High-voltage Switching Transistor (Telephone, Power supply) (−600V, −1A)

2SA1807

● Features

1) High breakdown voltage. (BV_{CEO}=−600V)
2) Low saturation voltage, typically $V_{CE(sat)}$ =−0.25V at I_C / I_B=−300mA / −60mA.
3) High switching speed, typically tf=0.4 μs at I_C=−500mA
4) Wide SOA (safe operating area).

● Packaging specifications and h_{FE}

Type	2SA1807
Package	CPT3
h_{FE}	NP
Code	TL
Basic ordering unit (pieces)	2500

●Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	−600	V
Collector-emitter voltage	V_{CEO}	−600	V
Emitter-base voltage	V_{EBO}	−7	V
Collector current	I_C	−1	A (DC)
		−2	A (Pulse) ✻
Collector power dissipation	P_C	1	W
		10	W (Tc=25℃)
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55～+150	℃

✻ Single pulse, Pw=100ms

●Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−600	—	—	V	I_C=−50 μA
Collector-emitter breakdown voltage	BV_{CEO}	−600	—	—	V	I_C=−1mA
Emitter-base breakdown voltage	BV_{EBO}	−7	—	—	V	I_E=−50 μA
Collector cutoff current	I_{CBO}	—	—	−10	μA	V_{CB}=−600V
Emitter cutoff current	I_{EBO}	—	—	−10	μA	V_{EB}=−7V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−0.25	−1	V	I_C/I_B=−300mA/−60mA
Base-emitter saturation voltage	$V_{CE(sat)}$	—	—	−1.2	V	I_C/I_B=−300mA/−60mA
DC current transfer ratio	h_{FE}	56	—	180	—	V_{CE}=−5V , I_C=−100mA
Transition frequency	f_T	—	15	—	MHz	V_{CB}=−10V , I_E=50mA , f=5MHz
Output capacitance	Cob	—	40	—	pF	V_{CE}=−10V , I_E=0A , f=1MHz
Turn-on time	t_{on}	—	0.2	—	μs	I_C=−500mA , R_L=500Ω
Storage time	t_{stg}	—	1.8	—	μs	I_{B1}=−I_{B2}=−100mA
Fall time	t_f	—	0.4	—	μs	V_{CC}≒−250V

(96-102-A331)

High-voltage Switching Transistor (Telephone, Power supply) (−400V, −2A)

2SA1862

● Features

1) High breakdown voltage. (BV_{CEO}=−400V)
2) Low saturation voltage, typically $V_{CE(sat)}$ =−0.3V at I_C / I_B=−500mA / −100mA.
3) High switching speed, typically tf=0.4 μs at I_C=−1A.
4) Wide SOA (safe operating area).

● Packaging specifications and h_{FE}

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

●Absolute maximum ratings (Ta=25℃)

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℃)
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55～+150	℃

✻ Single pulse, Pw=10ms

● Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−400	—	—	V	I_C=−50 μA
Collector-emitter breakdown voltage	BV_{CEO}	−400	—	—	V	I_C=−1mA
Emitter-base breakdown voltage	BV_{EBO}	−7	—	—	V	I_E=−50 μA
Collector cutoff current	I_{CBO}	—	—	−10	μA	V_{CB}=−400V
Emitter cutoff current	I_{EBO}	—	—	−10	μA	V_{EB}=−5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−0.3	−0.5	V	I_C/I_B=−0.5A/−0.1A
Base-emitter saturation voltage	$V_{CE(sat)}$	—	—	−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	t_{on}	—	0.2	—	μs	I_C=−1A , R_L=150Ω
Storage time	t_{stg}	—	1.8	—	μs	I_{B1}=−I_{B2}=−0.2A
Fall time	t_f	—	0.4	—	μs	V_{CC}≒150V

(96-109-A343)