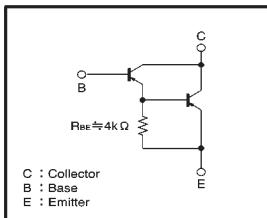


# Power Transistor (-40V, -2A)

2SB1183 / 2SB1239 / 2SB786F

**Features**

- 1) Darlington connection for high DC current gain.
- 2) Built-in 4 kΩ resistor between base and emitter.
- 3) Complements the 2SD1759 / 2SD1861 / 2SD947F.

**Circuit diagram****Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	-40	—	—	V	Ic=-50 μA
Collector-emitter breakdown voltage	BVCER	-40	—	—	V	Ic=1mA, R_EB=10kΩ
Emitter-base breakdown voltage	VEBO	-5	—	—	V	Ie=-50 μA
Collector cutoff current	ICEO	—	—	-1	μA	Vce=-24V
Emitter cutoff current	IEBO	—	—	-1	μA	VEB=-4V
Collector-emitter saturation voltage	VCE(sat)	—	—	-1.5	V	Ic/Ie=-0.6A/-1.2mA
DC current transfer ratio	2SB1183	hFE	1000	—	20000	—
	2SB1239,2SB786F		1000	—	—	Vce/Ic=-2V/0.5A
Output capacitance	Cob	—	11	—	pF	Vcb=-10V, Ie=0A, f=1MHz

(96-126-B23)

**Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CBO</sub>	-40	V
Collector-emitter voltage	V <sub>CER</sub>	-40	V
Emitter-base voltage	V <sub>EBO</sub>	-5	V
Collector current	I <sub>C</sub>	-2 -3	A (DC) A (Pulse) *1
Collector power dissipation	2SB1183 2SB1239 2SB786F	1 10 1 1.2 5	W (Tc=25°C) W (Tc=25°C) W (Tc=25°C) W (Tc=25°C)
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>STG</sub>	-55~+150	°C

\*1 Single pulse Pw=10ms

\*2 Printed circuit board 1.7mm thick,  
collector plating 100μm<sup>2</sup> or larger.**Packaging specifications and hFE**

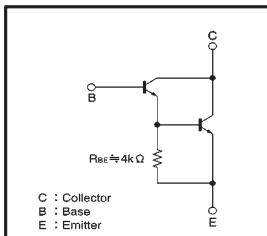
Type	2SB1183	2SB1239	2SB786F
Package	CPT3	ATV	TO-126FP
hFE	1k~200k	1k~	1k~
Code	TL	T146	—
Basic ordering unit (pieces)	2500	2500	1000

# Power Transistor (40V, 2A)

2SD1759 / 2SD1861 / 2SD947F

**Features**

- 1) Darlington connection for high DC current gain.
- 2) Built-in 4kΩ resistor between base and emitter.
- 3) Complements the 2SB1183 / 2SB1239 / 2SB786F.

**Circuit diagram****Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	40	—	—	V	Ic=50 μA
Collector-emitter breakdown voltage	BVCER	40	—	—	V	Ic=1mA, R_EB=10kΩ
Emitter-base breakdown voltage	VEBO	5	—	—	V	Ie=50 μA
Collector cutoff current	ICEO	—	—	1	μA	Vce=24V
Emitter cutoff current	IEBO	—	—	1	μA	VEB=4V
Collector-emitter saturation voltage	VCE(sat)	—	—	1.5	V	Ic/Ie=0.6mA/1.2mA
DC current transfer ratio	2SD1759	hFE	1000	—	20000	—
	2SD1861,2SD947F		1000	—	—	Vce/Ic=3V/0.5A
Output capacitance	Cob	—	11	—	pF	Vcb=10V, Ie=0A, f=1MHz

**Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CBO</sub>	40	V
Collector-emitter voltage	V <sub>CER</sub>	40	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	2 3	A (DC) A (Pulse) *1
Collector power dissipation	2SD1861 2SD1759 2SD947F	1 10 1 1.2 5	W (Tc=25°C) W (Tc=25°C) W (Tc=25°C)
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>STG</sub>	-55~+150	°C

\*1 Single pulse Pw=10ms

\*2 Printed circuit board 1.7mm thick,  
collector plating 1cm<sup>2</sup> or larger.**Packaging specifications and hFE**

Type	2SD1759	2SD1861	2SD947F
Package	CPT3	ATV	TO-126FP
hFE	1k~200k	1k~	1k~
Code	TL	TV2	—
Basic ordering unit (pieces)	2500	2500	1000

(94S-321-D23)