

-1A / -60V Bipolar transistor

2SA2092

Features

- 1) High speed switching. (t_f : Typ. : 30ns at $I_c = -1A$)
- 2) Low saturation voltage.
(Typ. : -200mV at $I_c = -500mA$, $I_B = -50mA$)
- 3) Strong discharge resistance for inductive load and capacitance load.
- 4) Low switching noise.

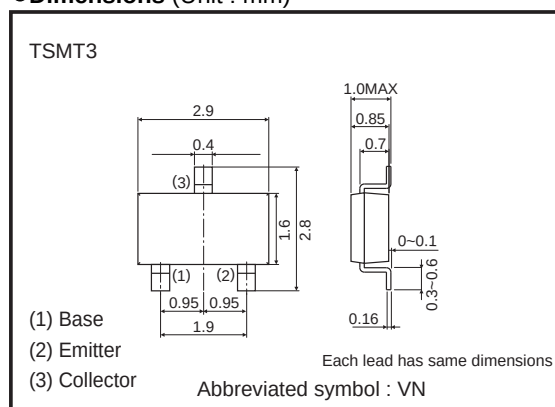
Applications

High-speed switching, low frequency amplification

Structure

PNP epitaxial planar silicon transistor

Dimensions (Unit : mm)



Packaging specifications

Part No.	Package	TSMT3
	Packaging type	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SA2092		○

Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V _{CBO}	−60	V
Collector-emitter voltage		V _{CEO}	−60	V
Emitter-base voltage		V _{EBO}	−6	V
Collector current	DC	I _C	−1	A
	PULSE	I _{CP} *1	−2	A
Power dissipation		P _C *2	500	mW
Junction temperature		T _j	150	°C
Range of storage temperature		T _{stg}	−55 to +150	°C

*1 $P_W=10ms$

*2 Each terminal mounted on a recommended land

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	-60	-	-	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	BV_{CBO}	-60	-	-	V	$I_C = -100\mu\text{A}$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E = -100\mu\text{A}$
Collector cut-off current	I_{CBO}	-	-	-1.0	μA	$V_{CB} = -40\text{V}$
Emitter cut-off current	I_{EBO}	-	-	-1.0	μA	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-200	-500	mV	$I_C = -500\text{mA}$, $I_B = -50\text{mA}$
DC current gain	h_{FE} *3	120	-	270	-	$V_{CE} = -2\text{V}$, $I_C = -100\text{mA}$
Transition frequency	f_T *1	-	300	-	MHz	$V_{CE} = -10\text{V}$, $I_E = 100\text{mA}$, $f = 10\text{MHz}$
Collector output capacitance	C_{ob}	-	15	-	pF	$V_{CB} = -10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$
Turn-on time	t_{on}	-	30	-	ns	$I_C = -1\text{A}$, $I_{B1} = -100\text{mA}$
Storage time	t_{stg}	-	100	-	ns	$I_{B2} = 100\text{mA}$
Fall time	t_f *2	-	30	-	ns	$V_{CC} = -25\text{V}$

*1 Pulse measurement

*2 See switching test circuit

*3 h_{FE} rank

● h_{FE} RANK

Q
120-270

●Electrical characteristic curves

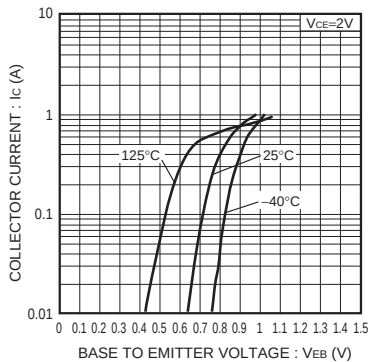


Fig.1 Grounded emitter propagation characteristics

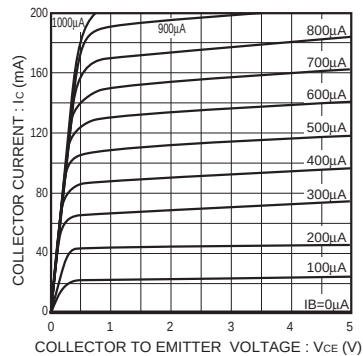


Fig.2 Typical output characteristics

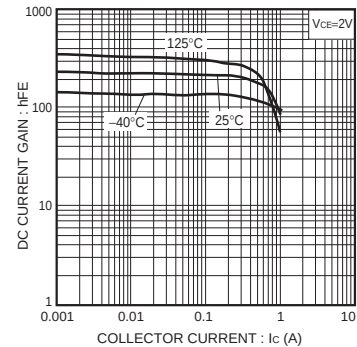


Fig.3 DC current gain vs. collector current (I)

