High-voltage Switching Transistor (–400V, –2A)

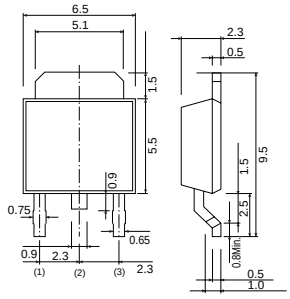
2SA1862

●Features

1) High breakdown voltage. (BV_{CEO} = –400V)
2) Low saturation voltage.
   (Max. $V_{CE\ (sat)}$ = –0.5V at I_C / I_B = –500mA / –100mA)
3) High switching speed, typically tf = 0.4μs at I_C = –1A.
4) Wide SOA (safe operating area).

●External dimensions (Unit : mm)

CPT3



(1)Base (Gate)
(2)Collector (Drain)
(3)Emitter (Source)

Abbreviated symbol : A1862

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	V_{CBO}	–400	V	
Collector-emitter voltage	V_{CEO}	–400	V	
Emitter-base voltage	V_{EBO}	–7	V	
Collector current	I_C	–2	A (DC)	
		–4	A (Pulse)	*
Collector power dissipation	P_C	1	W	
		10	W (Tc=25°C)	
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	–55 to +150	°C	

* Single pulse, Pw=10ms

●Packaging specifications and h_{FE}

Type	2SA1862
Package	CPT3
h_{FE}	P
Code	TL
Basic ordering unit (pieces)	2500

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–400	–	–	V	I_C= –50μA
Collector-emitter breakdown voltage	BV_{CEO}	–400	–	–	V	I_C= –1mA
Emitter-base breakdown voltage	BV_{EBO}	–7	–	–	V	I_E= –50μA
Collector cutoff current	I_{CBO}	–	–	–10	μA	V_{CB}= –400V
Emitter cutoff current	I_{EBO}	–	–	–10	μA	V_{EB}= –5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	–0.5	V	I_C/I_B= –0.5A/ –0.1A
Base-emitter saturation voltage	$V_{BE(sat)}$	–	–	–1.2	V	I_C/I_B= –0.5A/ –0.1A
DC current transfer ratio	h_{FE}	82	–	180	–	V_{CE}= –5V, I_C= –0.1A
Transition frequency	f_T	–	18	–	MHz	V_{CB}= –10V, I_E=0.1A, f=5MHz
Output capacitance	Cob	–	30	–	pF	V_{CE}= –10V, I_E=0A, f=1MHz
Turn-on time	ton	–	0.2	–	μs	I_C=–1A, R_L=150Ω
Storage time	tstg	–	1.8	–	μs	I_{B1}=–I_{B2}= –0.2A
Fall time	tf	–	0.4	–	μs	V_{CC} ≃ –150V

●Electrical characteristic curves

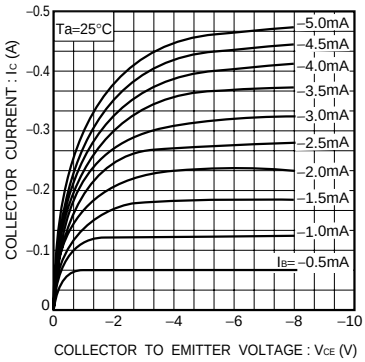


Fig.1 Ground emitter output characteristics

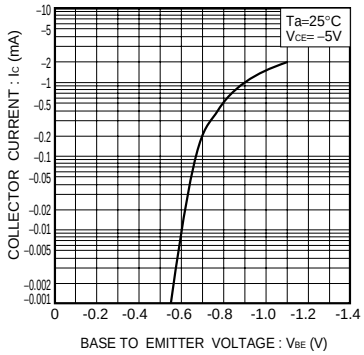


Fig.2 Grounded emitter propagation characteristics

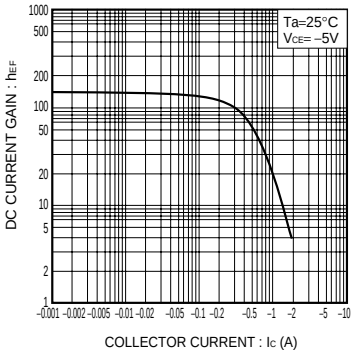


Fig.3 DC current gain vs. collector current

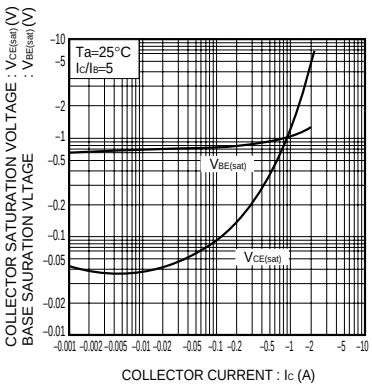


Fig.4 Collector-emitter saturation voltage vs. collector current
Base-emitter saturation voltage vs. collector current

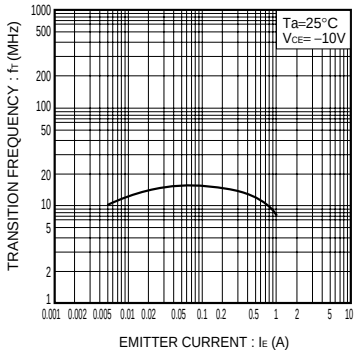


Fig.5 Gain bandwidth product vs. emitter current

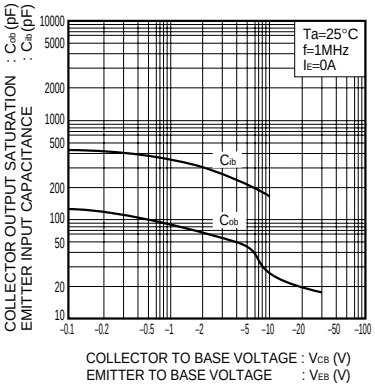


Fig.6 Collector output capacitance vs. collector-bass voltage
Emitter input capacitance vs. emitter-base voltage

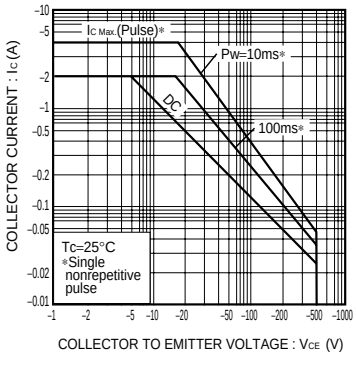


Fig.7 Safe operating area

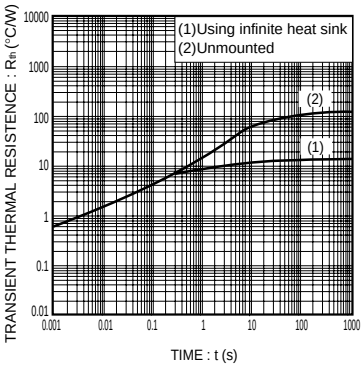


Fig.8 Transient thermal resistance

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