

Power Transistor (80V, 1A)

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

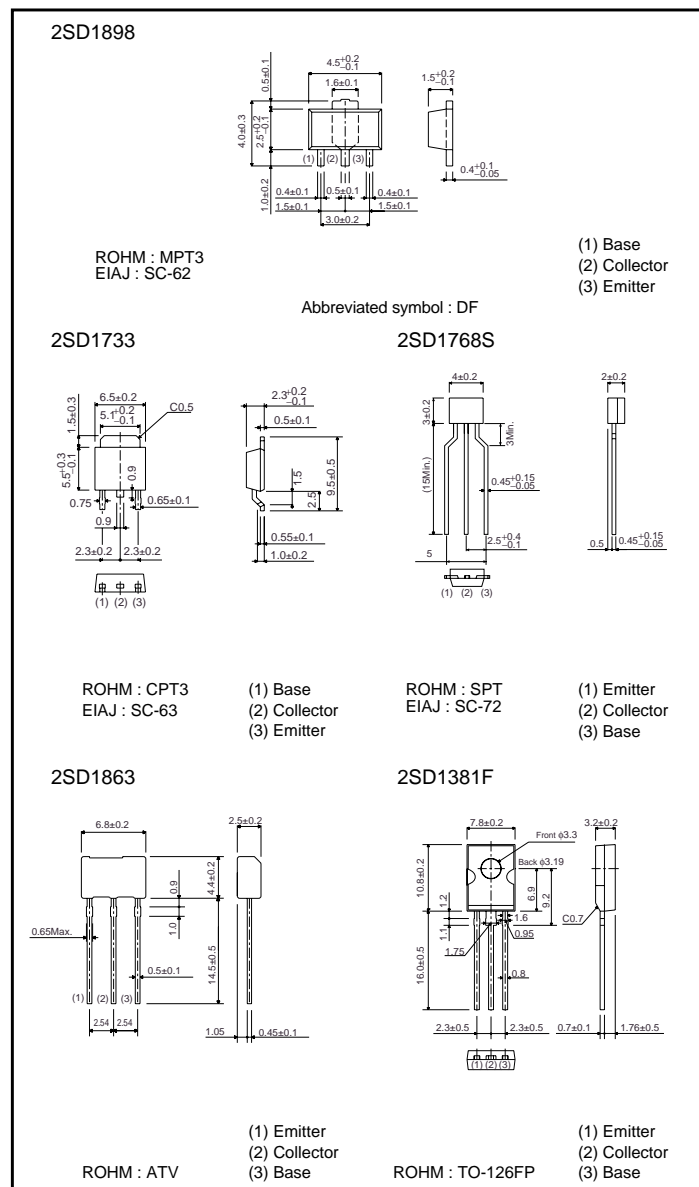
●Features

- 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 planer type
NPN silicon transistor

●External dimensions (Units : mm)



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Transistors

● Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V _{CB0}	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	2SD1898	P _c	0.5	W *3
			2	
	2SD1733		1	
			10	W (T _c =25°C)
	2SD1768S		0.3	W *2
	2SD1863		1	
1.2				
2SD1381F	5	W (T _c =25°C)		
Junction temperature		T _j	150	°C
Storage temperature		T _{stg}	-55~+150	°C

*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 _{CB0}	100	-	-	V	I _c =50μA
Collector-emitter breakdown voltage		BV _{CEO}	80	-	-	V	I _c =1mA
Emitter-base breakdown voltage		BV _{EBO}	5	-	-	V	I _E =50μA
Collector cutoff current		I _{CB0}	-	-	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 *
	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 _T	-	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

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●Packaging specifications and hFE

Type	hFE	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		—	—	—	—	○

hFE values are classified as follows :

