

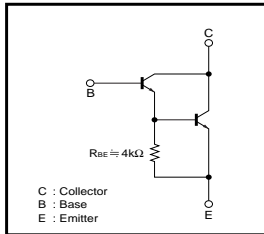
Power transistor (40V, 2A)

2SD1759 / 2SD1861

●Features

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

●Equivalent circuit

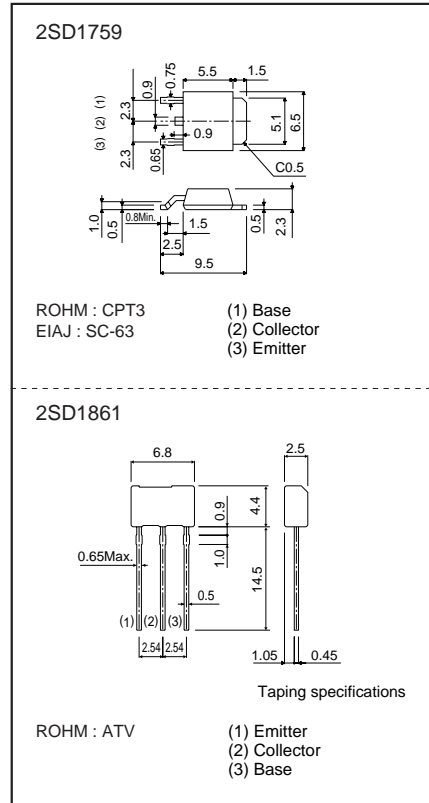


●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	40	V
Collector-emitter voltage	V _{CER}	40	V (R _{BE} =10kΩ)
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _c	2	A(DC)
Collector power dissipation	2SD1861	1	W
	2SD1759	1	W
		10	W(T _c =25°C)
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

* Printed circuit board 1.7mm thick, collector plating 1cm² or larger.

●External dimensions (Unit : mm)



●Packaging specifications and h_{FE}

Type	2SD1759	2SD1861
Package	CPT3	ATV
h _{FE}	1k to 200k	1k to
Code	TL	TV2
Basic ordering unit (pieces)	2500	2500

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	40	-	-	V	I _c =50μA
Collector-emitter breakdown voltage	BV _{CER}	40	-	-	V	I _c =1mA, R _{BE} =10kΩ
Emitter-base breakdown voltage	BV _{EBO}	5	-	-	V	I _E =50μA
Collector cutoff current	I _{cbo}	-	-	1	μA	V _{CE} =24V
Emitter cutoff current	I _{EBO}	-	-	1	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	-	0.8	1.5	V	I _c /I _B =0.6A/1.2mA
DC current transfer ratio	2SD1759	h _{FE}	1000	-	20000	-
	2SD1861	h _{FE}	1000	-	-	V _{CE} /I _C =3V/0.5A
Transition frequency	f _r	-	150	-	MHz	V _{CE} =6V, I _E =-0.1A, f=100MHz
Output capacitance	C _{ob}	-	11	-	pF	V _{CB} =10V, I _E =0A, f=1MHz

Transistors

●Electrical characteristics curves

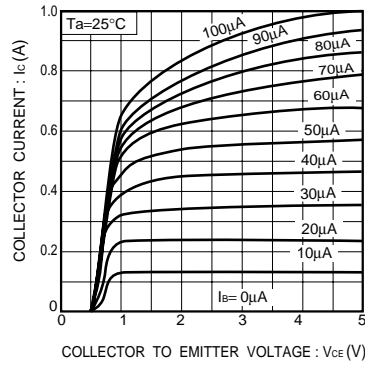


Fig.1 Ground emitter output characteristics

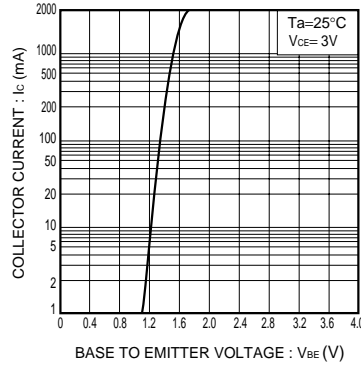


Fig.2 Ground emitter propagation characteristics

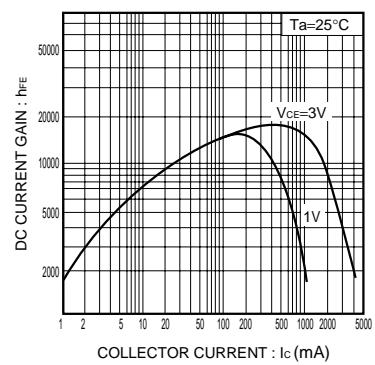


Fig.3 DC current gain vs. collector current

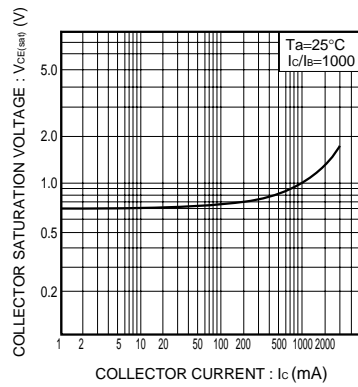


Fig.4 Collector-emitter saturation voltage vs. collector current

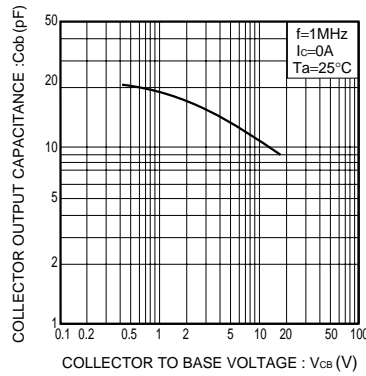


Fig.5 Collector output capacitance vs. collector-base voltage

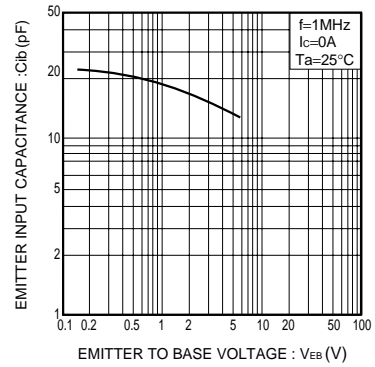


Fig.6 Emitter input capacitance vs. emitter-base voltage

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