

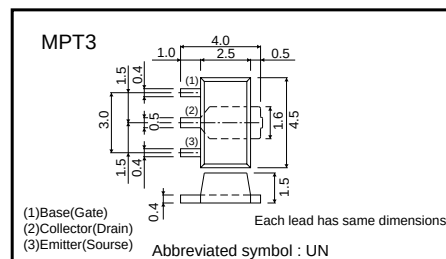
Power transistor (–60V, –3A)

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_{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	$^{\circ}C$
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_{CBO}	-60	—	—	V	$I_C = -100\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-60	—	—	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	-6	—	—	V	$I_E = -100\mu A$
Collector cut-off current	I_{CBO}	—	—	-1.0	μA	$V_{CB} = -40V$
Emitter cut-off current	I_{EBO}	—	—	-1.0	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	-200	-500	mV	$I_C = -2A, I_B = -0.2A$ *1
DC current gain	h_{FE}	120	—	390	—	$V_{CE} = -2V, I_C = -100mA$
Transition frequency	f_T	—	180	—	MHz	$V_{CE} = -10V, I_E = 10mA, f = 10MHz$ *1
Collector output capacitance	C_{ob}	—	50	—	pF	$V_{CB} = -10V, I_E = 0mA, f = 1MHz$
Turn-on time	T_{on}	—	20	—	ns	$I_C = -3A$ $I_{B1} = -300mA$ $I_{B2} = 300mA$
Storage time	T_{stg}	—	150	—	ns	
Fall time	T_f	—	20	—	ns	$V_{CC} \approx -25V$ *2

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

● h_{FE} RANK

Q
120-270

●Electrical characteristic curves

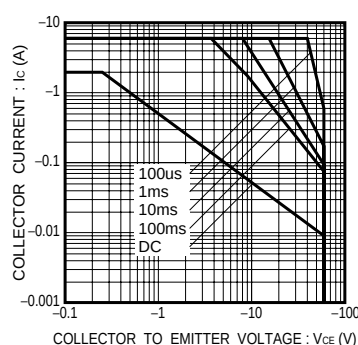


Fig.1 Safe Operating Area

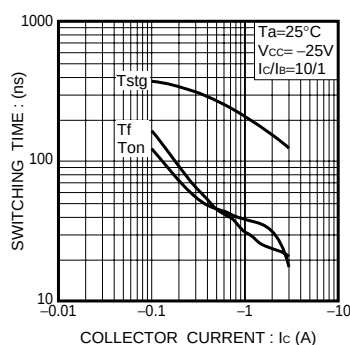


Fig.2 Switching Time

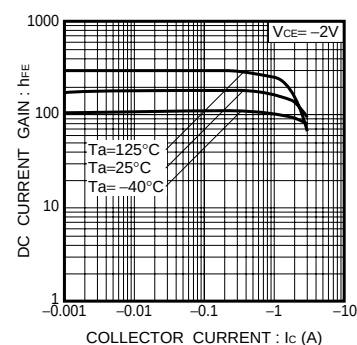


Fig.3 DC Current Gain vs. Collector Current (I)

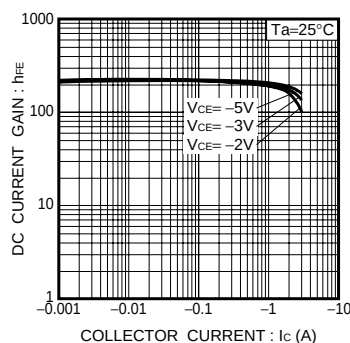


Fig.4 DC Current Gain vs. Collector Current (II)

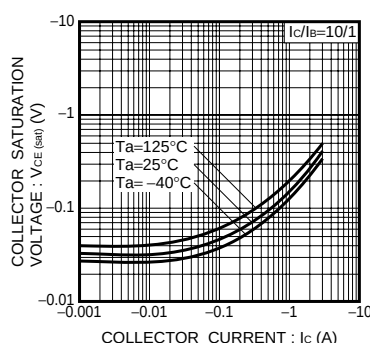


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

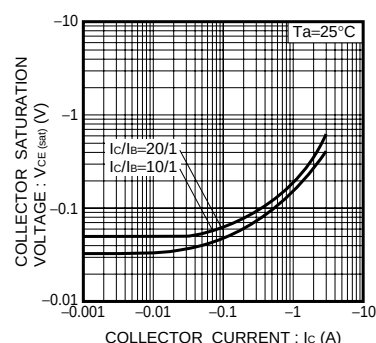


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

Transistor

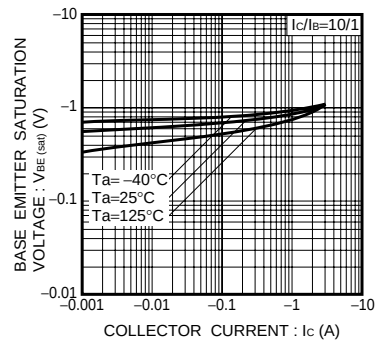


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

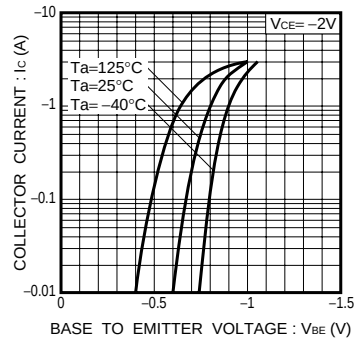


Fig.8 Grounded Emitter Propagation Characteristics

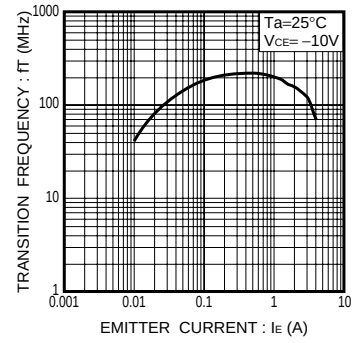


Fig.9 Transition Frequency

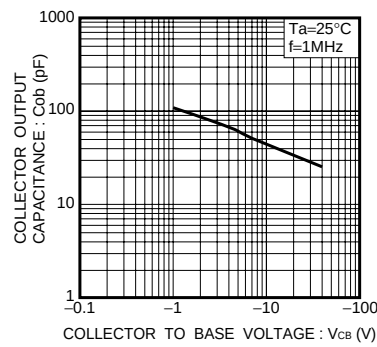


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits

