

-1A / -60V Bipolar transistor

2SA2092

●Features

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

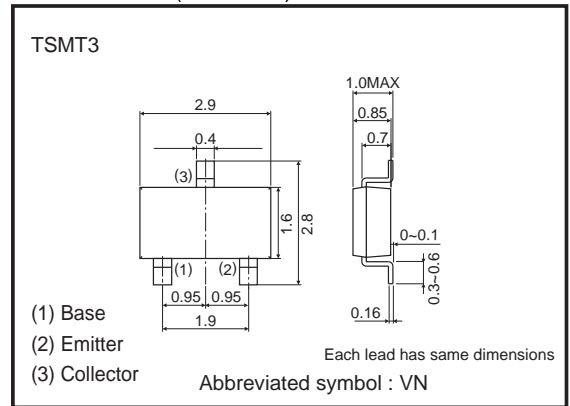
●Applications

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 _{CB0}	-60	V	
Collector-emitter voltage	V _{CE0}	-60	V	
Emitter-base voltage	V _{EB0}	-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 Pw=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	$I_c = -1mA$
Collector-base breakdown voltage	BV_{CBO}	-60	-	-	V	$I_c = -100\mu A$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E = -100\mu A$
Collector cut-off current	I_{CBO}	-	-	-1.0	μA	$V_{CB} = -40V$
Emitter cut-off current	I_{EBO}	-	-	-1.0	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-200	-500	mV	$I_c = -500mA, I_B = -50mA$
DC current gain	$h_{FE} *3$	120	-	270	-	$V_{CE} = -2V, I_c = -100mA$
Transition frequency	$f_T *1$	-	300	-	MHz	$V_{CE} = -10V, I_E = 100mA, f = 10MHz$
Collector output capacitance	C_{ob}	-	15	-	pF	$V_{CB} = -10V, I_E = 0, f = 1MHz$
Turn-on time	t_{on}	-	30	-	ns	$I_c = -1A, I_{B1} = -100mA$
Storage time	t_{stg}	-	100	-	ns	$I_{B2} = 100mA$
Fall time	$t_f *2$	-	30	-	ns	$V_{CC} = -25V$

*1 Pulse measurement
 *2 See switching test circuit
 *3 h_{FE} rank

● h_{FE} RANK

Q
120-270

●Electrical characteristic curves

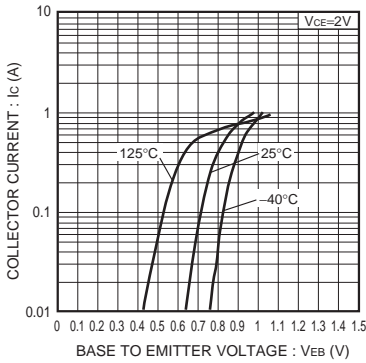


Fig.1 Grounded emitter propagation characteristics

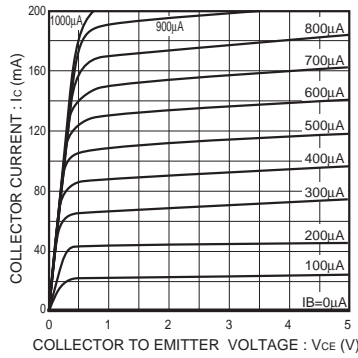


Fig.2 Typical output characteristics

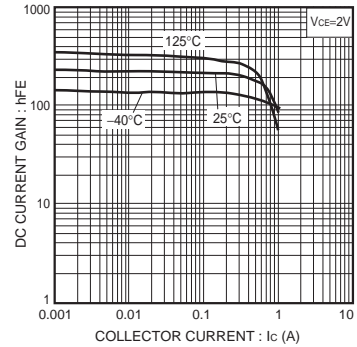


Fig.3 DC current gain vs. collector current (I)

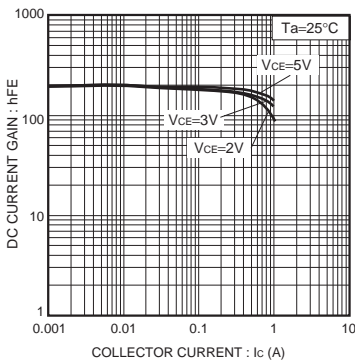


Fig.4 DC current gain vs. collector current (II)

