Power Transistor (80V, 1A)

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

●**Features**

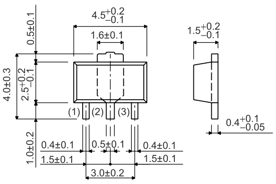
1) High V_{CEO}, V_{CEO}=80V
2) High I_C, I_C=1A (DC)
3) Good h_{FE} linearity
4) Low V_{CE} (sat)
5) Complements the 2SB1260 / 2SB1241 / 2SB1181

●**Structure**

Epitaxial planer type
NPN silicon transistor

●**External dimensions** (Units : mm)

2SD1898

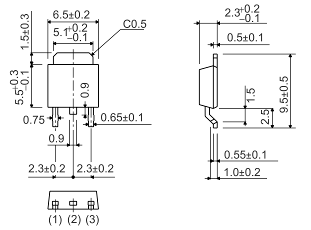


ROHM : MPT3
EIAJ : SC-62

(1) Base
(2) Collector
(3) Emitter

Abbreviated symbol : DF

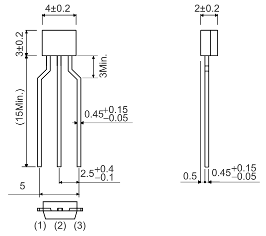
2SD1733



ROHM : CPT3
EIAJ : SC-63

(1) Base
(2) Collector
(3) Emitter

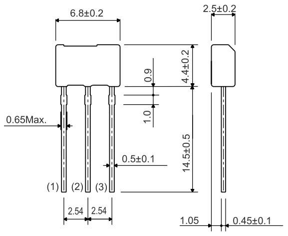
2SD1768S



ROHM : SPT
EIAJ : SC-72

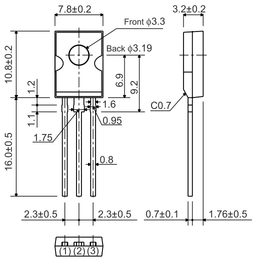
(1) Emitter
(2) Collector
(3) Base

2SD1863



(1) Emitter
(2) Collector
ROHM : ATV
(3) Base

2SD1381F



(1) Emitter
(2) Collector
ROHM : TO-126FP
(3) Base

●**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	2SD1898	P_C	0.5	W ∗3
			2	
	2SD1733		1	
			10	W (Tc=25˚C)
	2SD1768S		0.3	W ∗2
	2SD1863		1	
			1.2	
	2SD1381F		5	W (Tc=25˚C)
Junction temperature		Tj	150	˚C
Storage temperature		Tstg	−55~+150	˚C

∗1 Pw=20ms, duty=1 / 2

∗2 Printed circuit board 1.7mm thick, collector copper plating 1cm^2 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=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_{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 ∗
	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		Cob	−	20	−	pF	V_{CB}=10V, I_E=0A, f=1MHz

∗ Measured using pulse current

●Packaging specifications and h_{FE}

		Package	Taping				Bulk
		Code	T100	TL	TP	TV2	–
Type	h_{FE}	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

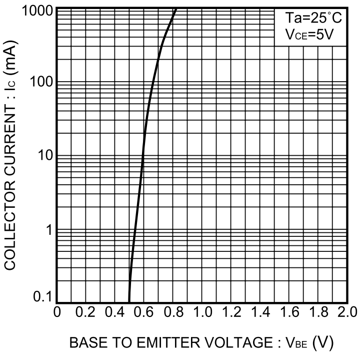


Fig.1 Grounded emitter propagation characteristics

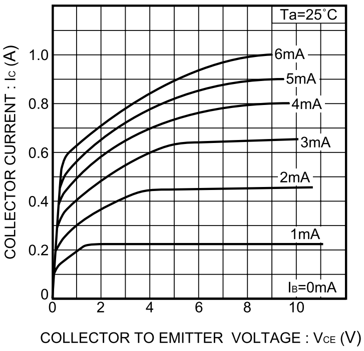


Fig.2 Grounded emitter output characteristics

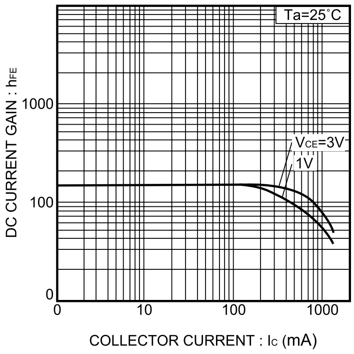


Fig.3 DC current gain vs. collector current

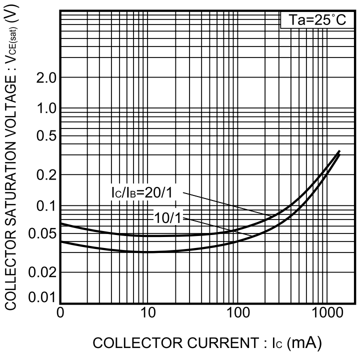


Fig.4 Collector-emitter saturation voltage vs. collector current

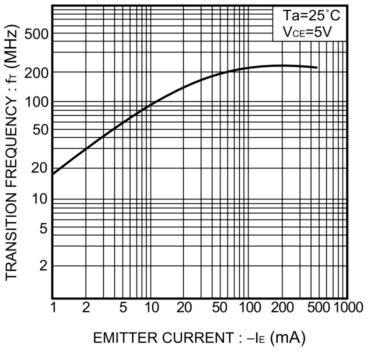


Fig.5 Gain bandwidth product vs. emitter current

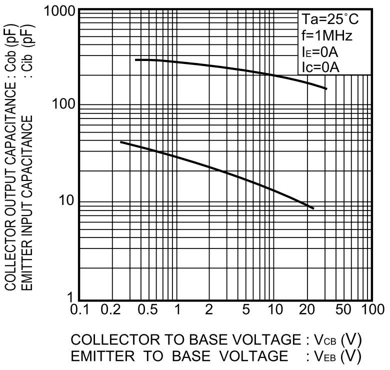


Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

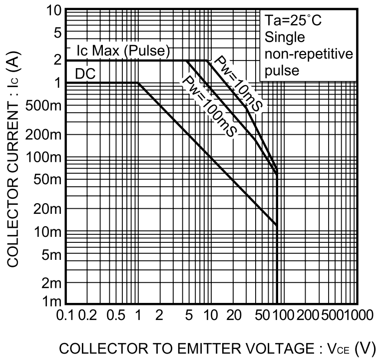


Fig.7 Safe operating area
(2SD1863)

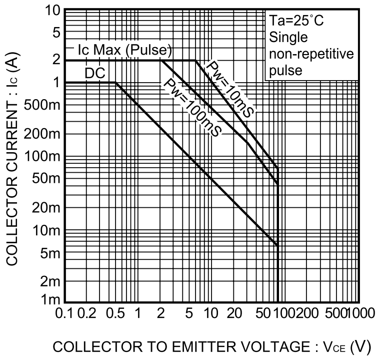


Fig.8 Safe operating area
(2SD1898)

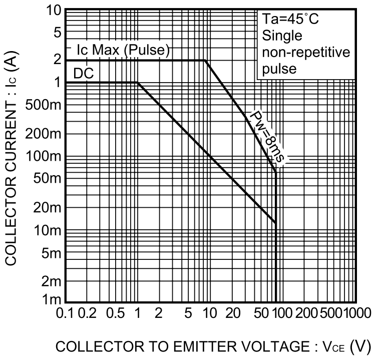


Fig.9 Safe operating area
(2SD1381F)