

# Power transistor (−60V, −5A)

## 2SA2096

### ●Features

- 1) High speed switching.  
(Tf : Typ. : 25ns at Ic = −5A)
- 2) Low saturation voltage, typically  
(Typ. : −200mV at Ic = −3A, Ib = −0.3A)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SC5881

### ●Applications

Low frequency amplifier  
High speed switching

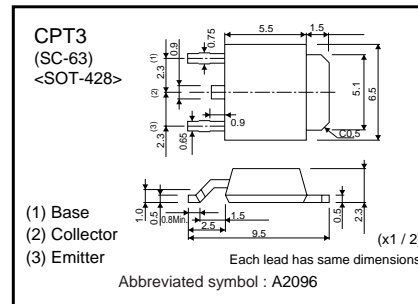
### ●Structure

PNP Silicon epitaxial planar transistor

### ●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	2500
2SA2096		○

### ●External dimensions (Unit : mm)



### ●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>	−5.0	A
	Pulsed	I <sub>cP</sub>	−10.0	A <sup>*1</sup>
Power dissipation	P <sub>c</sub>	1.0	W <sup>*2</sup>	
		10.0	W <sup>*3</sup>	
Junction temperature		T <sub>j</sub>	150	°C
Range of storage temperature		T <sub>stg</sub>	−55 to 150	°C

<sup>\*1</sup> P<sub>W</sub> = 100ms

<sup>\*2</sup> T<sub>a</sub> = 25°C

<sup>\*3</sup> T<sub>c</sub> = 25°C

Transistors

●Electrical characteristics (Ta=25°C)

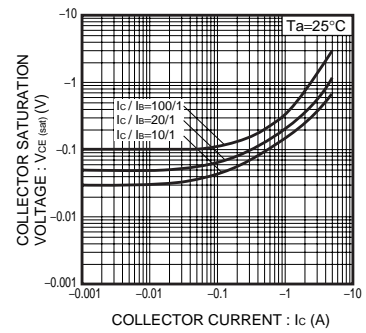
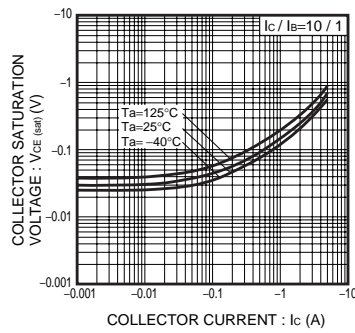
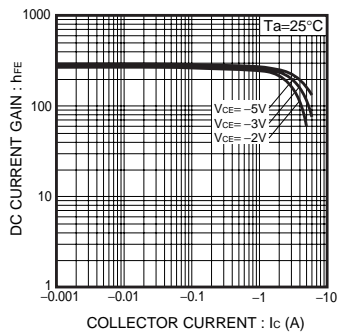
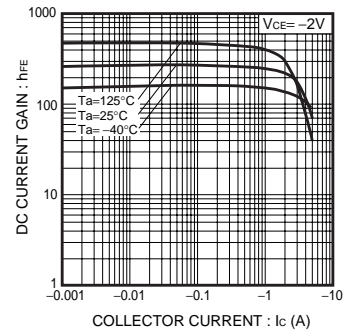
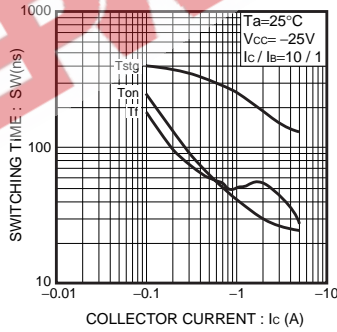
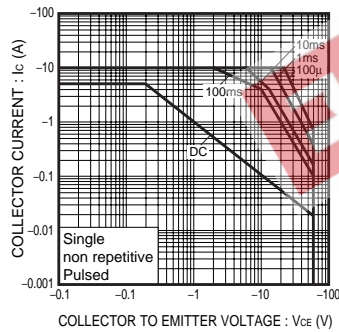
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-emitter breakdown voltage	$BV_{CEO}$	-60	-	-	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	$BV_{CBO}$	-60	-	-	V	$I_C = -100\mu\text{A}$
Emitter-base breakdown voltage	$BV_{EBO}$	-6	-	-	V	$I_E = -100\mu\text{A}$
Collector cut-off current	$I_{CBO}$	-	-	-1.0	$\mu\text{A}$	$V_{CB} = -40\text{V}$
Emitter cut-off current	$I_{EBO}$	-	-	-1.0	$\mu\text{A}$	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-200	-500	mV	$I_C = -3\text{mA}$ $I_B = -0.3\text{mA}$
DC current gain	$h_{FE}$	120	-	270	-	$V_{CE} = -2\text{V}$ $I_C = -100\text{mA}$
Transition frequency	$f_T$	-	170	-	MHz	$V_{CE} = -10\text{V}$ $I_E = 100\text{mA}$ $f = 10\text{MHz}$
Corrector output capacitance	$C_{ob}$	-	75	-	pF	$V_{CB} = -10\text{V}$ $I_E = 0\text{mA}$ $f = 1\text{MHz}$
Turn-on time	$T_{on}$	-	25	-	ns	$I_C = -5.0\text{A}$ $I_{B1} = -500\text{mA}$ $I_{B2} = 500\text{mA}$ $V_{CC} = -25\text{V}$
Storage time	$T_{stg}$	-	130	-	ns	
Fall time	$T_f$	-	25	-	ns	

