

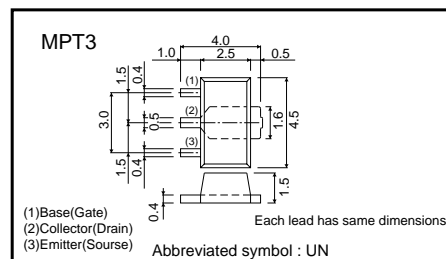
# Power transistor (–60V, –3A)

## 2SA2071

### ●Features

- 1) High speed switching. ( $T_f$  : Typ. : 20ns at  $I_c = -3A$ )
- 2) Low saturation voltage, typically  
(Typ. : –200mV at  $I_c = -2A$ ,  $I_B = -0.2A$ )
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SC5824

### ●External dimensions (Units : mm)



### ●Applications

Low Frequency Amplifier  
High speed switching

### ●Structure

PNP Silicon epitaxial planar transistor

### ●Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
2SA2071		○

### ●Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

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	$I_c$	–3	A
	$I_{CP}$	–6	A *1
Power dissipation	$P_c$	500	mW
		2.0	W *2
Junction temperature	$T_j$	150	$^\circ\text{C}$
Range of storage temperature	$T_{stg}$	–55~+150	$^\circ\text{C}$

\*1  $P_w = 100\text{ms}$

\*2 Mounted on a 40×40×0.7 (mm) ceramic substrate

## Transistor

## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	-60	—	—	V	I <sub>C</sub> =-100μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	-60	—	—	V	I <sub>C</sub> =-1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-6	—	—	V	I <sub>E</sub> =-100μA
Collector cut-off current	I <sub>CBO</sub>	—	—	-1.0	μA	V <sub>CB</sub> =-40V
Emitter cut-off current	I <sub>EBO</sub>	—	—	-1.0	μA	V <sub>EB</sub> =-4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	-200	-500	mV	I <sub>C</sub> =-2A, I <sub>B</sub> =-0.2A *1
DC current gain	h <sub>FE</sub>	120	—	390	—	V <sub>CE</sub> =-2V, I <sub>C</sub> =-100mA
Transition frequency	f <sub>r</sub>	—	180	—	MHz	V <sub>CE</sub> =-10V, I <sub>E</sub> =10mA, f=10MHz *1
Collector output capacitance	C <sub>ob</sub>	—	50	—	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =0mA, f=1MHz
Turn-on time	T <sub>on</sub>	—	20	—	ns	I <sub>C</sub> =-3A I <sub>B1</sub> =-300mA
Storage time	T <sub>stg</sub>	—	150	—	ns	I <sub>B2</sub> =300mA
Fall time	T <sub>f</sub>	—	20	—	ns	V <sub>CC</sub> ≈-25V *2

\*1 Non repetitive pulse

\*2 See switching characteristics measurement circuits

●h<sub>FE</sub> RANK

Q
120-270

## ●Electrical characteristic curves

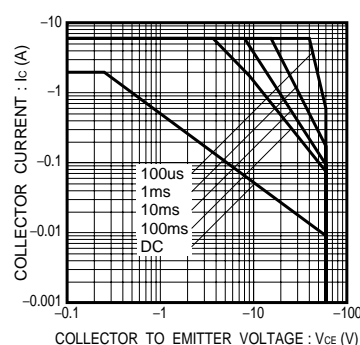


Fig.1 Safe Operating Area

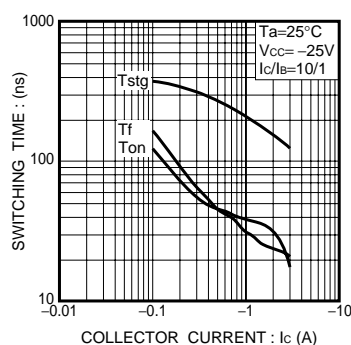


Fig.2 Switching Time

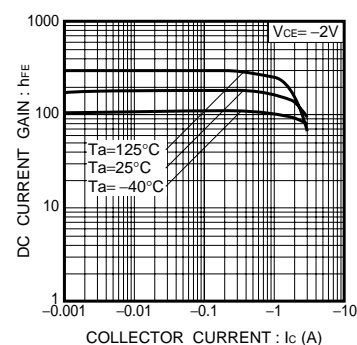


Fig.3 DC Current Gain vs. Collector Current (I)

