Medium Power Transistor (−80V, −0.7A)

2SB1189 / 2SB1238 / 2SB889F

●Features

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

●Packaging specifications and h_{FE}

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

* Denotes h_{FE}

●Absolute maximum ratings (Ta=25℃)

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	P_C	0.5	
			2	W *1
	2SB1238		1	*2
	2SB889F		5	W(Tc=25℃)
Junction temperature		Tj	150	℃
Storage temperature		Tstg	−55～+150	℃

*1 When mounted on a 40×40×0.7mm ceramic board.
*2 Printed circuit board 1.7mm thick, collector plating 1cm² or larger.

●Electrical characteristics (Ta=25℃)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV_{CBO}	−80	—	—	V	I_C=−50μA
Collector-emitter breakdown voltage		BV_{CEO}	−80	—	—	V	I_C=−2mA
Emitter-base breakdown voltage		BV_{EBO}	−5	—	—	V	I_E=−50μA
Collector cutoff current		I_{CBO}	—	—	−0.5	μA	V_{CB}=−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_B=−500mA/−50mA
DC current transfer ratio	2SB1189,2SB1186A	h_{FE}	82	—	390	—	V_{CE}/I_C=−3V/−0.1A
	2SB889F		120	—	270	—	
Transition frequency		f_T	—	100	—	MHz	V_{CE}=−10V , I_E=50mA , f=100MHz
Output capacitance		Cob	—	14	20	pF	V_{CB}=−10V , I_E=0A , f=1MHz

(96-618-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 h_{FE}

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

*Denotes h_{FE}

●Absolute maximum ratings (Ta=25℃)

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	P_C	0.5	
			2	W *2
	2SD1859		1	*3
	2SD1200F		5	W(Tc=25℃)
Junction temperature		Tj	150	℃
Storage temperature		Tstg	−55～+150	℃

*1 Pw=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.

●Electrical characteristics (Ta=25℃)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV_{CBO}	80	—	—	V	I_C=50μA
Collector-emitter breakdown voltage		BV_{CEO}	80	—	—	V	I_C=2mA
Emitter-base breakdown voltage		BV_{EBO}	5	—	—	V	I_E=50μA
Collector cutoff current		I_{CBO}	—	—	0.5	μA	V_{CB}=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_B=500mA/50mA
DC current transfer ratio	2SD1767	h_{FE}	82	—	390	—	V_{CE}/I_C=3V/0.1A
	2SD1859,2SD1200F		120	—	390	—	
Transition frequency		f_T	—	120	—	MHz	V_{CE}=10V , I_E=−50mA , f=100MHz
Output capacitance		Cob	—	10	—	pF	V_{CB}=10V , I_E=0A , f=1MHz

(96-750-D13)