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Medium power transistor (32V, 2A)

2SD1758 / 2SD1862

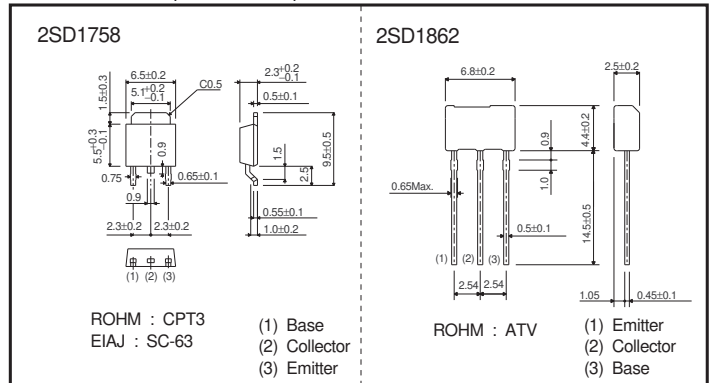
●Features

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

●Structure

Epitaxial planar type NPN silicon transistor

●Dimensions (Units : mm)



●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	2SD1758	10	W (Tc=25°C)
	2SD1862	1	W *2
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

*1 Single pulse, $P_w=20ms$

*2 Printed circuit board: 1.7 mm thick, collector copper plating 1 cm² or larger.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	40	-	-	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	32	-	-	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	-	-	V	$I_E=50\mu A$
Collector cutoff current	I_{CBO}	-	-	1	μA	$V_{CB}=20V$
Emitter cutoff current	I_{EBO}	-	-	1	μA	$V_{EB}=4V$
DC current transfer ratio	h_{FE}	120	-	390	-	$V_{CE}=3V, I_C=0.5A$ *
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	0.5	0.8	V	$I_C/I_B=2A/0.2A$ *
Transition frequency	f_T	-	100	-	MHz	$V_{CE}=5V, I_E=-50mA, f=100MHz$ *
Output capacitance	C_{ob}	-	30	-	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

* Measured using pulse current.

●Packaging specifications and hFE

Type	hFE	Package	Taping	
		Code	TL	TV2
		Basic ordering unit (pieces)	2500	2500
2SD1758	QR		○	-
2SD1862	QR		-	○

hFE values are classified as follows :

Item	Q	R
hFE	120 to 270	180 to 390

●Electrical characteristic curves

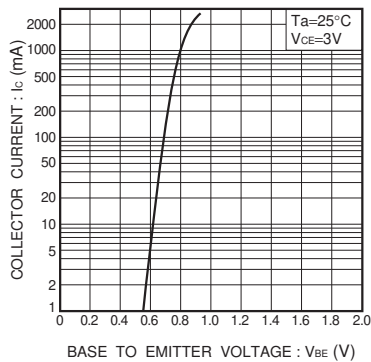


Fig.1 Grounded emitter propagation characteristics

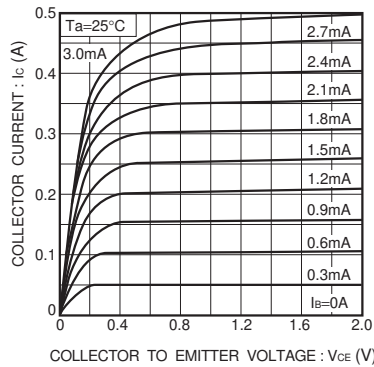


Fig.2 Grounded emitter output characteristics

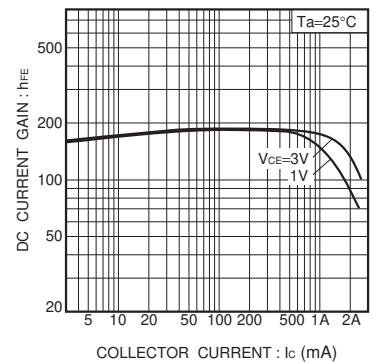


Fig.3 DC current gain vs. collector current

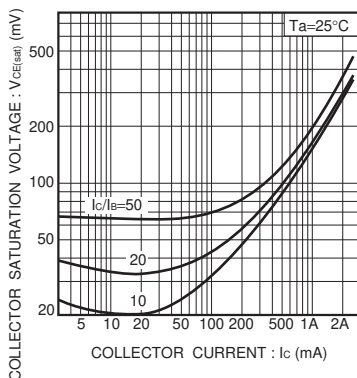


Fig.4 Collector-emitter saturation voltage vs. collector current

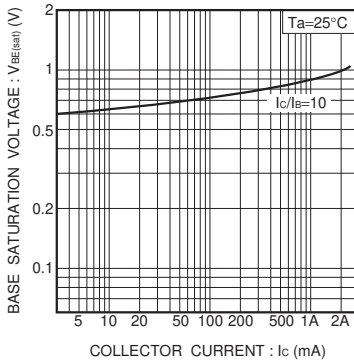


Fig.5 Collector-emitter saturation voltage vs. collector current

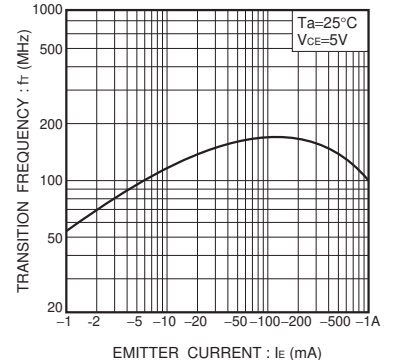


Fig.6 Transition frequency vs. emitter current

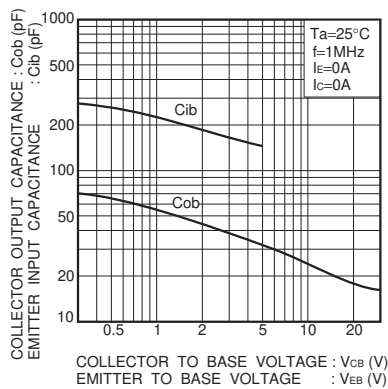


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

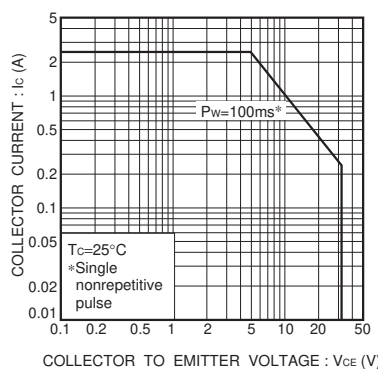


Fig.8 Safe operating area (2SD1758)

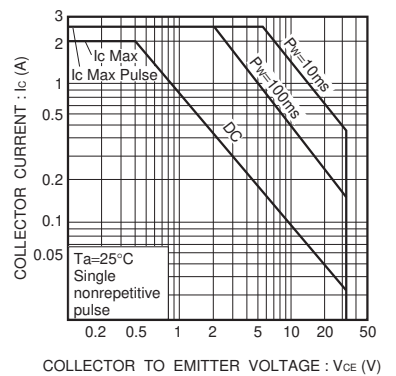


Fig.9 Safe operating area (2SD1862)

Notes

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