

# Power Transistor (80V, 1A)

2SD1898 / 2SD1733 / 2SD1768S / 2SD1863

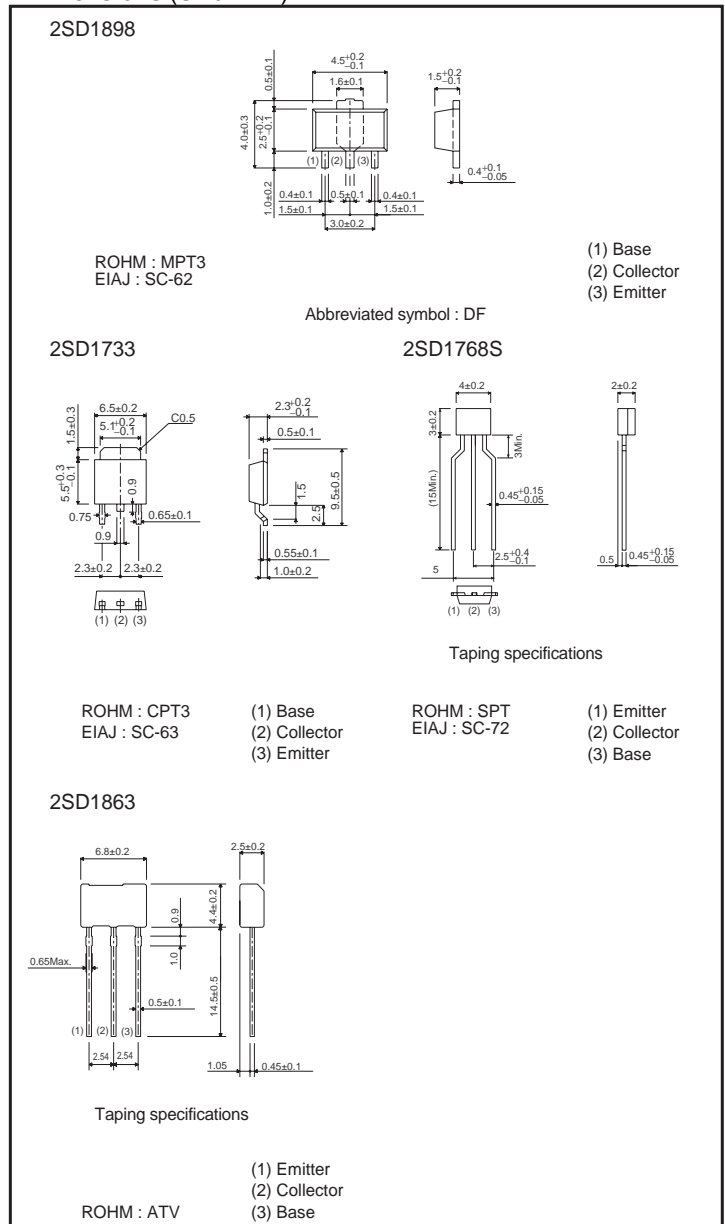
●Features

- 1) High  $V_{CE0}$ ,  $V_{CE0}=80V$
- 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

●Dimensions (Unit : mm)



## ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	V <sub>CB0</sub>	120	V	
Collector-emitter voltage	V <sub>CE0</sub>	80	V	
Emitter-base voltage	V <sub>EBO</sub>	5	V	
Collector current	I <sub>c</sub>	1	A (DC)	
		2	A (Pulse) *1	
Collector power dissipation	2SD1898	P <sub>c</sub>	0.5	W
			2	W *3
			1	W
			10	W (T <sub>c</sub> =25°C)
			0.3	W
2SD1733	P <sub>c</sub>	1	W	
2SD1768S		0.3	W	
2SD1863		1	W *2	
Junction temperature	T <sub>j</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55 to +150	°C	

\*1 P<sub>w</sub>=20ms, duty=1 / 2\*2 Printed circuit board 1.7mm thick, collector copper plating 1cm<sup>2</sup> 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 <sub>CB0</sub>	120	-	-	V	I <sub>c</sub> =50μA	
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	80	-	-	V	I <sub>c</sub> =1mA	
Emitter-base breakdown voltage	BV <sub>EBO</sub>	5	-	-	V	I <sub>E</sub> =50μA	
Collector cutoff current	I <sub>CB0</sub>	-	-	1	μA	V <sub>CB</sub> =100V	
Emitter cutoff current	I <sub>EBO</sub>	-	-	1	μA	V <sub>EB</sub> =4V	
DC current transfer ratio	2SD1863	h <sub>FE</sub> *	120	-	390	-	V <sub>CE</sub> =3V, I <sub>c</sub> =0.5A
	2SD1733, 2SD1898		82	-	390	-	
	2SD1768S		120	-	390	-	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	0.15	0.4	V	I <sub>c</sub> /I <sub>B</sub> =500mA/20mA	
Transition frequency	f <sub>r</sub>	-	100	-	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-50mA, f=100MHz	
Output capacitance	C <sub>ob</sub>	-	20	-	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz	

