

Transistors

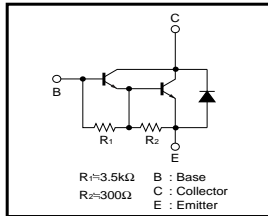
# Power Transistor (100V, 2A)

## 2SD2195 / 2SD1980 / 2SD1867

●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in resistor between base and emitter.
- 3) Built-in damper diode.
- 4) Complements the 2SB1580 / 2SB1316.

●Equivalent circuit

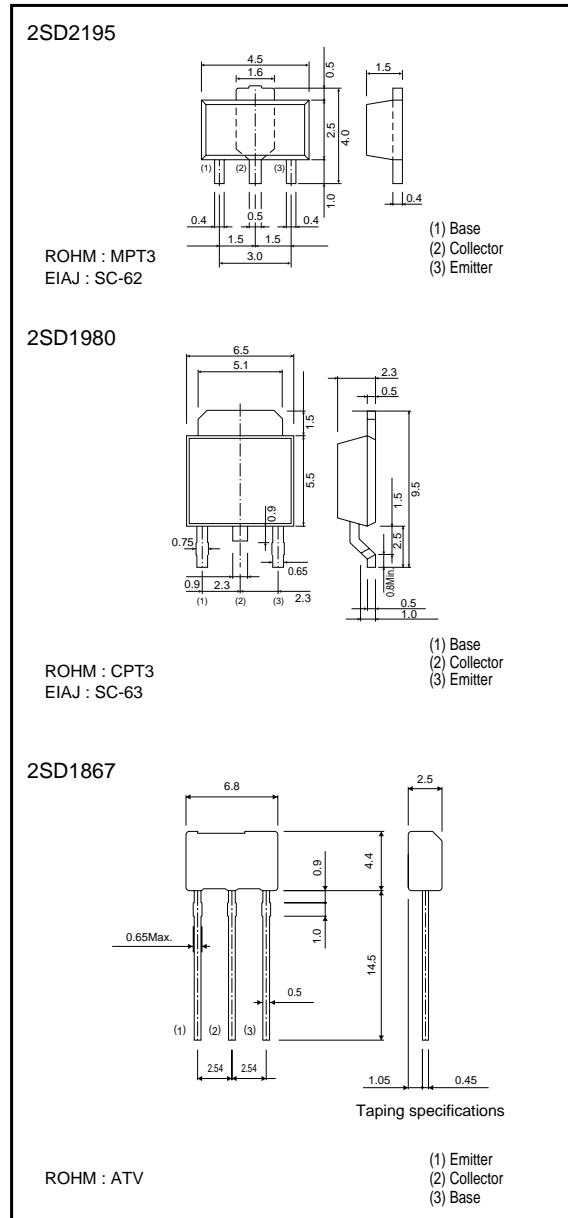


●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	VCBO	100	V
Collector-emitter voltage	VCEO	100	V
Emitter-base voltage	VEBO	6	V
Collector current	IC	2	A(DC)
		3 *1	A(Pulse)
Collector power dissipation	PC	0.5	W
		2 *2	
		1	W(Tc=25°C)
		10	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

\*1 Single pulse Pw=100ms  
\*2 When mounted on a 40 x 40 x 0.7 mm ceramic board.  
\*3 Printed circuit board, 1.7mm thick, collector plating 100mm<sup>2</sup> or larger.

●External dimensions (Unit : mm)



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●Packaging specifications and hFE

Type	2SD2195	2SD1980	2SD1867
Package	MPT3	CPT3	ATV
hFE	1k to 10k	1k to 10k	1k to 10k
Marking	DP	-	-
Code	T100	TL	TV2
Basic ordering unit (pieces)	1000	2500	2500

\* Denotes hFE

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	100	-	-	V	I <sub>c</sub> = 50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	100	-	-	V	I <sub>c</sub> = 5mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	6	-	-	V	I <sub>e</sub> = 5mA
Collector cutoff current	I <sub>cbo</sub>	-	-	10	μA	V <sub>CB</sub> = 100V
Emitter cutoff current	I <sub>ebo</sub>	-	-	3	mA	V <sub>EB</sub> = 5V
Collector-emitter saturation voltag	V <sub>CE(sat)</sub>	-	-	1.5	V	I <sub>c</sub> = 1A, I <sub>b</sub> = 1mA *
Base-Emitter saturation voltage	V <sub>BE(sat)</sub>	-	-	2.0	V	I <sub>c</sub> /I <sub>b</sub> = 1A/1mA
DC current transfer ratio	h <sub>FE</sub>	1000	-	10000	-	V <sub>CE</sub> = 2V, I <sub>c</sub> = 1A *
Transition frequency	f <sub>r</sub>	-	80	-	MHz	V <sub>CE</sub> = 5V, I <sub>e</sub> = -0.1A, f = 30MHz
Output capacitance	C <sub>ob</sub>	-	25	-	pF	V <sub>CB</sub> = 10V, I <sub>e</sub> = 0A, f = 1MHz

\* Measured using pulse current.

