Medium Power Transistor (32V, 2A)

2SD1766 / 2SD1758 / 2SD1862 / 2SD1055 / 2SD1919 / 2SD1227M

●Features

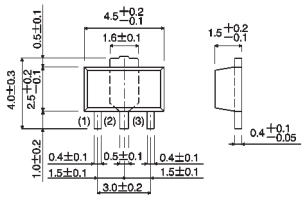
1) Low $V_{CE(sat)}$.
   $V_{CE(sat)}$ = 0.5V (Typ.)
   (I_C / I_B = 2A / 0.2A)
2) Complements the
   2SB1188 / 2SB1182 / 2SB1240 / 2SB891F / 2SB822 / 2SB1277 / 2SB911M

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Units: mm)

2SD1766

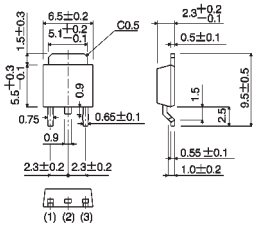


Abbreviated symbol: DB*

ROHM : MPT3
EIAJ : SC-62

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

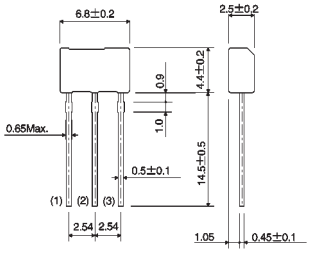
2SD1758



ROHM : CPT3
EIAJ : SC-63

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

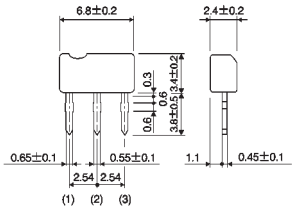
2SD1862



ROHM : ATV

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

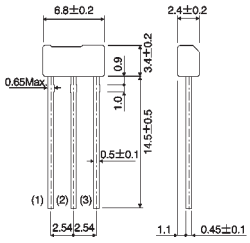
2SD1055



ROHM : FTR

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

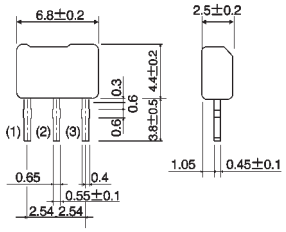
2SD1919



ROHM : FTL

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

2SD1227M



ROHM : ATR
EIAJ : SC-71

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

* Denotes h_{FE}

(96-217-B24)

Downloaded from Elcodis.com electronic components distributor

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	40	V
Collector-emitter voltage		V_{CEO}	32	V
Emitter-base voltage		V_{EBO}	5	V
Collector current		I_C	2	A(DC)
			2.5	A(Pulse) ∗1
Collector power dissipation	2SD1766	P_C	0.5	W
			2	W ∗2
	2SD1758		10	W (Tc=25℃)
	2SD1862,2SD1227M		1	W ∗3
	2SD1055,2SD1919		0.75	W
Junction temperature		Tj	150	℃
Storage temperature		Tstg	−55～+150	℃

∗1 Single pulse, Pw=20ms
∗2 When mounted on a 40×40×0.7 mm ceramic board.
∗3 Printed circuit board: 1.7 mm thick, collector copper plating 1 cm^2 or lager.

●Electrical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV_{CBO}	40	—	—	V	I_C=50 μA
Collector-emitter breakdown voltage		BV_{CEO}	32	—	—	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}=20V
Emitter cutoff current		I_{EBO}	—	—	1	μA	V_{EB}=4V
DC current transfer ratio	2SD1766,2SD1758,	h_{FE}	82	—	390	—	V_{CE}=3V, I_C=0.5A ∗
	2SD1862		120	—	390		
	2SD1055		180	—	390		
	2SD1919,2SD1227M		120	—	270		
Collector-emitter saturation voltage		$V_{CE(sat)}$	—	0.5	0.8	V	I_C/I_B=2A/0.2A ∗
Transition frequency		fT	—	100	—	MHz	V_{CE}=5V, I_E=−50mA, f=100MHz ∗
Output capacitance		Cob	—	30	—	pF	V_{CB}=10V, I_E=0A, f=1MHz

∗ Measured using pulse current.

Downloaded from Elcodis.com electronic components distributor

●Packaging specifications and h_{FE}

Type	h_{FE}	Package	Taping			Bulk	
		Code	T100	TL	TV2	—	TL2
		Basic ordering unit (pieces)	1000	2500	2500	2000	2500
2SD1766	PQR		○	—	—	—	—
2SD1758	PQR		—	○	—	—	—
2SD1862	QR		—	—	○	—	—
2SD1055	R		—	—	—	○	—
2SD1919	Q		—	—	—	—	○
2SD1227M	Q		—	—	—	○	—

h_{FE} values are classified as follows :

