

# Medium power transistor (−60V, −2A)

**2SA2094**

●Features

- 1) High speed switching.  
(Tf : Typ. : 30ns at Ic = −2A)
- 2) Low saturation voltage, typically  
(Typ. : −200mV at Ic = −1A, Ib = −0.1A)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SC5866

●Applications

Low frequency amplifier  
High speed switching

●Structure

PNP epitaxial planar silicon transistor

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SA2094		○

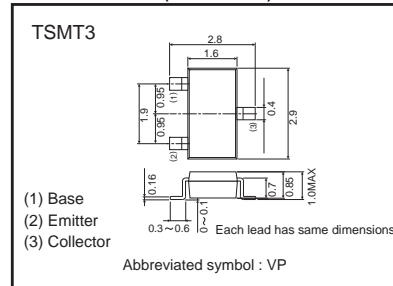
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	−60	V
Collector-emitter voltage	V <sub>CE0</sub>	−60	V
Emitter-base voltage	V <sub>EB0</sub>	−6	V
Collector current	DC	I <sub>c</sub>	−2 A
	Pulsed	I <sub>cP</sub>	−4 A *1
Power dissipation	P <sub>c</sub>	500	mW *2
Junction temperature	T <sub>j</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	−55 to 150	°C

\*1 Pw=10ms

\*2 Each terminal mounted on a recommended land

●Dimensions (Unit : mm)



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
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	$\mu A$	$V_{CB} = -40V$
Emitter cut-off current	$I_{EBO}$	-	-	-1.0	$\mu A$	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-200	-500	mV	$I_C = -1A$ $I_B = -0.1A$
DC current gain	$h_{FE}$	120	-	270	-	$V_{CE} = -2V$ $I_C = -100mA$
Transition frequency	$f_T$	-	300	-	MHz	$V_{CE} = -10V$ $I_E = 100mA$ $f = 10MHz$
Corrector output capacitance	$C_{ob}$	-	25	-	pF	$V_{CB} = -10V$ $I_E = 0mA$ $f = 1MHz$
Turn-on time	$T_{on}$	-	25	-	ns	$I_C = -2A$ $I_{B1} = -200mA$ $I_{B2} = 200mA$ $V_{CC} = 25V$
Storage time	$T_{stg}$	-	100	-	ns	
Fall time	$T_f$	-	30	-	ns	

\*1 Non repetitive pulse

\*2 See Switching characteristics measurement circuits

●hFE RANK

Q
120-270

●Electrical characteristic curves

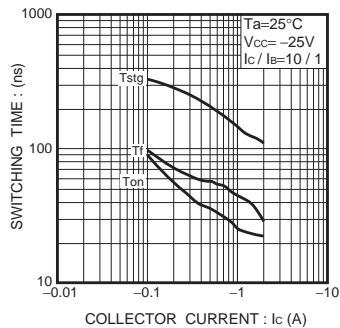


Fig.1 Switching Time

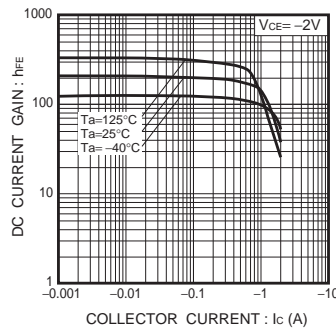


Fig.2 DC Current Gain vs. Collector Current (I)

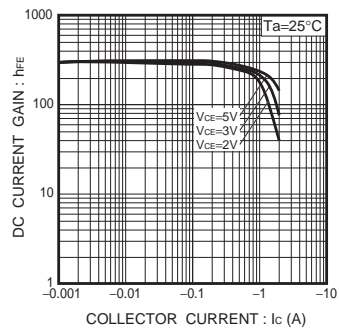


Fig.3 DC Current Gain vs. Collector Current (II)

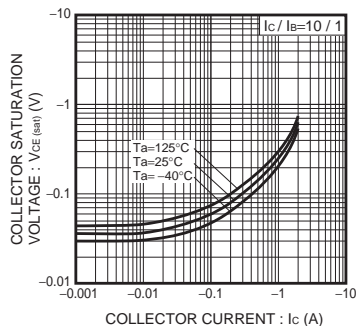


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

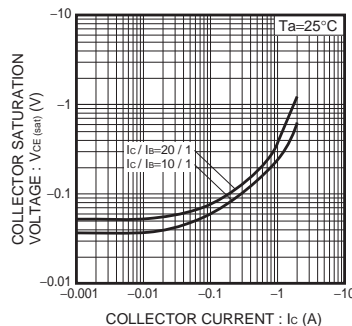


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

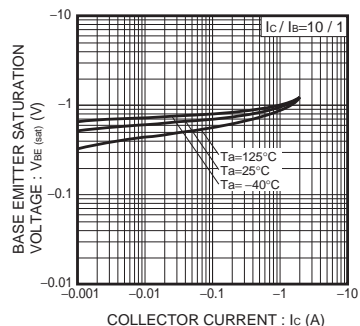


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

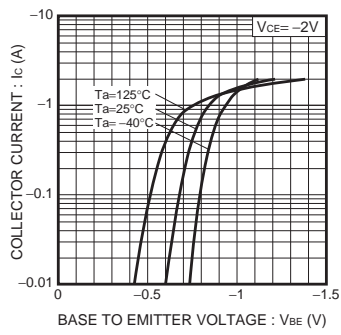


Fig.7 Grounded Emitter Propagation Characteristics

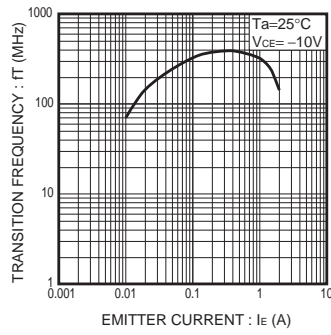


Fig.8 Transition Frequency

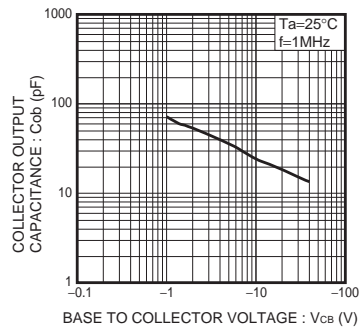
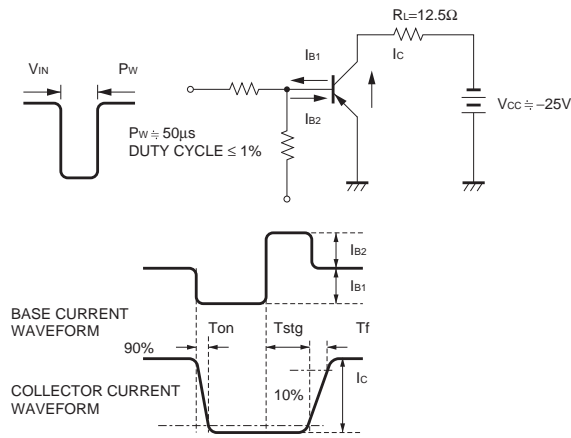


Fig.9 Collector Output Capacitance

●Switching characteristics measurement circuits



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