●Electrical characteristic curves

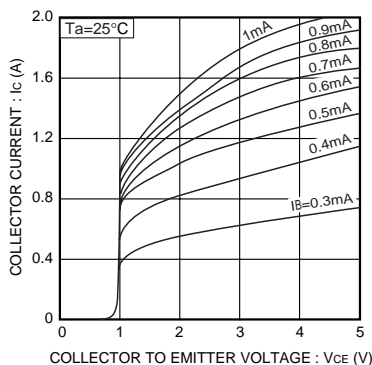


Fig.1 Grounded emitter output characteristics

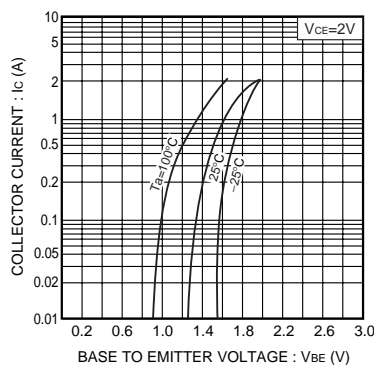


Fig.2 Grounded emitter propagation characteristics

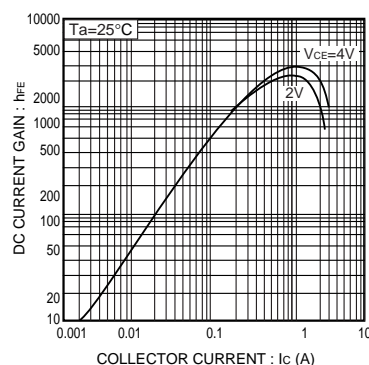


Fig.3 DC current gain vs. collector current

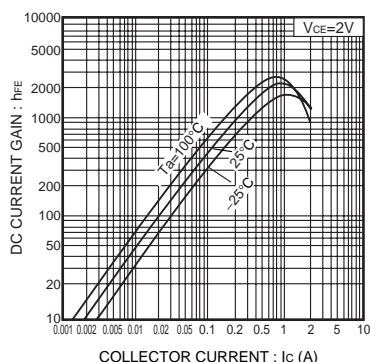


Fig.4 DC current gain vs. collector current

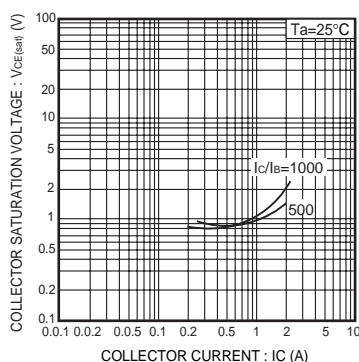


Fig.5 Collector-emitter saturation voltage vs. collector current

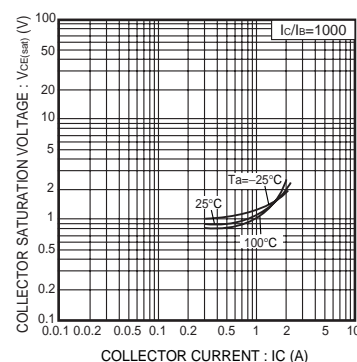


Fig.6 Collector-emitter saturation voltage vs. collector current

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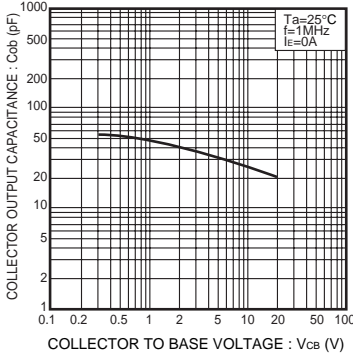


Fig.7 Collector output capacitance vs. collector-base voltage

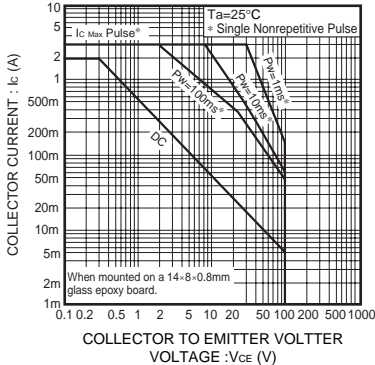


Fig.8 Safe operating area (2SD2195)

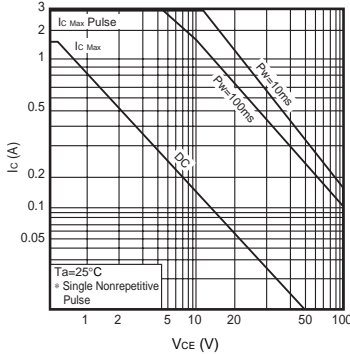


Fig.9 Safe operating area(2SD1867)

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