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 h_{FE}

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

✻ Denotes hFE

●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	W	
			2		✻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		fT	—	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_{CBO}=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
hFE	PQR	QR	QR
Marking	DC✻	—	—
Code	T100	TV2	—
Basic ordering unit (pieces)	1000	2500	1000

✻Denotes hFE

●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	W	
			2		✻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	hFE	82	—	390	—	V_{CE}/I_C=3V/0.1A
	2SD1859,2SD1200F		120	—	390	—	
Transition frequency		fT	—	120	—	MHz	V_{CE}=10V, I_C=−50mA, f=100MHz
Output capacitance		Cob	—	10	—	pF	V_{CB}=10V, I_E=0A, f=1MHz

(96-750-D13)