

Medium Power Transistor (−80V, −0.7A)

2SB1189 / 2SB1238 / 2SB889F

Features

- 1) High breakdown voltage, $BV_{CEO} = -80V$, and high current, $-0.7A$.
- 2) Complements the 2SD1767 / 2SD1859 / 2SD1200F.

Packaging specifications and hfe

Type	2SB1189	2SB1238	2SB889F
Package	MPT3	ATV	TO-126FP
hfc	PQR	PQR	Q
Marking	BD*	—	—
Code	T100	TV2	—
Basic ordering unit (pieces)	1000	2500	1000

* Denotes hfe

Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−80	—	—	V	$I_C = -50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	−80	—	—	V	$I_C = -2mA$
Emitter-base breakdown voltage	BV_{EBO}	−5	—	—	V	$I_E = -50 \mu A$
Collector cutoff current	I_{CBO}	—	—	−0.5	μA	$V_{CE} = -50V$
Emitter cutoff current	I_{EBO}	—	—	−0.5	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−0.2	−0.4	V	$I_C/I_E = -500mA/-50mA$
DC current transfer ratio	h_{FE}	82	—	390	—	$V_{CE}/I_C = -3V/-0.1A$
Transition frequency	f_T	—	100	—	MHz	$V_{CE} = -10V, I_C = 50mA, f = 100MHz$
Output capacitance	C_{ob}	—	14	20	pF	$V_{CE} = -10V, I_C = 0A, f = 1MHz$

Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	−80	V
Collector-emitter voltage	V_{CEO}	−80	V
Emitter-base voltage	V_{EBO}	−5	V
Collector current	I_C	−0.7	A
Collector power dissipation	2SB1189 2SB1238 2SB889F	P_C	0.5
			2
			1
			5
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	−55~+150	°C

*1 When mounted on a 40×40×0.7mm ceramic board.

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

(95-618-B13)

Medium Power Transistor (80V, 0.7A)

2SD1767 / 2SD1859 / 2SD1200F

Features

- 1) High breakdown voltage, $BV_{CEO} = 80V$, and high current, $0.7A$.
- 2) Complements the 2SB1189 / 2SB1238 / 2SB889F.

Packaging specifications and hfe

Type	2SD1767	2SD1859	2SD1200F
Package	MPT3	ATV	TO-126FP
hfc	PQR	QR	QR
Marking	DC*	—	—
Code	T100	TV2	—
Basic ordering unit (pieces)	1000	2500	1000

* Denotes hfe

Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	80	—	—	V	$I_C = 50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	80	—	—	V	$I_C = 2mA$
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	$I_E = 50 \mu A$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CE} = 50V$
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.2	0.4	V	$I_C/I_E = 500mA/50mA$
DC current transfer ratio	h_{FE}	82	—	390	—	$V_{CE}/I_C = 3V/0.1A$
Transition frequency	f_T	—	120	—	MHz	$V_{CE} = 10V, I_C = 50mA, f = 100MHz$
Output capacitance	C_{ob}	—	10	—	pF	$V_{CE} = 10V, I_C = 0A, f = 1MHz$

Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	80	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	0.7	A (DC)
		1	A (Pulse) *1
Collector power dissipation	2SD1767 2SD1859 2SD1200F	P_C	0.5
			2
			1
			5
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	−55~+150	°C

*1 $P_W = 10ms, duty = 1/2$

*2 When mounted on a 40×40×0.7mm ceramic board.

*3 Printed circuit board 1.7mm thick, collector plating 1cm² or larger.

(95-750-D13)