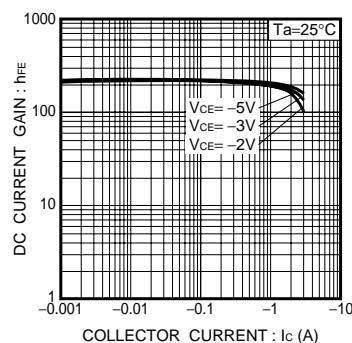


Fig.4 DC Current Gain vs. Collector Current (II)

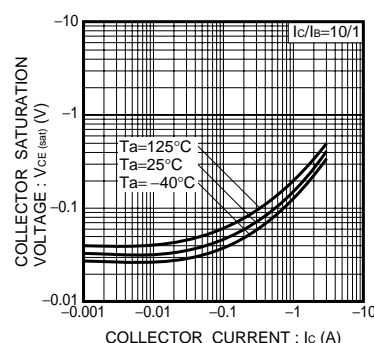


Fig.5 Collector-Emmitter Saturation Voltage vs. Collector Current (I)

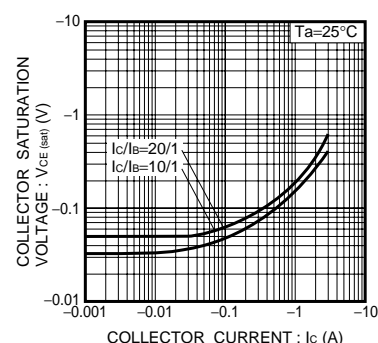


Fig.6 Collector-Emmitter Saturation Voltage vs. Collector Current (II)

## Transistor

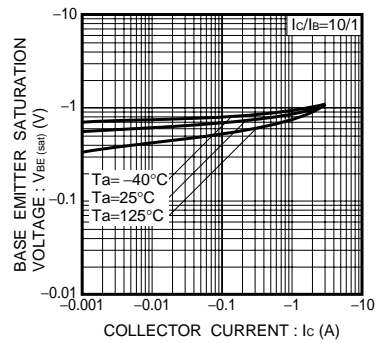


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

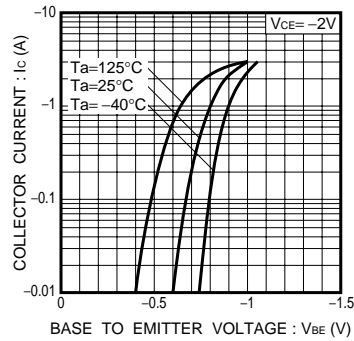


Fig.8 Grounded Emitter Propagation Characteristics

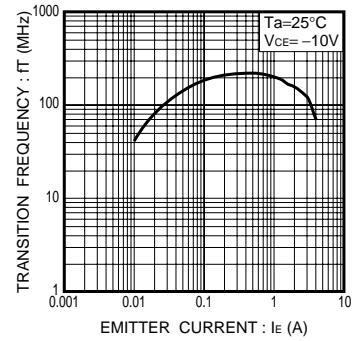


Fig.9 Transition Frequency

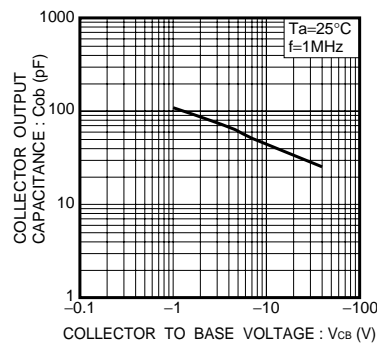
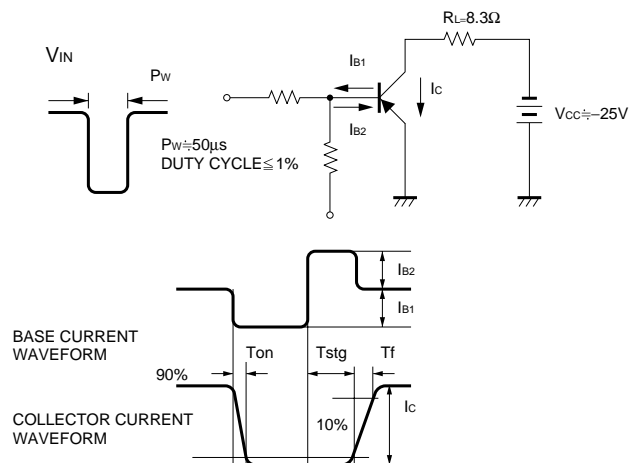


Fig.10 Collector Output Capacitance

## ●Switching characteristics measurement circuits



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