

# Power Transistor (80V, 1A)

## 2SD1898 / 2SD1733 / 2SD1768S / 2SD1863

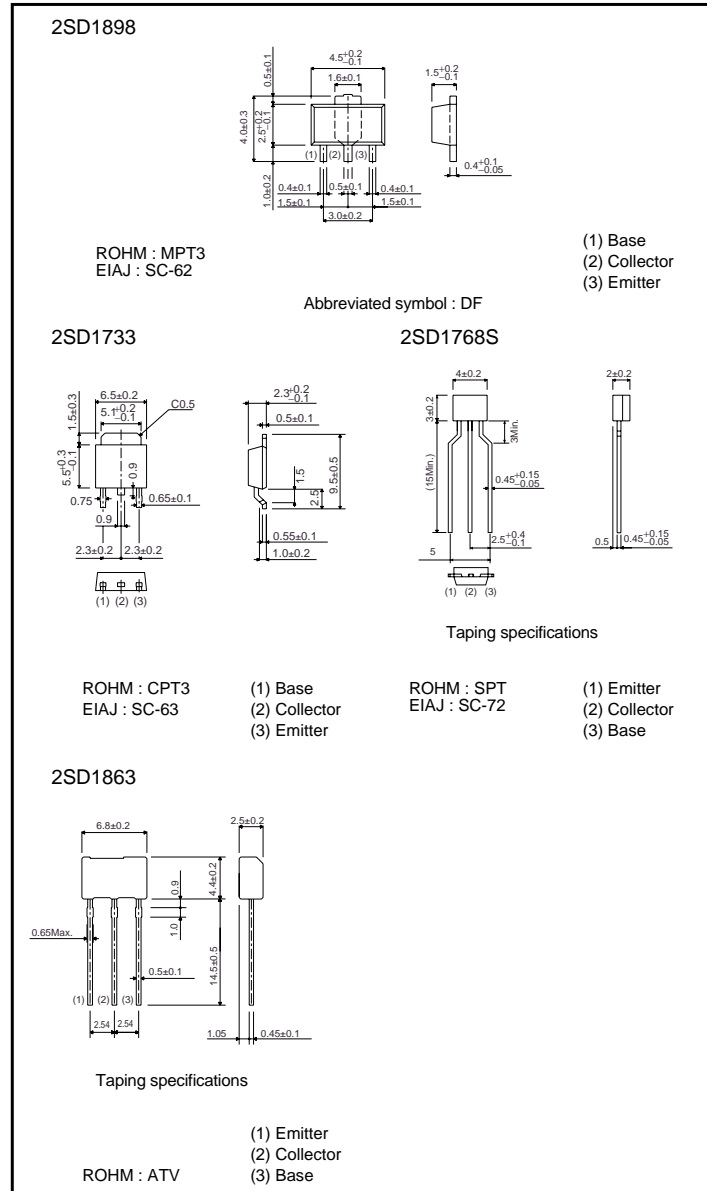
●Features

- 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

●External dimensions (Unit : mm)



## 2SD1898 / 2SD1733 / 2SD1768S / 2SD1863

### Transistors

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

Parameter		Symbol	Limits	Unit
Collector-base voltage		V <sub>CB0</sub>	120	V
Collector-emitter voltage		V <sub>CEO</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
	2SD1733		1	W
			10	W (T <sub>c</sub> =25°C)
			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>CEO</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>CBO</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>E</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

Transistors

●Packaging specifications and hFE

Type	hFE	Package	Taping			
		Code	T100	TL	TP	TV2
		Basic ordering unit (pieces)	1000	2500	5000	2500
2SD1898	PQR		○	-	-	-
2SD1733	PQR		-	○	-	-
2SD1768S	QR		-	-	○	-
2SD1863	R		-	-	-	○

hFE values are classified as follows :

