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

# 2SA1862

#### ●Features

- 1) High breakdown voltage. (BVcEo = -400V)
- 2) Low saturation voltage.

(Typ. Vce  $_{\mbox{\scriptsize (Sat)}} = -0.3 \mbox{V}$  at Ic / IB =  $-500 \mbox{mA}/-100 \mbox{mA})$ 

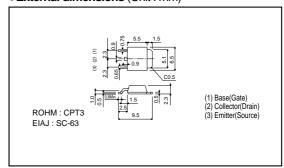
- 3) High switching speed, typically tf =  $0.4\mu s$  at Ic = -1A.
- 4) Wide SOA (safe operating area).

### ● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	Vсво	-400	V	
Collector-emitter voltage	Vceo	-400	V	
Emitter-base voltage	VEBO	-7	V	
Collector current	Ic	-2	A (DC)	
		-4	A (Pulse) *	
Collector power dissipation	Pc	1	W	
	Pc	10	W (Tc=25°C)	
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	-55 to +150	°C	

<sup>\*</sup> Single pulse, Pw=10ms

# ●External dimensions (Unit: mm)



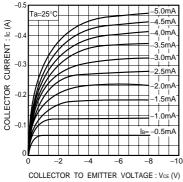
# ●Packaging specifications and hfe

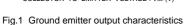
Туре	2SA1862
Package	CPT3
hfE	Р
Code	TL
Basic ordering unit (pieces)	2500

# ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	-400	-	-	V	Ic= -50μA
Collector-emitter breakdown voltage	BVceo	-400	-	-	V	Ic=-1mA
Emitter-base breakdown voltage	ВVево	-7	-	-	V	Iε= -50μA
Collector cutoff current	Ісво	-	-	-10	μА	Vcb= -400V
Emitter cutoff current	ІЕВО	-	-	-10	μΑ	V <sub>EB</sub> = -5V
Collector-emitter saturation voltage	VcE(sat)	-	-0.3	-0.5	V	Ic/I <sub>B</sub> = -0.5A/ -0.1A
Base-emitter saturation voltage	VcE(sat)	-	-	-1.2	V	Ic/I <sub>B</sub> = -0.5A/ -0.1A
DC current transfer ratio	hfe	82	-	180	-	Vce= -5V, Ic= -0.1A
Transition frequency	f⊤	-	18	-	MHz	Vcb= -10V, IE=0.1A, f=5MHz
Output capacitance	Cob	-	30	-	pF	Vce= -10V, Ie=0A, f=1MHz
Turn-on time	ton	-	0.2	-	μs	Ic=-1A, R <sub>L</sub> =150Ω
Storage time	tstg	-	1.8	-	μs	I <sub>B1</sub> =-I <sub>B2</sub> = -0.2A
Fall time	tf	-	0.4	-	μs	Vcc ≃ -150V

#### Electrical characteristic curves





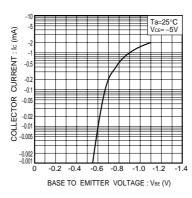


Fig.2 Grounded emitter propagation characteristics

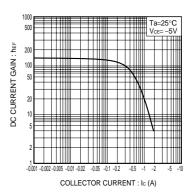


Fig.3 DC current gain vs. collector current

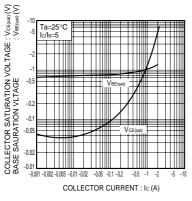
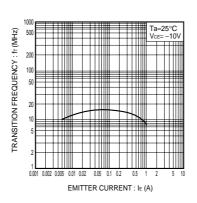


Fig.4 Collector-emitter saturation voltage vs. Fig.5 Gain bandwidth product vs. emitter current collector current
Base-emitter saturation voltage vs. collector current



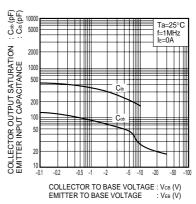


Fig.6 Collector output capacitance vs. collector-bass voltage Emitter input capacitance vs. emitter-base voltage

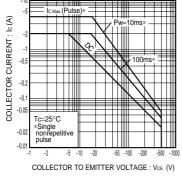


Fig.7 Safe operating area

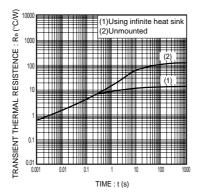


Fig.8 Transient thermal resistance

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