

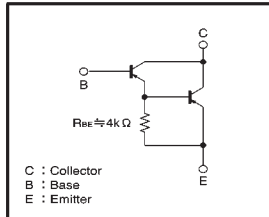
Power Transistor (−40V, −2A)

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



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	−40	V
Collector-emitter voltage	V _{CE0}	−40	V
Emitter-base voltage	V _{EB0}	−5	V
Collector current	I _c	−2	A (DC)
		−3	A (Pulse) *1
		1	W
Collector power dissipation	P _c	10	W (T _c =25°C)
		1	W *2
		1.2	W
		5	W (T _c =25°C)
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	−55~+150	°C

*1 Single pulse P_w=10ms*2 Printed circuit board 1.7mm thick, collector plating 100mm² or larger.

●Packaging specifications and hfe

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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	−40	—	—	V	I _c =−50 μA
Collector-emitter breakdown voltage	BV _{CE0}	−40	—	—	V	I _c =−1mA, R _{BE} =10kΩ
Emitter-base breakdown voltage	BV _{EB0}	−5	—	—	V	I _e =−50 μA
Collector cutoff current	I _{c0}	—	—	−1	μA	V _{CB} =−24V
Emitter cutoff current	I _{e0}	—	—	−1	μA	V _{EB} =−4V
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	−1.5	V	I _c /I _e =−0.6A/−1.2mA
DC current transfer ratio	2SB1183	1000	—	20000	—	V _{CE} /I _c =−2V/−0.5A
	2SB1239, 2SB786F	1000	—	—	—	
Output capacitance	C _{ob}	—	11	—	pF	V _{CB} =−10V, I _e =0A, f=1MHz

(96-126-B23)

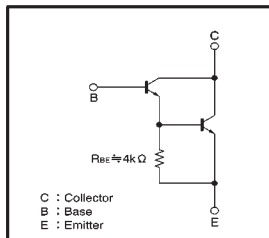
Power Transistor (40V, 2A)

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



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	40	V
Collector-emitter voltage	V _{CE0}	40	V (R _{BE} =10kΩ)
Emitter-base voltage	V _{EB0}	5	V
Collector current	I _c	2	A (DC)
		3	A (Pulse) *1
		1	W *2
Collector power dissipation	P _c	10	W (T _c =25°C)
		1.2	W
		5	W (T _c =25°C)
		—	—
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	−55~+150	°C

*1 Single pulse P_w=10ms*2 Printed circuit board 1.7mm thick, collector plating 1cm² or larger.

●Packaging specifications and hfe

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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	40	—	—	V	I _c =50 μA
Collector-emitter breakdown voltage	BV _{CE0}	40	—	—	V	I _c =1mA, R _{BE} =10kΩ
Emitter-base breakdown voltage	BV _{EB0}	5	—	—	V	I _e =50 μA
Collector cutoff current	I _{c0}	—	—	1	μA	V _{CB} =24V
Emitter cutoff current	I _{e0}	—	—	1	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	1.5	V	I _c /I _e =0.6mA/1.2mA
DC current transfer ratio	2SD1759	1000	—	20000	—	V _{CE} /I _c =3V/0.5A
	2SD1861, 2SD947F	1000	—	—	—	
Output capacitance	C _{ob}	—	11	—	pF	V _{CB} =10V, I _e =0A, f=1MHz

(94S-321-D23)