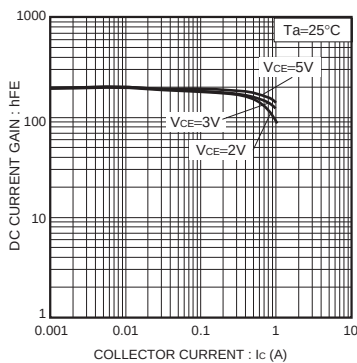


Fig.4 DC current gain vs. collector current (II)

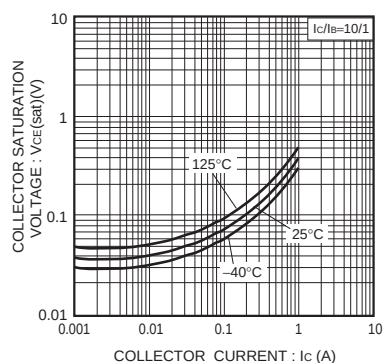


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

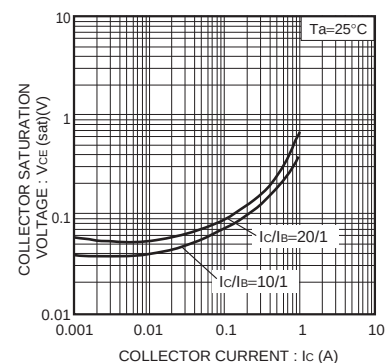


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

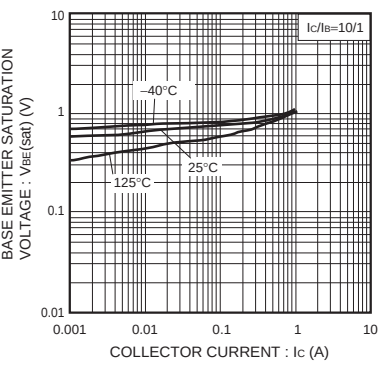


Fig.7 Base-emitter saturation voltage vs. collector current

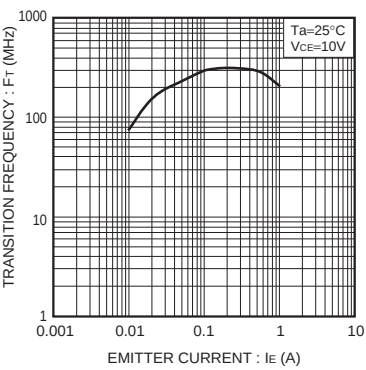


Fig.8 Transition frequency

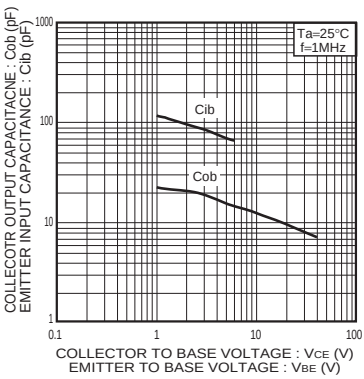


Fig.9 Collector output capacitance Emitter input capacitance

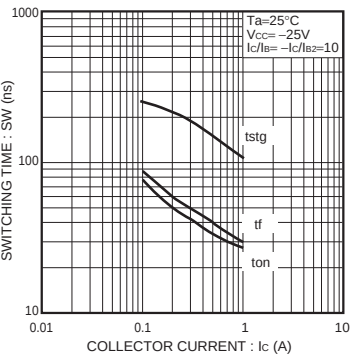
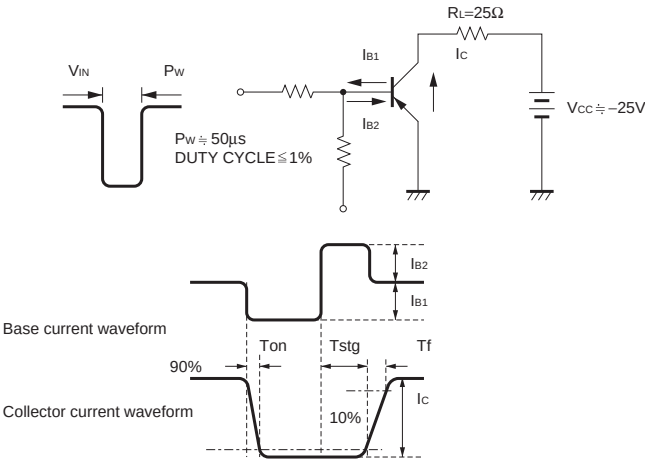


Fig.10 Switching Time

●Switching characteristics measurement circuits



Notes

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