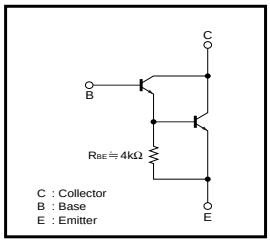
Power transistor (40V, 2A)

2SD1759 / 2SD1861

●Features

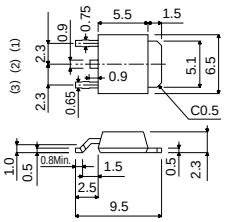
1) Darlington connection for high DC current gain.
2) Built-in 4kΩ resistor between base and emitter.
3) Complements the 2SB1183 / 2SB1239.

●Equivalent circuit



●External dimensions (Unit : mm)

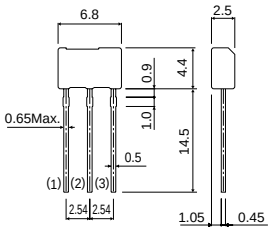
2SD1759



ROHM : CPT3
EIAJ : SC-63

(1) Base
(2) Collector
(3) Emitter

2SD1861



Taping specifications

ROHM : ATV

(1) Emitter
(2) Collector
(3) Base

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	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	P_C	1 *	W
	2SD1759		1	
			10	W(T_C=25°C)
Junction temperature		Tj	150	°C
Storage temperature		Tstg	−55 to +150	°C

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

●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_{CBO}	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_{CB}=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	–	V_{CE}/I_C=3V/0.5A
	2SD1861		1000	–	–	–	
Transition frequency		f_T	–	150	–	MHz	V_{CE}=6V , I_E= −0.1A , f=100MHz
Output capacitance		Cob	–	11	–	pF	V_{CB}=10V , I_E=0A , f=1MHz

●**Electrical characteristics curves**

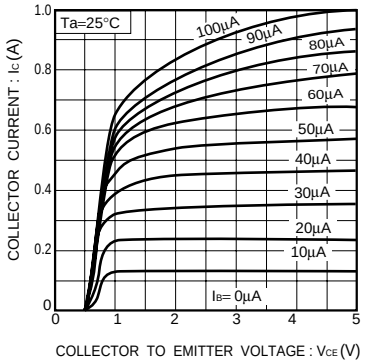


Fig.1 Ground emitter output characteristics

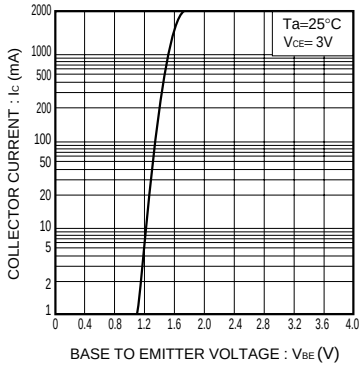


Fig.2 Ground emitter propagation characteristics

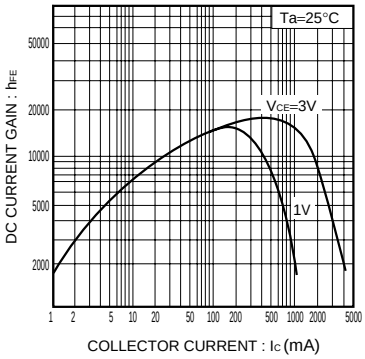


Fig.3 DC current gain vs. collector current

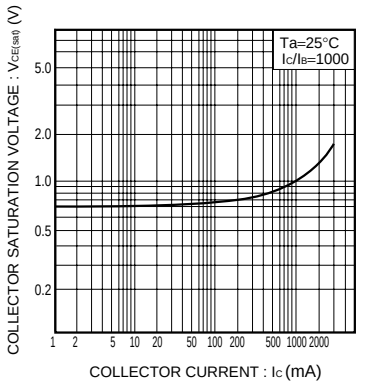


Fig.4 Collector-emitter saturation voltage vs. collector current

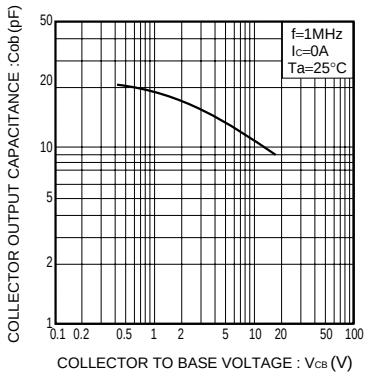


Fig.5 Colletor output capacitance vs. collector-base voltage

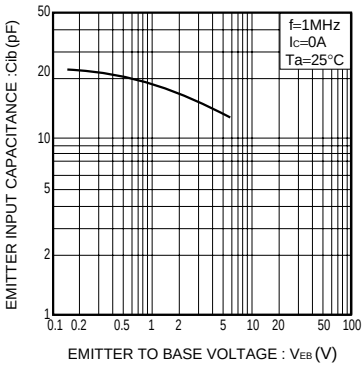


Fig.6 Emitter input capacitance vs. emitter-base voltage

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