\*1 Non repetitive pulse  
\*2 See Switching characteristics measurement circuits

●hFE RANK

Q
120-270

●Electrical characteristic curves



Transistors

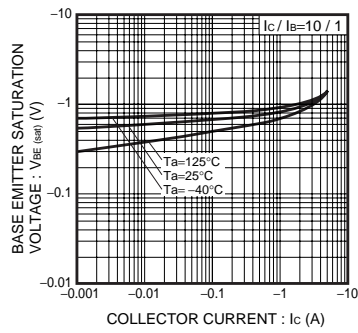


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

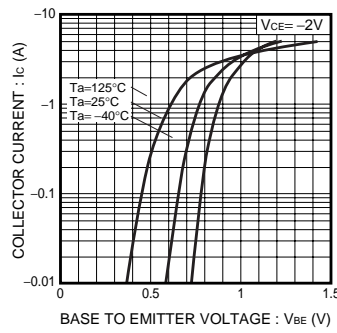


Fig.8 Grounded Emitter Propagation Characteristics

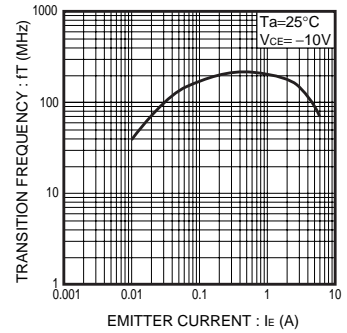


Fig.9 Transition Frequency

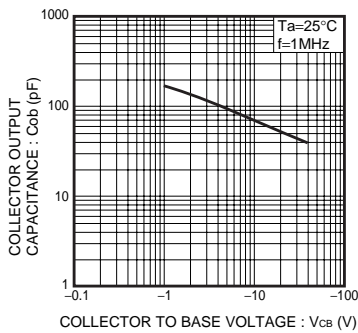
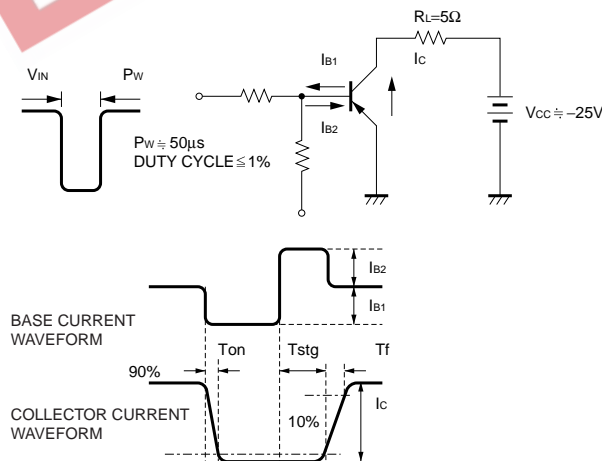


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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