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

●Electrical characteristic curves

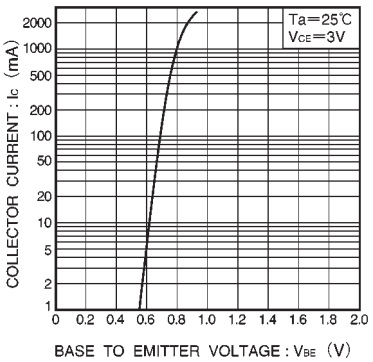


Fig.1 Grounded emitter propagation characteristics

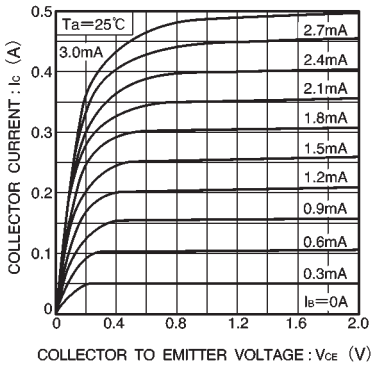


Fig.2 Grounded emitter output characteristics

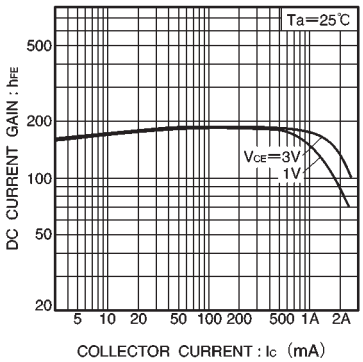


Fig.3 DC current gain vs. collector current

Downloaded from Elcodis.com electronic components distributor

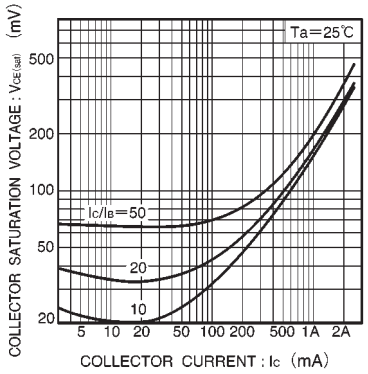


Fig.4 Collector-emitter saturation voltage vs. collector current

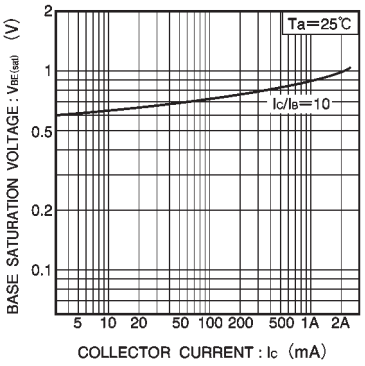


Fig.5 Collector-emitter saturation voltage vs. collector current

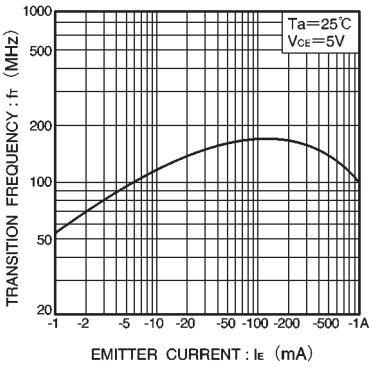


Fig.6 Transition frequency vs. emitter current

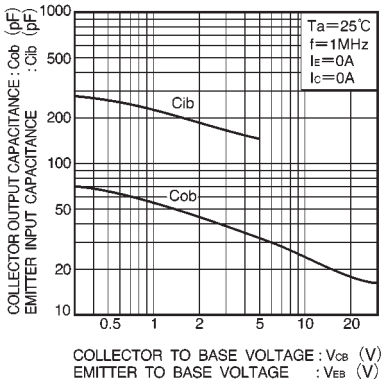


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

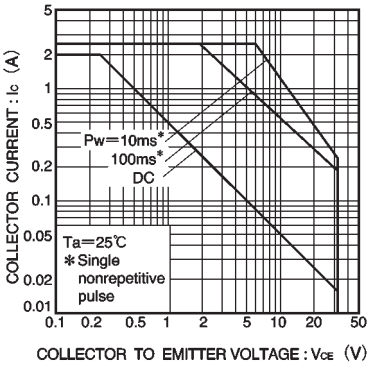


Fig.8 Safe operating area (2SD1766)

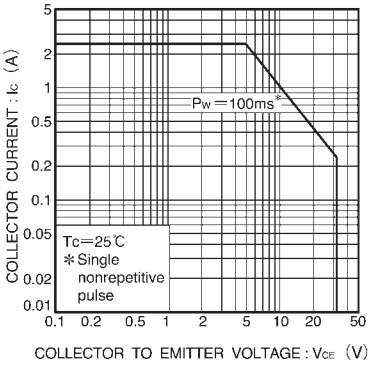


Fig.9 Safe operating area (2SD1758)

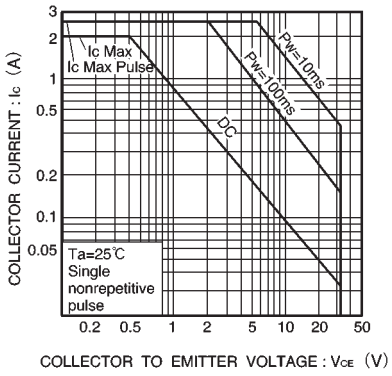


Fig.10 Safe operating area (2SD1862, 2SD1227M)

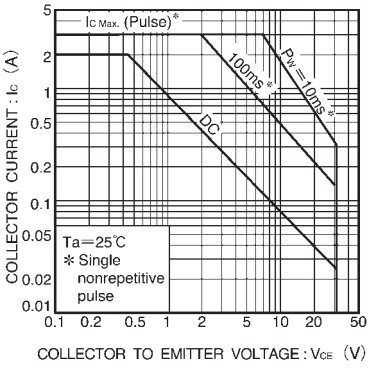


Fig.11 Safe operating area (2SD1055, 2SD1919)

Downloaded from Elcodis.com electronic components distributor