

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

2SA1952

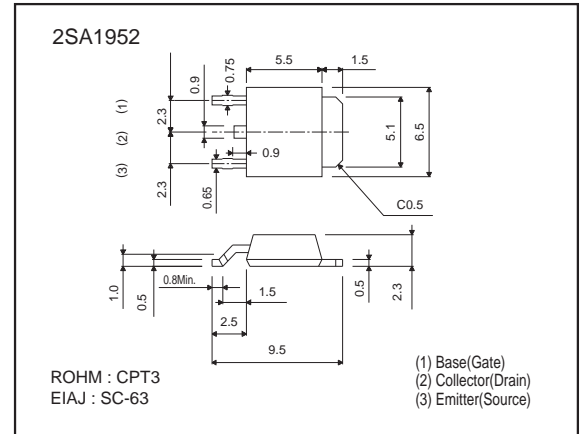
●Features

- 1) High speed switching. (tf : Typ. 0.15 μs at Ic = -3A)
- 2) Low V_{CE(sat)}. (Typ. -0.2V at Ic/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 _{CB0}	-100	V
Collector-emitter voltage	V _{CE0}	-60	V
Emitter-base voltage	V _{EB0}	-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	T _j	150	°C
Storage temperature	T _{stg}	-55~+150	°C

●Dimensions (Unit : 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 _{CB0}	-100	-	-	V	I _c = -50μA
Collector-emitter breakdown voltage	BV _{CE0}	-60	-	-	V	I _c = -1mA
Emitter-base breakdown voltage	BV _{EB0}	-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 _{FE1}	120	-	270	-	V _{CE} = -2V, I _c = -1A
	h _{FE2}	40	-	-	-	V _{CE} = -2V, I _c = -3A
Transition frequency	f _T	-	80	-	MHz	V _{CE} = -10V, I _E = 0.5A, f = 30MHz
Output capacitance	C _{ob}	-	130	-	pF	V _{CB} = -10V, I _E = 0A, f = 1MHz
Turn-on time	t _{on}	-	-	0.3	μs	I _c = -3A, R _L = 10Ω
Storage time	t _{stg}	-	-	1.5	μs	I _{B1} = -I _{B2} = -0.15A
Fall time	t _f	-	-	0.3	μs	V _{CC} ≈ -30V

●Electrical characteristics curves

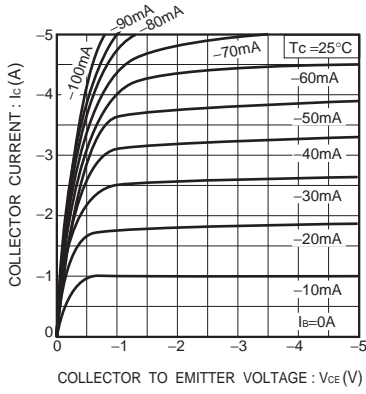


Fig.1 Ground emitter output characteristics

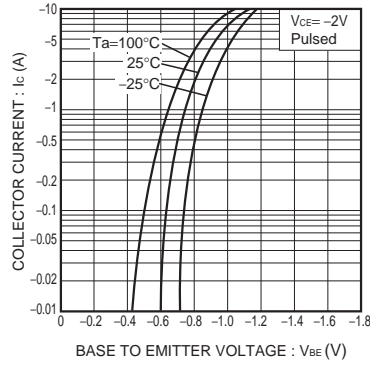


Fig.2 Ground emitter propagation characteristics

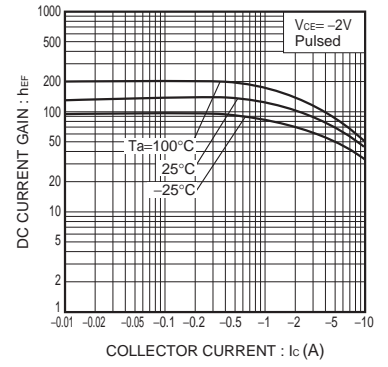


Fig.3 DC current gain vs. collector current

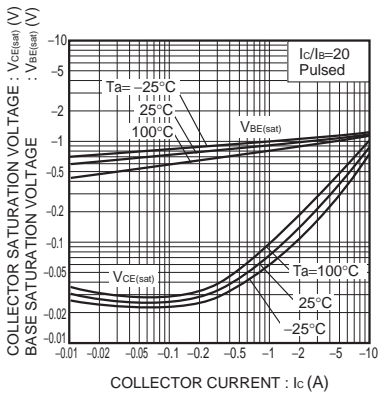


Fig.4 Collector-emitter saturation voltage vs. collector current
Base-emitter saturation voltage

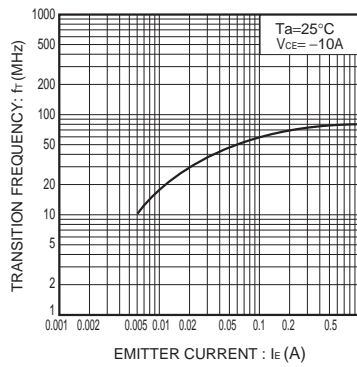


Fig.5 Resistance ratio vs. emitter current

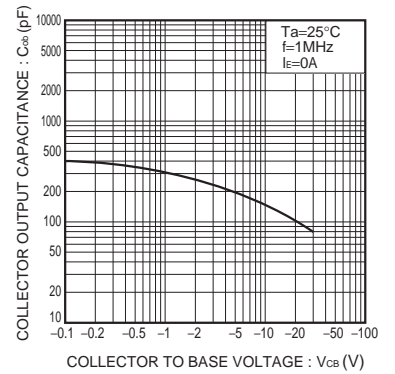


Fig.6 Collector output capacitance vs. collector-base voltage

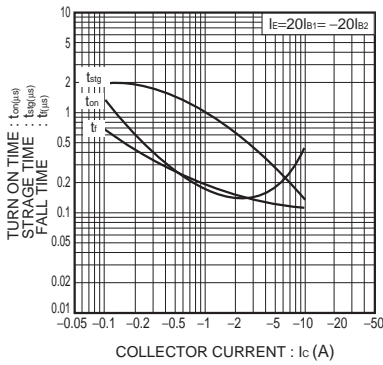


Fig.7 Switching characteristics

Notes

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