

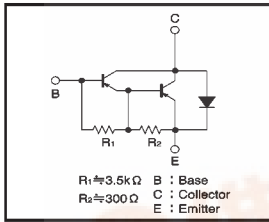
# Power Transistor (−100V, −2A)

2SB1580 / 2SB1316 / 2SB1567 / 2SB1287

●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 2SD2195 / 2SD1980 / 2SD2398 / 2SD1765.

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	−100	V
Collector-emitter voltage	V <sub>CE0</sub>	−100	V
Emitter-base voltage	V <sub>EB0</sub>	−8	V
Collector current	I <sub>c</sub>	−2	A (DC)
		−3	A (Pulse) *1
Collector power dissipation	P <sub>c</sub>	2	W *2
		1	W (T <sub>c</sub> =25°C)
		2	W
		20	W (T <sub>c</sub> =25°C)
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	−55~+150	°C

\*1 Single pulse Pw=100ms \*2 When mounted on a 40 x 40 x 0.7 mm ceramic board.

●Packaging specifications and hFE

Type	2SB1580	2SB1316	2SB1567	2SB1287
Package	MPT3	CPT3	TO-220FN	TO-220FP
hFE	1k~10k	1k~10k	1k~10k	1k~10k
Marking	BN*	—	—	—
Code	T100	TL	—	—
Basic ordering unit (pieces)	1000	2500	500	500

\* 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> =−50 μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	−100	—	—	V	I <sub>c</sub> =−5mA
Collector cutoff current	I <sub>cBO</sub>	—	—	−10	μA	V <sub>CB</sub> =−100V
Emitter cutoff current	I <sub>EB0</sub>	—	—	−3	mA	V <sub>EB</sub> =−7V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	−1.5	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
Output capacitance	C <sub>ob</sub>	—	35	—	pF	V <sub>CB</sub> =−10V, I <sub>e</sub> =0A, f=1MHz

\* Measured using pulse current.

(96-139-B85)

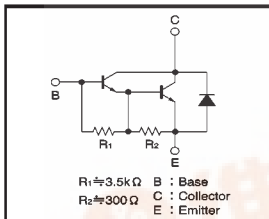
# Power Transistor (100V, 2A)

2SD2195 / 2SD1980 / 2SD1867 / 2SD2398 / 2SD1765

●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 / 2SB1567 / 2SB1287.

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	100	V
Collector-emitter voltage	V <sub>CE0</sub>	100	V
Emitter-base voltage	V <sub>EB0</sub>	6	V
Collector current	I <sub>c</sub>	2	A (DC)
		3	A (Pulse) *1
Collector power dissipation	P <sub>c</sub>	2	W *2
		1	W (T <sub>c</sub> =25°C)
		10	W
		20	W (T <sub>c</sub> =25°C)
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	−55~+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.

●Packaging specifications and hFE

Type	2SD2195	2SD1980	2SD1867	2SD2398	2SD1765
Package	MPT3	CPT3	ATV	TO-220FN	TO-220FP
hFE	1k~10k	1k~10k	1k~10k	1k~10k	1k~10k
Marking	DP*	—	—	—	—
Code	T100	TL	TV2	—	—
Basic ordering unit (pieces)	1000	2500	2500	500	500

\* 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> =50 μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	100	—	—	V	I <sub>c</sub> =5mA
Collector cutoff current	I <sub>cBO</sub>	—	—	10	μA	V <sub>CB</sub> =100V
Emitter cutoff current	I <sub>EB0</sub>	—	—	3	mA	V <sub>EB</sub> =5V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	1.5	V	I <sub>c</sub> =1A, I <sub>B</sub> =1mA
DC current transfer ratio	h <sub>FE</sub>	1000	—	10000	—	V <sub>CE</sub> =2V, I <sub>c</sub> =1A
Output capacitance	C <sub>ob</sub>	—	25	—	pF	V <sub>CB</sub> =10V, I <sub>e</sub> =0A, f=1MHz

\* Measured using pulse current.

(96-227-D85)