

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

## 2SA1952

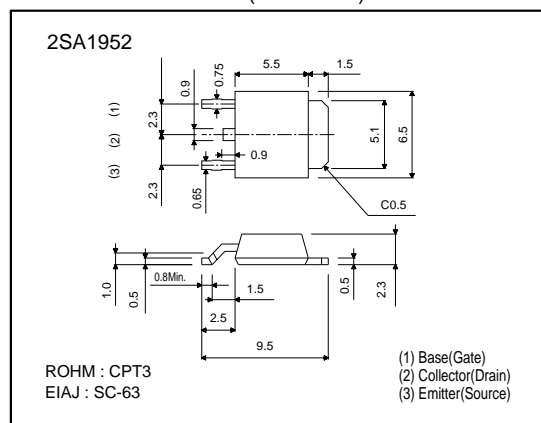
### ●Features

- 1) High speed switching. (tf : Typ. 0.15  $\mu$ s 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.

### ●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	$P_c$	1	W
		10	W( $T_C = 25^\circ\text{C}$ )
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	–55–+150	$^\circ\text{C}$

### ●External dimensions (Units : mm)



### ●Packaging specifications and $h_{FE}$

Type	2SA1952
Package	CPT3
$h_{FE}$	Q
Code	TL
Basic ordering unit (pieces)	2500

### ●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	–100	–	–	V	$I_c = -50\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	–60	–	–	V	$I_c = -1\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	–5	–	–	V	$I_E = -50\mu\text{A}$
Collector cutoff current	$I_{CBO}$	–	–	–10	$\mu\text{A}$	$V_{CB} = -100\text{V}$
Emitter cutoff current	$I_{EBO}$	–	–	–10	$\mu\text{A}$	$V_{EB} = -5\text{V}$
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	$h_{FE}$	120	–	270	–	$V_{CE} = -2\text{V}$ , $I_c = -1\text{A}$
Transition frequency	$f_T$	–	80	–	MHz	$V_{CE} = -10\text{V}$ , $I_E = 0.5\text{A}$ , $f = 30\text{MHz}$
Output capacitance	$C_{ob}$	–	130	–	pF	$V_{CB} = -10\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$
Turn-on time	$t_{on}$	–	–	0.3	$\mu\text{s}$	$I_c = -3\text{A}$ , $R_L = 10\Omega$
Storage time	$t_{stg}$	–	–	1.5	$\mu\text{s}$	$I_{B1} = -I_{B2} = -0.15\text{A}$
Fall time	$t_f$	–	–	0.3	$\mu\text{s}$	$V_{CC} = -30\text{V}$