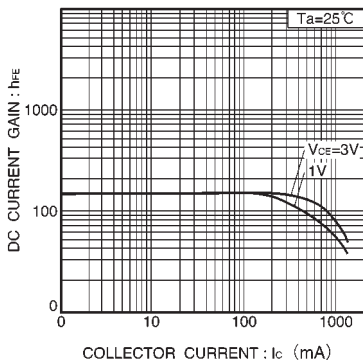


Fig.3 DC current gain vs. collector current

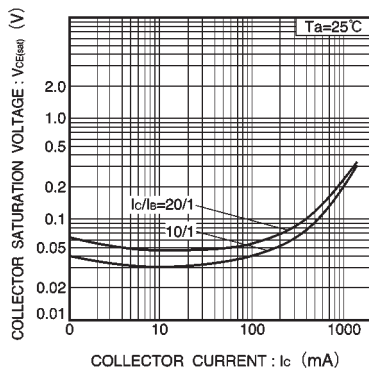


Fig.4 Collector-emitter saturation voltage vs. collector current

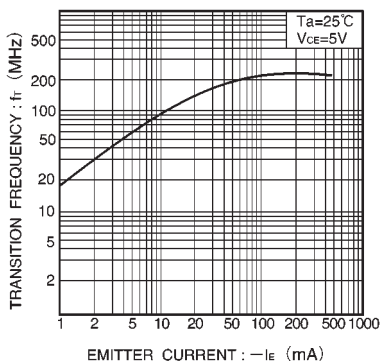


Fig.5 Gain bandwidth product vs. emitter current

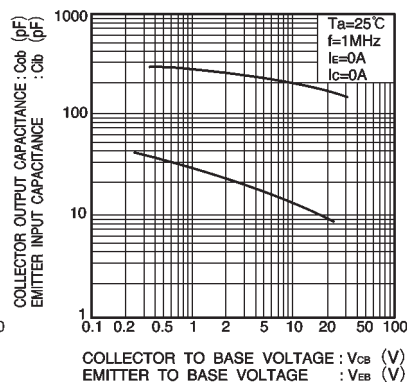


Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

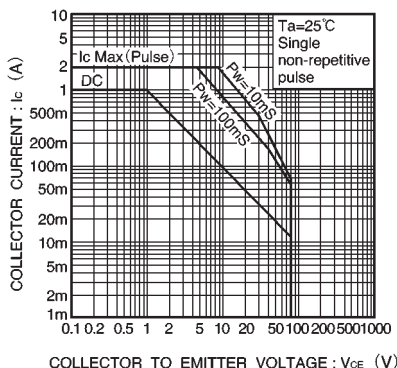


Fig.7 Safe operating area (2SD1863)

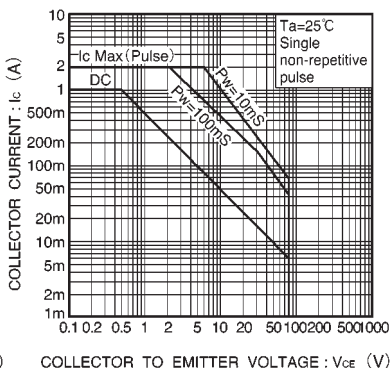


Fig.8 Safe operating area (2SD1898)

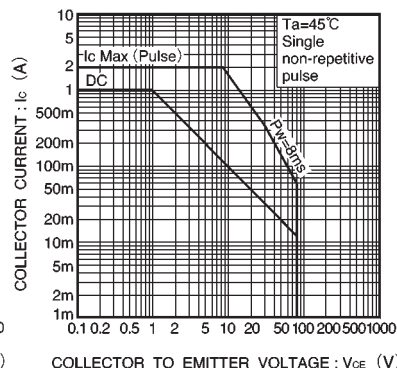


Fig.9 Safe operating area (2SD1381F)