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

●Electrical characteristic curves

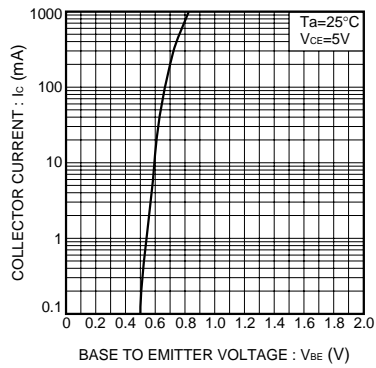


Fig.1 Grounded emitter propagation characteristics

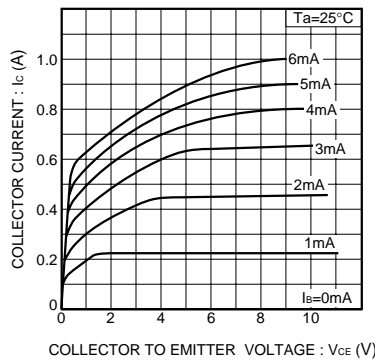


Fig.2 Grounded emitter output characteristics

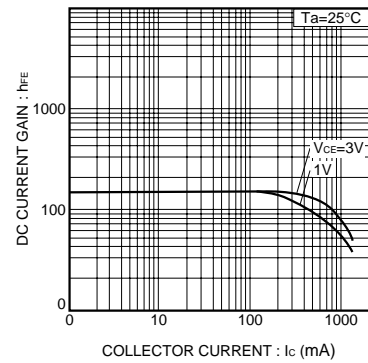


Fig.3 DC current gain vs. collector current

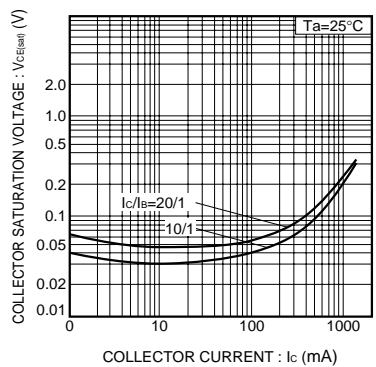


Fig.4 Collector-emitter saturation voltage vs. collector current

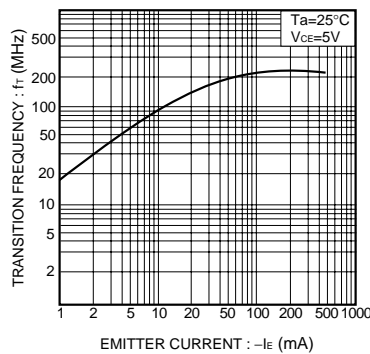


Fig.5 Gain bandwidth product vs. emitter current

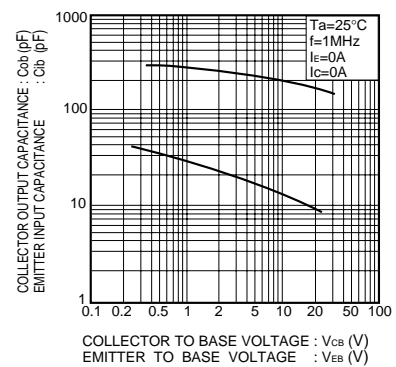


Fig.6 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

Transistors

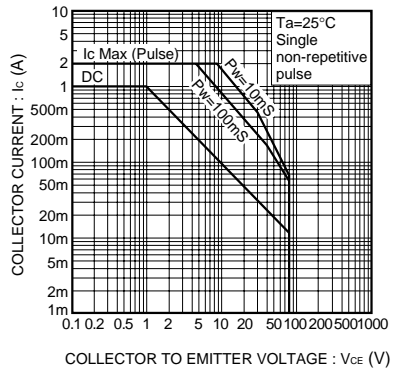


Fig.7 Safe operating area (2SD1863)

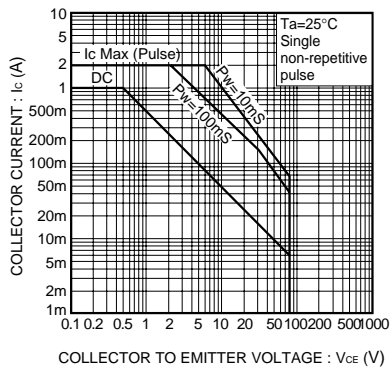


Fig.8 Safe operating area (2SD1898)

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