

# 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

**●Applications**

Low Frequency Amplifier  
 High speed switching

**●Structure**

PNP Silicon epitaxial planar transistor

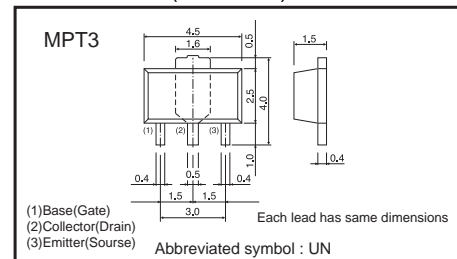
**●Packaging specifications**

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

**●Absolute maximum ratings (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	$I_c$	−3	A
	$I_{cP}$	−6	A <sup>*1</sup>
Power dissipation	$P_c$	500	mW
		2.0	W <sup>*2</sup>
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	−55 to +150	°C

<sup>\*1</sup>  $P_w=100ms$ 
<sup>\*2</sup> Mounted on a 40×40×0.7 (mm) ceramic substrate

**●Dimensions (Unit : mm)**


●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	-	270	-	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
Fall time	T <sub>f</sub>	-	20	-	ns	I <sub>B2</sub> =300mA
						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

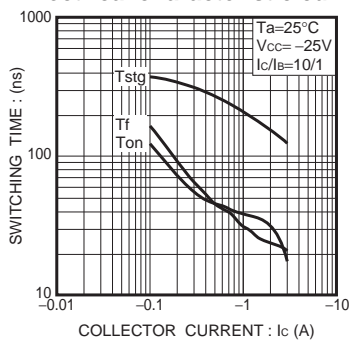


Fig.1 Switching Time

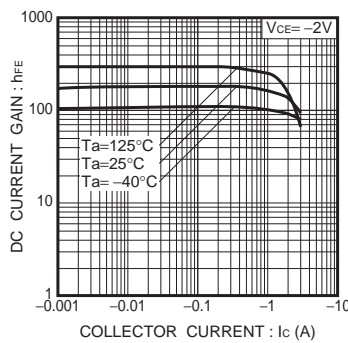


Fig.2 DC Current Gain vs. Collector Current (I)

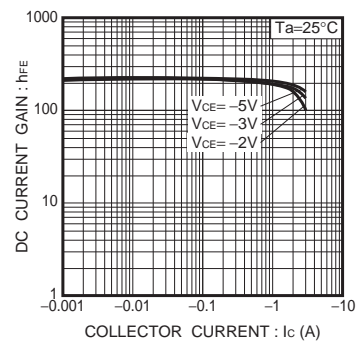


Fig.3 DC Current Gain vs. Collector Current (II)

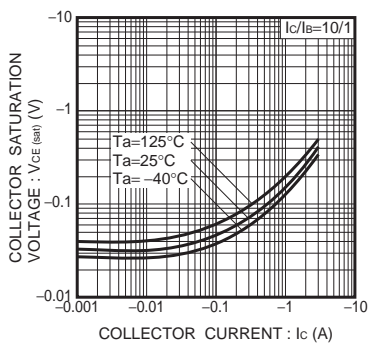


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

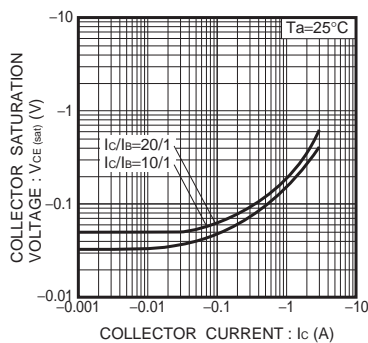


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

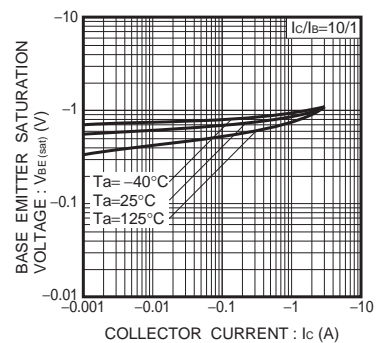


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

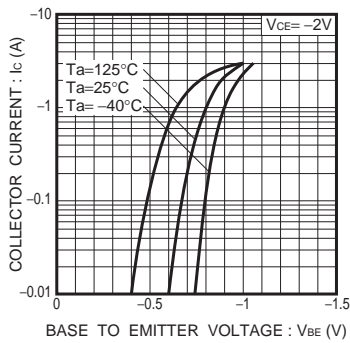


Fig.7 Grounded Emitter Propagation Characteristics

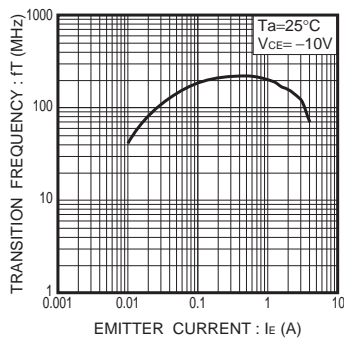


Fig.8 Transition Frequency

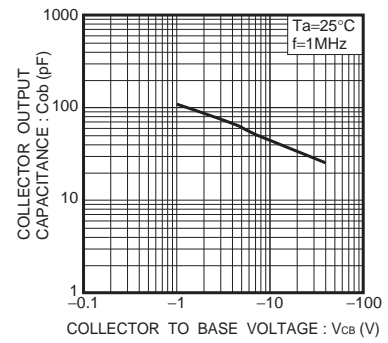
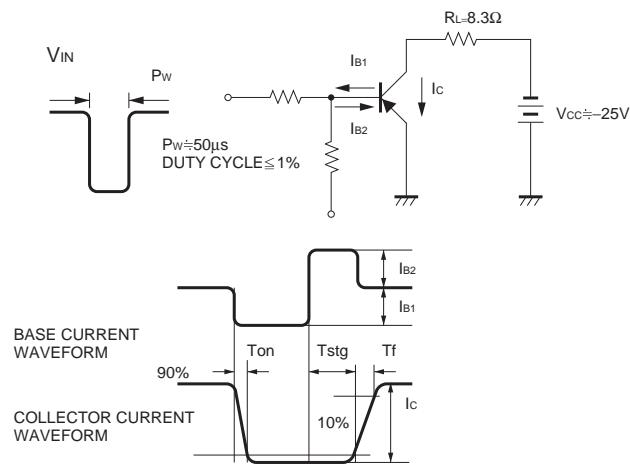


Fig.9 Collector Output Capacitance

●Switching characteristics measurement circuits



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