

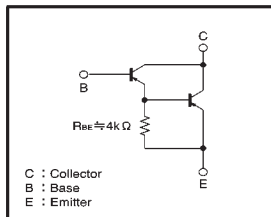
Power Transistor (−40V, −2A)

2SB1183 / 2SB1239 / 2SB786F

●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in 4 k Ω 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	BV _{CB0}	−40	—	—	V	I _C =−50 μ A
Collector-emitter breakdown voltage	BV _{CE0}	−40	—	—	V	I _C =−1mA, R _{BE} =10k Ω
Emitter-base breakdown voltage	BV _{EB0}	−5	—	—	V	I _E =−50 μ A
Collector cutoff current	I _{CB0}	—	—	−1	μ A	V _{CB} =−24V
Emitter cutoff current	I _{EB0}	—	—	−1	μ A	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	h _{FE}	1000	—	20000	—	V _{CE} /I _C =−2V/−0.5A
Output capacitance	C _{ob}	—	11	—	pF	V _{CB} =−10V, I _E =0A, f=1MHz

(96-126-B23)

●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
Collector power dissipation	P _C	1	W
		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

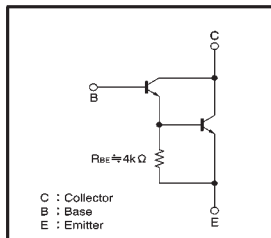
Power Transistor (40V, 2A)

2SD1759 / 2SD1861 / 2SD947F

●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in 4k Ω 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	BV _{CB0}	40	—	—	V	I _C =50 μ A
Collector-emitter breakdown voltage	BV _{CE0}	40	—	—	V	I _C =1mA, R _{BE} =10k Ω
Emitter-base breakdown voltage	BV _{EB0}	5	—	—	V	I _E =50 μ A
Collector cutoff current	I _{CB0}	—	—	1	μ A	V _{CB} =24V
Emitter cutoff current	I _{EB0}	—	—	1	μ A	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	h _{FE}	1000	—	20000	—	V _{CE} /I _C =3V/0.5A
Output capacitance	C _{ob}	—	11	—	pF	V _{CB} =10V, I _E =0A, f=1MHz

●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} =10k Ω)
Emitter-base voltage	V _{EB0}	5	V
Collector current	I _C	2	A (DC)
		3	A (Pulse) *1
Collector power dissipation	P _C	1	W *2
		1	W
		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

(94S-321-D23)