\* Measured using pulse current

●Packaging specifications and h<sub>FE</sub>

Type	h <sub>FE</sub>	Package	Taping			
		Code	T100	TL	TP	TV2
		Basic ordering unit (pieces)	1000	2500	5000	2500
2SD1898	PQR		○	-	-	-
2SD1733	PQR		-	○	-	-
2SD1768S	QR		-	-	○	-
2SD1863	QR		-	-	-	○

h<sub>FE</sub> values are classified as follows :

Item	P	Q	R
h <sub>FE</sub>	82 to 180	120 to 270	180 to 390

●Electrical characteristic curves

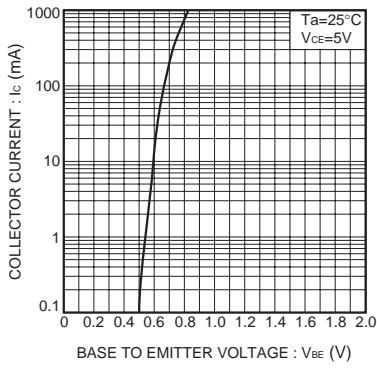


Fig.1 Grounded emitter propagation characteristics

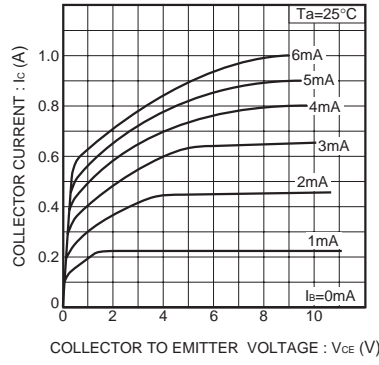


Fig.2 Grounded emitter output characteristics

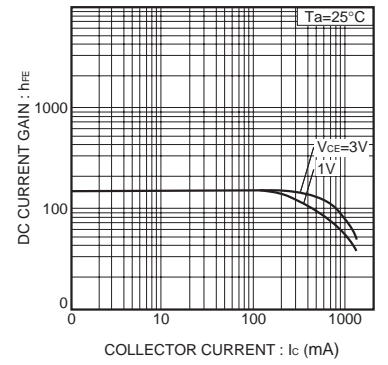


Fig.3 DC current gain vs. collector current

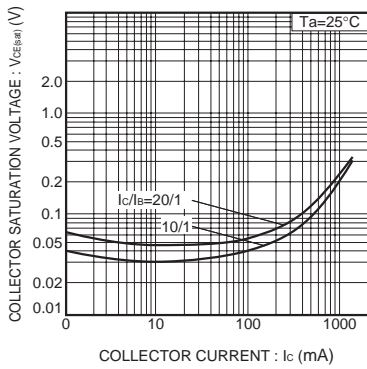


Fig.4 Collector-emitter saturation voltage vs. collector current

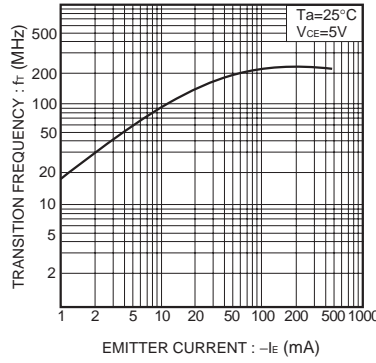


Fig.5 Gain bandwidth product vs. emitter current

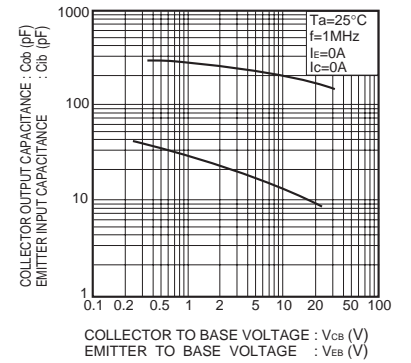


Fig.6 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

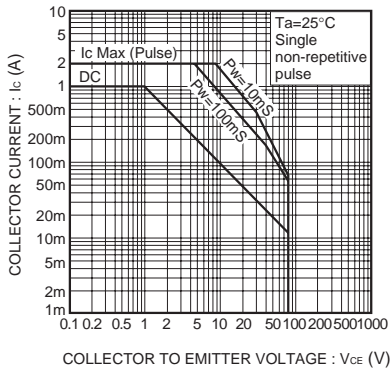


Fig.7 Safe operating area (2SD1863)

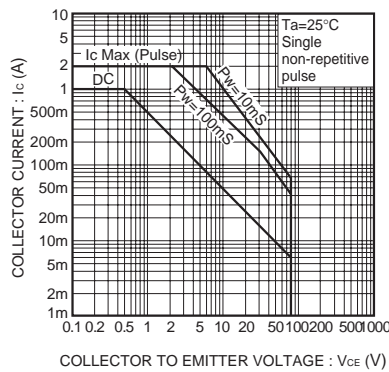


Fig.8 Safe operating area (2SD1898)

