

**Power Transistor (−120V, −1.5A)**

2SB1236 / 2SB1186

**●Features**

- 1) High breakdown voltage. ( $V_{CE0} = -120V$ )
- 2) Low collector output capacitance. (Typ. 30pF at  $V_{CB} = -10V$ )
- 3) High transition frequency. ( $f_T = 50MHz$ )
- 4) Complements the 2SD1857 / 2SD1763.

**●Packaging specifications and  $h_{FE}$** 

Type	2SB1236	2SB1186
Package	ATV	TO-220FP
$h_{FE}$	QR	EF
Code	TV2	—
Basic ordering unit (pieces)	2500	500

**●Absolute maximum ratings ( $T_a = 25^\circ C$ )**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	−120	V
Collector-emitter voltage	$V_{CEO}$	−120	V
Emitter-base voltage	$V_{EBO}$	−5	V
Collector current	$I_C$	−1.5	A (DC)
		−3	A (Pulse) *1
Collector power dissipation	$P_C$	1	W *2
		2	W
		20	W ( $T_C = 25^\circ C$ )
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{stg}$	−55~+150	$^\circ C$

\*1 Single pulse  $P_w = 100ms$ \*2 Printed circuit board 1.7mm thick, collector plating 1cm<sup>2</sup> or larger.**●Electrical characteristics ( $T_a = 25^\circ C$ )**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	−120	—	—	V	$I_C = -50 \mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	−120	—	—	V	$I_C = -1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	−5	—	—	V	$I_E = -50 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	−1	$\mu A$	$V_{CB} = -100V$
Emitter cutoff current	$I_{EBO}$	—	—	−1	$\mu A$	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−2	V	$I_C/I_E = -1A/-0.1A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	−1.5	V	$I_C/I_B = -1A/-0.1A$ *
DC current transfer ratio	2SB1236	120	—	390	—	$V_{CE} = -5V, I_C = -1A$
	2SB1186	100	—	320	—	
Transition frequency	$f_T$	—	50	—	MHz	$V_{CE} = -5V, I_E = 0.1A, f = 30MHz$
Output capacitance	$C_{ob}$	—	30	—	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

\* Measured using pulse current.

(94L-268-A56)

**Power Transistor (120V, 1.5A)**

2SC4132 / 2SD1857 / 2SD2343 / 2SD1763

**●Features**

- 1) High breakdown voltage. ( $V_{CE0} = 120V$ )
- 2) Low collector output capacitance. (Typ. 20pF at  $V_{CB} = 10V$ )
- 3) High transition frequency. ( $f_T = 80MHz$ )
- 4) Complements the 2SB1236 / 2SB1186.

**●Packaging specifications and  $h_{FE}$** 

Type	2SC4132	2SD1857	2SD2343	2SD1763
Package	MPT3	ATV	TO-126F	TO-220FP
$h_{FE}$	PQR	PQR	PQ	EF
Marking	CB*	—	—	—
Code	T100	TV2	—	—
Basic ordering unit (pieces)	1000	2500	1000	500

\* Denotes  $h_{FE}$ **●Absolute maximum ratings ( $T_a = 25^\circ C$ )**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	120	V
Collector-emitter voltage	$V_{CEO}$	120	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	2	A
		3	A *1
Collector power dissipation	$P_C$	0.5	W *2
		2	W
		1	W
		1.5	W
		5	W ( $T_C = 25^\circ C$ )
20	W		
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{stg}$	−55~+150	$^\circ C$

\*1 Single pulse  $P_w = 10ms$ 

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

**●Electrical characteristics ( $T_a = 25^\circ C$ )**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	120	—	—	V	$I_C = 50 \mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	120	—	—	V	$I_C = 1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E = 50 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	1	$\mu A$	$V_{CB} = 100V$
Emitter cutoff current	$I_{EBO}$	—	—	1	$\mu A$	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.4	V	$I_C/I_E = 1A/0.1A$ *
DC current transfer ratio	2SC4132, 2SD1857	82	—	390	—	$V_{CE}/I_C = 5V/0.1A$
	2SD2343	82	—	270	—	
	2SD1763	100	—	320	—	
Transition frequency	$f_T$	—	80	—	MHz	$V_{CE} = 5V, I_E = -0.1A, f = 30MHz$ *
Output capacitance	$C_{ob}$	—	20	—	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$

\* Measured using pulse current.

(96-175-C56)