

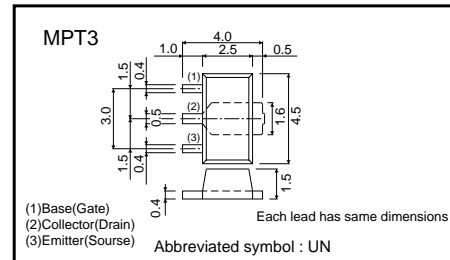
# Power transistor (−60V, −3A)

## 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 ( $T_a=25^\circ C$ )

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

\*1  $P_w=100ms$

\*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>CB0</sub>	-	-	-1.0	μA	V <sub>CB</sub> =-40V
Emitter cut-off current	I <sub>EB0</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
Storage time	T <sub>stg</sub>	-	150	-	ns	I <sub>B1</sub> =-300mA 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

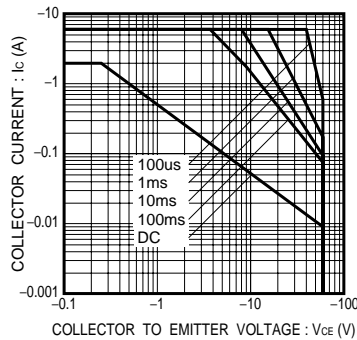


Fig.1 Safe Operating Area

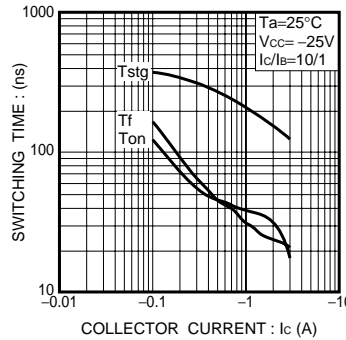


Fig.2 Switching Time

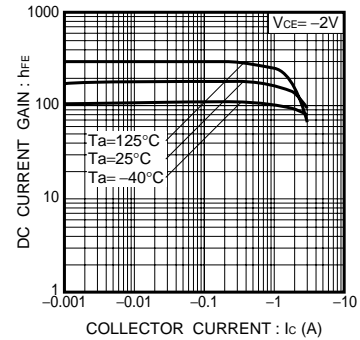


Fig.3 DC Current Gain vs. Collector Current (I)

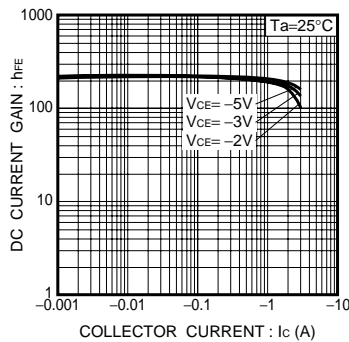


Fig.4 DC Current Gain vs. Collector Current (II)

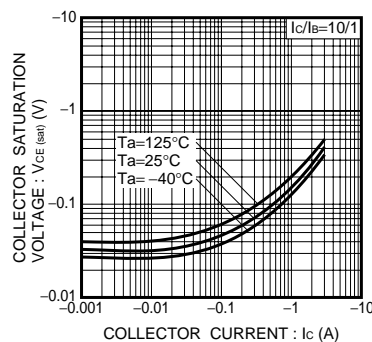


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

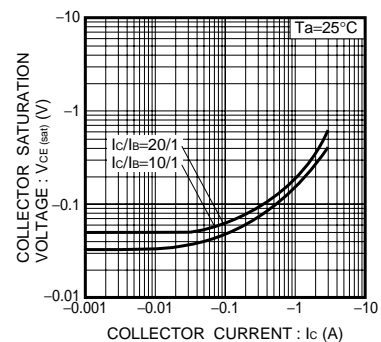


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

Transistor

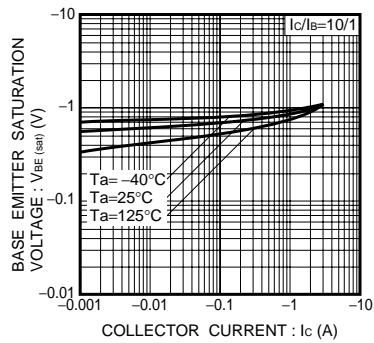


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

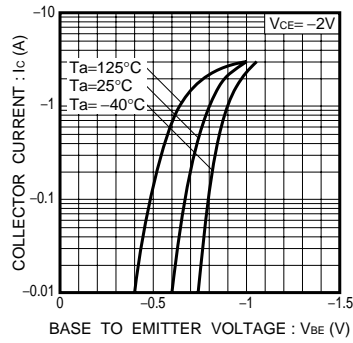


Fig.8 Grounded Emitter Propagation Characteristics

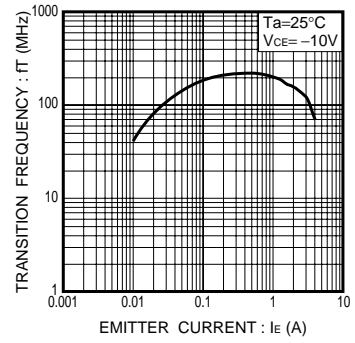


Fig.9 Transition Frequency

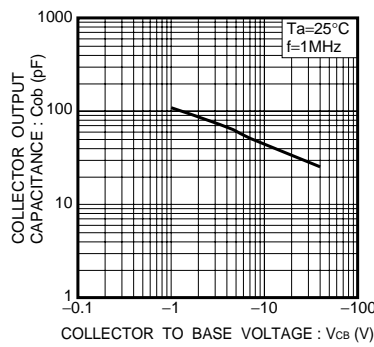
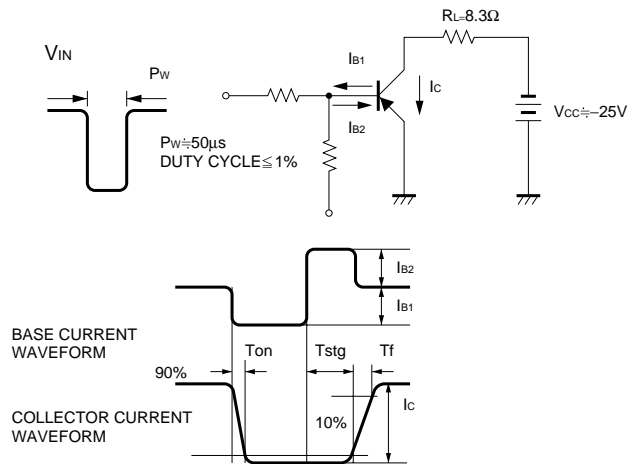


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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