High-speed Switching Transistor (–60V, –5A)

2SA1952 / 2SA1906 / 2SA2006

●Features

1) High speed switching. (tf : Typ. 0.15 μs at I_C = –3A)
2) Low $V_{CE(sat)}$. (Typ. –0.2V at I_C / I_B = –3 / –0.15A)
3) Wide SOA. (safe operating area)
4) Complements the 2SC5103 / 2SC5525.

●Absolute maximum ratings (Ta = 25°C)

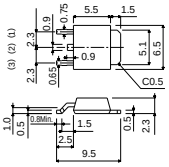
Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	–100	V
Collector-emitter voltage		V_{CEO}	–60	V
Emitter-base voltage		V_{EBO}	–5	V
Collector current		I_C	–5	A
			–10	A(Pulse)
Collector power dissipation	2SA1952	P_C	1	W
			10	W(Tc=25°C)
	2SA1906		1.5	W
			25	W(Tc=25°C)
	2SA2006		2	W
			25	W(Tc=25°C)
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 – +150	°C

●Packaging specifications and h_{FE}

Type	2SA1952	2SA1906	2SA2006
Package	CPT3	PSD3	TO-220FN
h_{FE}	Q	DEF	EF
Code	TL	TL	–
Basic ordering unit (pieces)	2500	1000	500

●External dimensions (Units : mm)

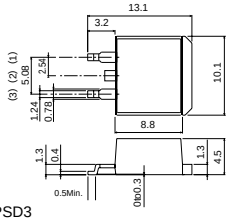
2SA1952



ROHM : CPT3
EIAJ : SC-63

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

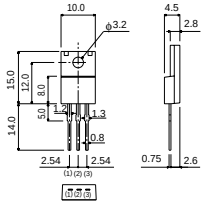
2SA1906



ROHM : PSD3
EIAJ : SC-83A

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

2SA2006



ROHM : TO-220FN

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

●Electrical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV_{CBO}	–100	–	–	V	I_C = –50μA
Collector-emitter breakdown voltage		BV_{CEO}	–60	–	–	V	I_C = –1mA
Emitter-base breakdown voltage		BV_{EBO}	–5	–	–	V	I_E = –50μA
Collector cutoff current		I_{CBO}	–	–	–10	μA	V_{CB} = –100V
Emitter cutoff current		I_{EBO}	–	–	–10	μA	V_{EB} = –5V
Collector-emitter saturation voltage		$V_{CE(sat)}$	–	–	–0.3	V	I_C/I_B = –3A/–0.15A
			–	–	–0.5	V	I_C/I_B = –4A/–0.2A
Base-emitter saturation voltage		$V_{BE(sat)}$	–	–	–1.2	V	I_C/I_B = –3A/–0.15A
			–	–	–1.5	V	I_C/I_B = –4A/–0.2A
DC current transfer ratio	2SA1952	h_{FE}	120	–	270	–	V_{CE} = –2V , I_C = –1A
	2SA1906		60	–	320	–	
	2SA2006		100	–	320	–	
Transition frequency		f_T	–	80	–	MHz	V_{CE} = –10V , I_E = 0.5A , f = 30MHz
Output capacitance		Cob	–	130	–	pF	V_{CB} = –10V , I_E = 0A , f = 1MHz
Turn-on time		ton	–	–	0.3	μs	I_C = –3A , R_L = 10Ω
Storage time		tstg	–	–	1.5	μs	I_{B1} = –I_{B2} = –0.15A
Fall time		tf	–	–	0.3	μs	V_{CC} ≒ –30V