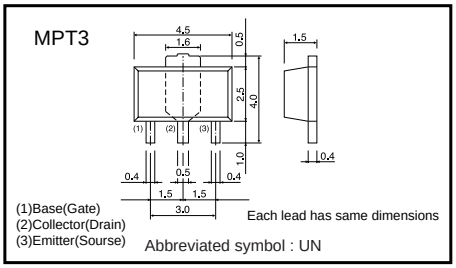
Power transistor (–60V, –3A)

2SA2071

●Features

1) High speed switching. (Tf : 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

●Dimensions (Unit : 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 (Ta=25°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	Tj	150	°C
Range of storage temperature	Tstg	–55~+150	°C

*1 Pw=100ms
*2 Mounted on a 40×40×0.7 (mm) ceramic substrate

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–60	–	–	V	I_C= –100μA
Collector-emitter breakdown voltage	BV_{CEO}	–60	–	–	V	I_C= –1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E= –100μA
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	Cob	–	50	–	pF	V_{CB}= –10V, I_E=0mA, f=1MHz
Turn-on time	Ton	–	20	–	ns	I_C= –3A I_{B1}= –300mA I_{B2}=300mA V_{CC} ≒ –25V *2
Storage time	Tstg	–	150	–	ns	
Fall time	Tf	–	20	–	ns	

*1 Non repetitive pulse
*2 See switching charactaristics measurement cicuits

●h_{FE} RANK

Q
120–270

●Electrical characteristic curves

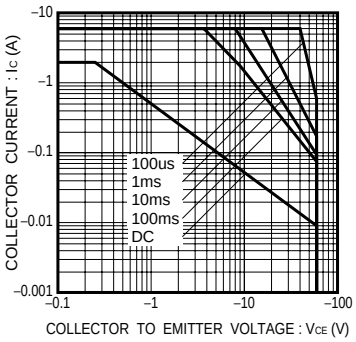


Fig.1 Safe Operating Area

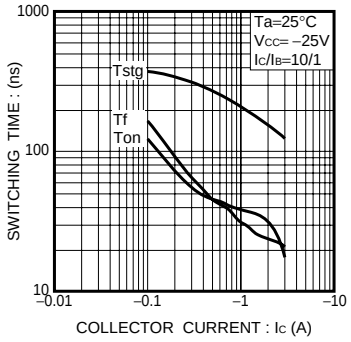


Fig.2 Switching Time

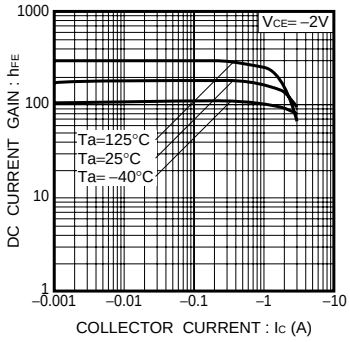


Fig.3 DC Current Gain vs. Collector Current (I)

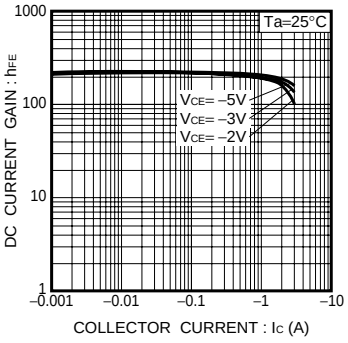


Fig.4 DC Current Gain vs. Collector Current (II)

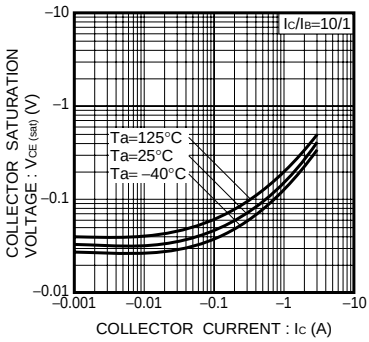


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

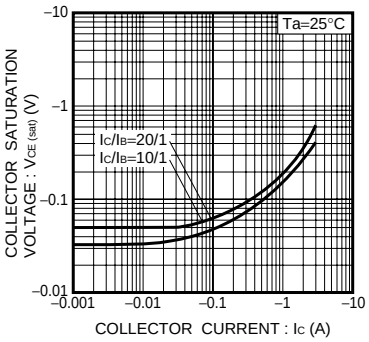


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

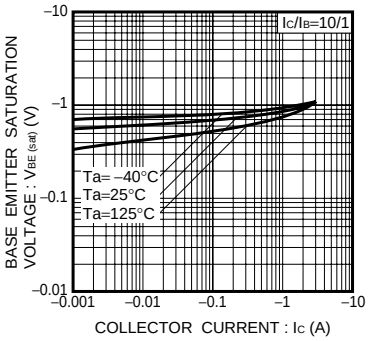


Fig.7 Base-Emitter Saturation Voltage vs. Collecter Current

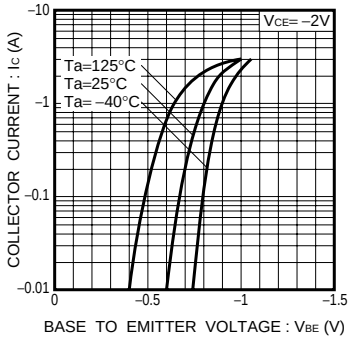


Fig.8 Grounded Emitter Propagation Characteristics

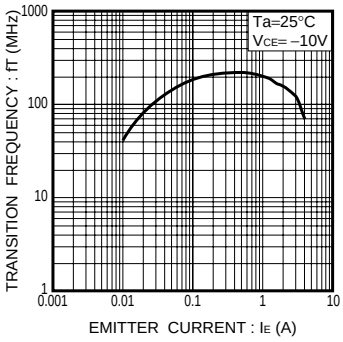


Fig.9 Transition Frequency

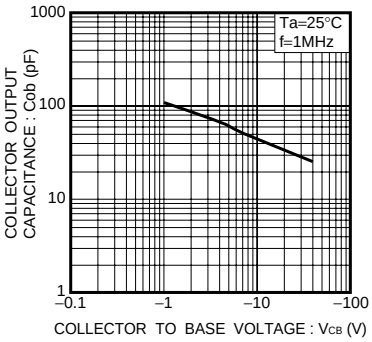
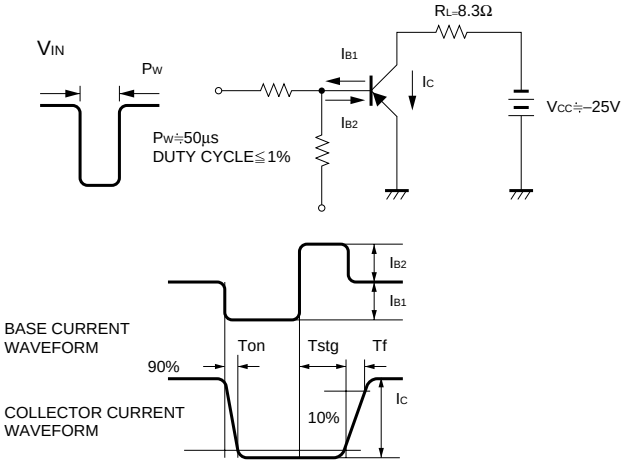


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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ROHM CO., LTD. 21, Saiin Mizosaki-cho, Ukyo-ku, Kyoto 615-8585, Japan
TEL : +81-75-311-2121
FAX : +81-75-315-0172