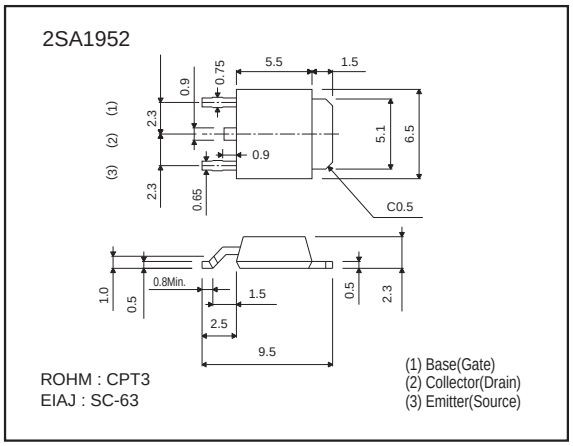
High-speed Switching Transistor (-60V, -5A)

2SA1952

●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.

●Dimensions (Unit : mm)



●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(Tc=25°C)
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55~+150	°C

●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 = –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	$h_{FE}1$	120	–	270	–	V_{CE} = –2V , I_C = –1A
	$h_{FE}2$	40	–	–	–	V_{CE} = –2V , I_C = –3A
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

●Electrical characteristics curves

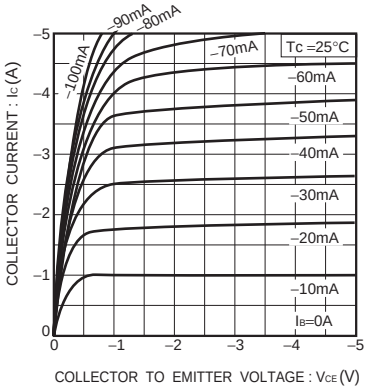


Fig.1 Ground emitter output characteristics

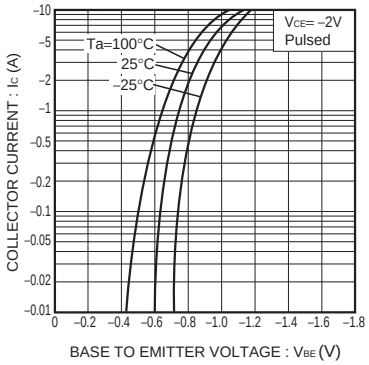


Fig.2 Ground emitter propagation characteristics

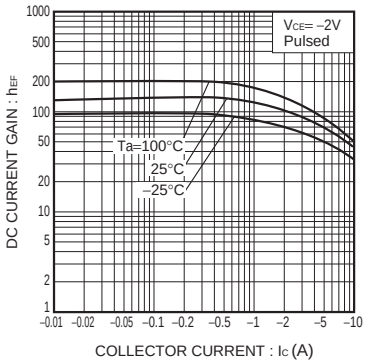


Fig.3 DC current gain vs. collector current

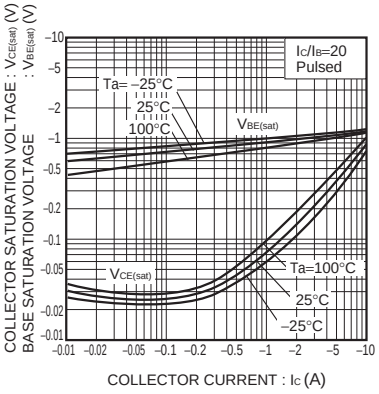


Fig.4 Collector-emitter saturation voltage
Base-emitter saturation voltage vs. collector current

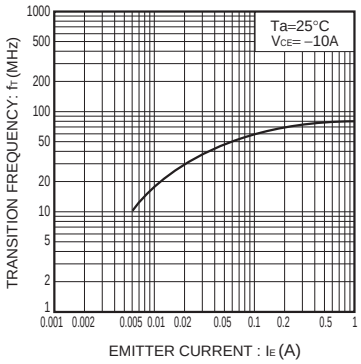


Fig.5 Resistance ratio vs. emitter current

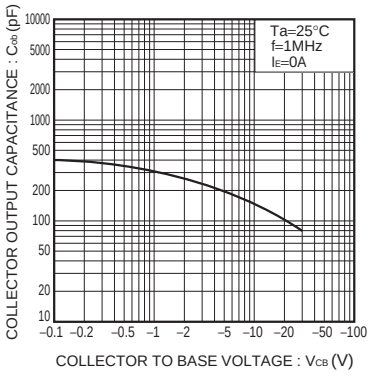


Fig.6 Collector output capacitance
vs. collector-base voltage

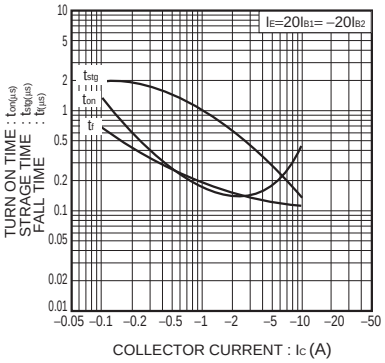


Fig.7 Switching characteristics

Notes

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