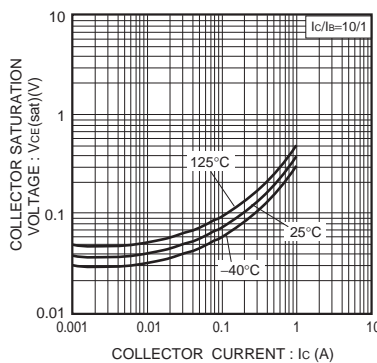


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

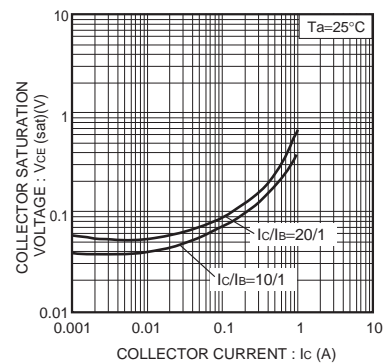


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

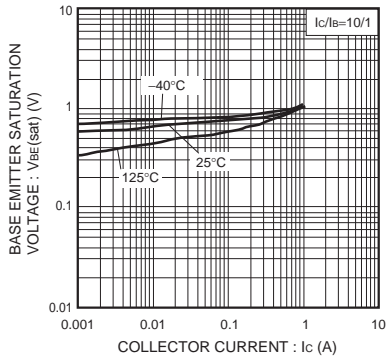


Fig.7 Base-emitter saturation voltage vs. collector current

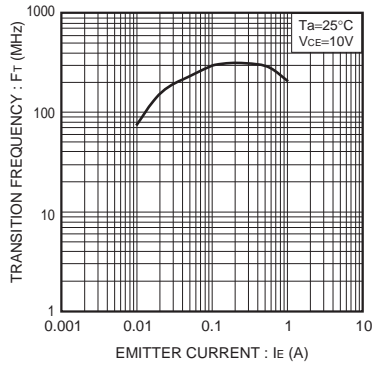


Fig.8 Transition frequency

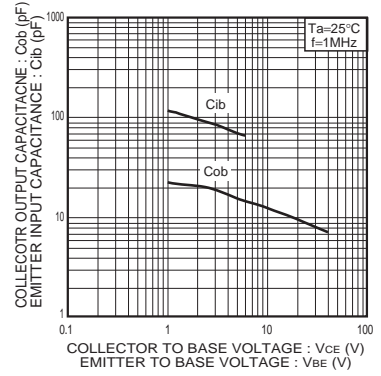


Fig.9 Collector output capacitance Emitter input capacitance

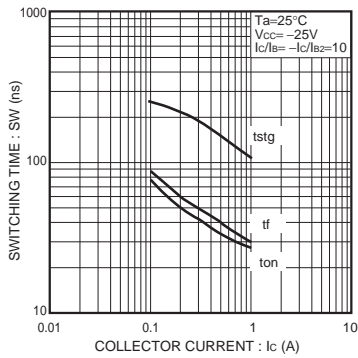
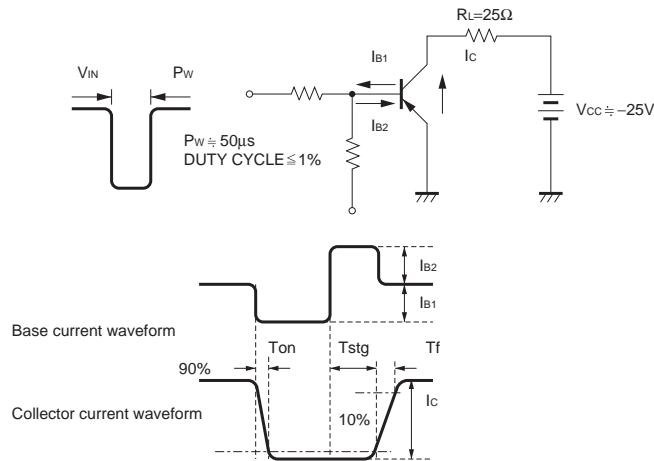


Fig.10 Switching Time

● Switching characteristics measurement circuits



Notes

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