Item	P	Q	R
hFE	82~180	120~270	180~390

●Electrical characteristic curves

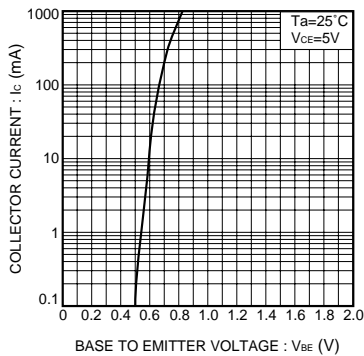


Fig.1 Grounded emitter propagation characteristics

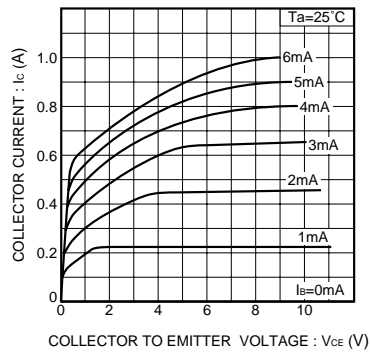


Fig.2 Grounded emitter output characteristics

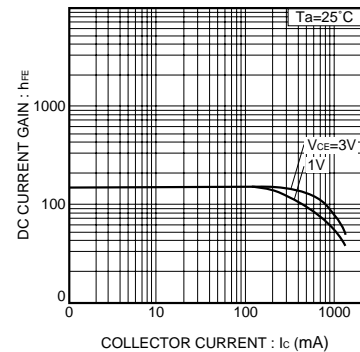


Fig.3 DC current gain vs. collector current

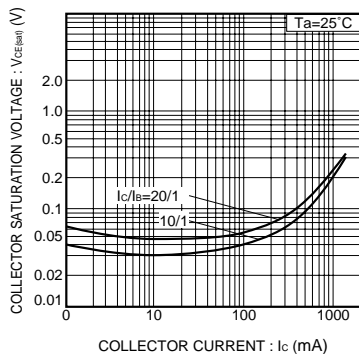


Fig.4 Collector-emitter saturation voltage vs. collector current

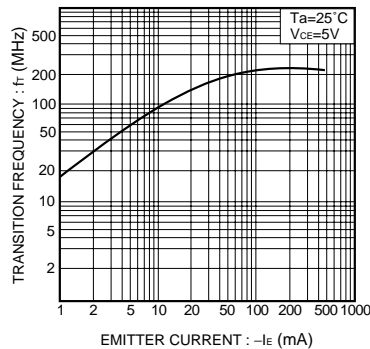


Fig.5 Gain bandwidth product vs. emitter current

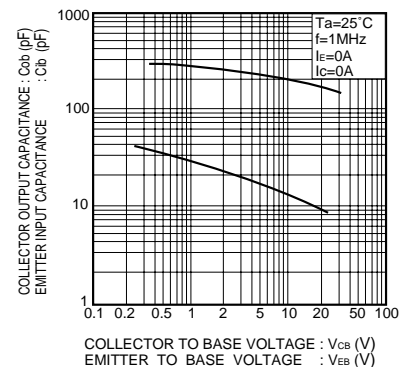


Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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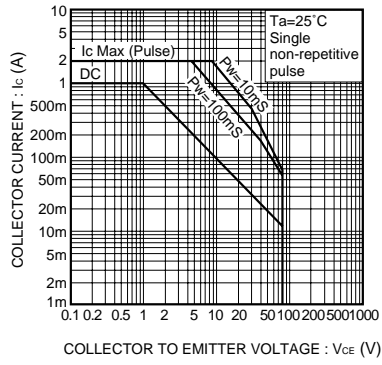


Fig.7 Safe operating area (2SD1863)

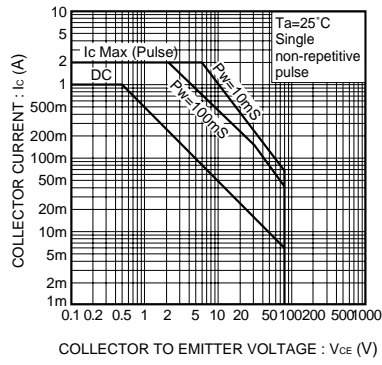


Fig.8 Safe operating area (2SD1898)

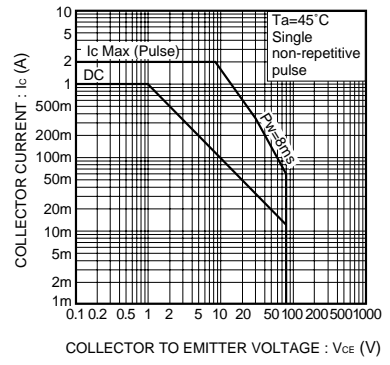


Fig.9 Safe operating area (2SD1381F)