

Medium power transistor (−30V, −2.0A)

2SA2049

●Features

- 1) High speed switching. (Tf : Typ. : 20ns at Ic = −2.0A)
- 2) Low saturation voltage, typically
(Typ. : −250mV at Ic = −1.0A, Ib = −100mA)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SC5731

●Applications

Small signal low frequency amplifier
High speed switching

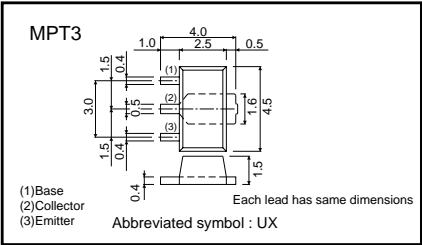
●Structure

PNP Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
2SA2049		○

●External dimensions (Units : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CBO}	−30	V
Collector-emitter voltage	V _{CEO}	−30	V
Emitter-base voltage	V _{EBO}	−6	V
Collector current	I _C	−2.0	A
	I _{CP}	−4.0	A *1
Power dissipation	P _C	500	mW
		2.0	W *2
Junction temperature	T _J	150	°C
Range of storage temperature	T _{stg}	−55~+150	°C

*1 Pw=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}	-30	-	-	V	I _C =-100μA
Collector-emitter breakdown voltage	BV _{CEO}	-30	-	-	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} =-20V
Emitter cut-off current	I _{EBO}	-	-	-1.0	μA	V _{EB} =-4V
Collector-emitter saturation voltage	V _{CE(sat)}	-	-250	-500	mV	I _C =-1.0A, I _B =-100mA
DC current gain	h _{FE}	120	-	390	-	V _{CE} =-2V, I _C =-100mA
Transition frequency	f _T	-	350	-	MHz	V _{CE} =-10V, I _E =100mA, f=10MHz
Collector output capacitance	C _{ob}	-	25	-	pF	V _{CB} =-10V, I _E =0A, f=1MHz
Turn-on time	T _{on}	-	25	-	ns	I _C =-2.0A I _{B1} =-200mA
Storage time	T _{stg}	-	100	-	ns	I _{B2} =200mA
Fall time	T _f	-	20	-	ns	V _{CE} =-25V

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

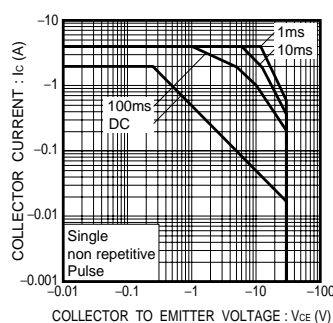


Fig.1 Safe Operating Area

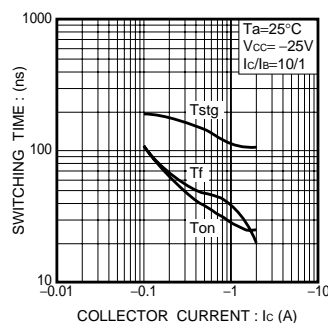


Fig.2 Switching Time

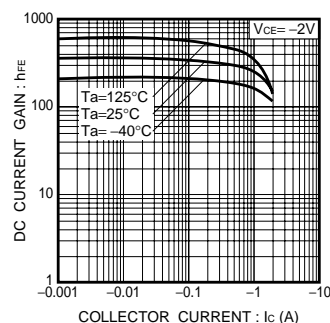


Fig.3 DC Current Gain vs. Collector Current (I)

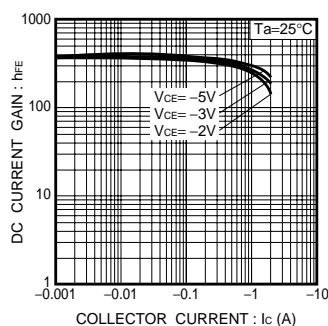


Fig.4 DC Current Gain vs. Collector Current (II)

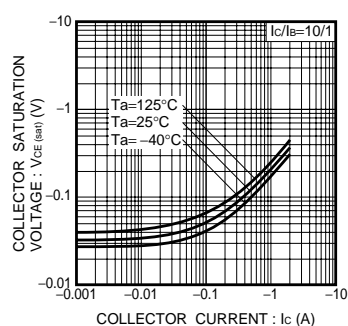


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

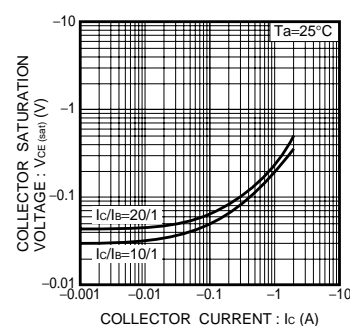


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

Transistor

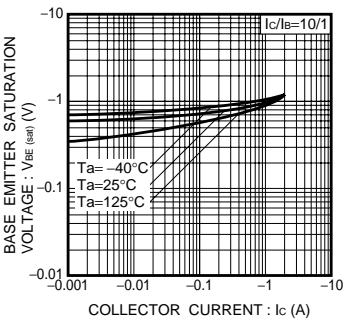


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

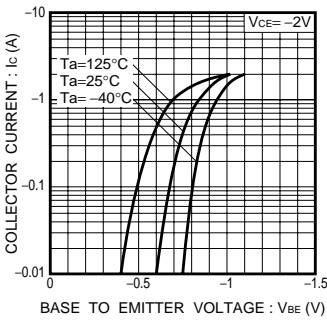


Fig.8 Grounded Emitter Propagation Characteristics

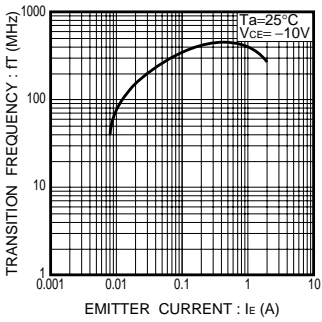


Fig.9 Transition Frequency

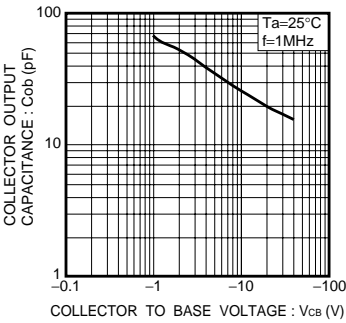
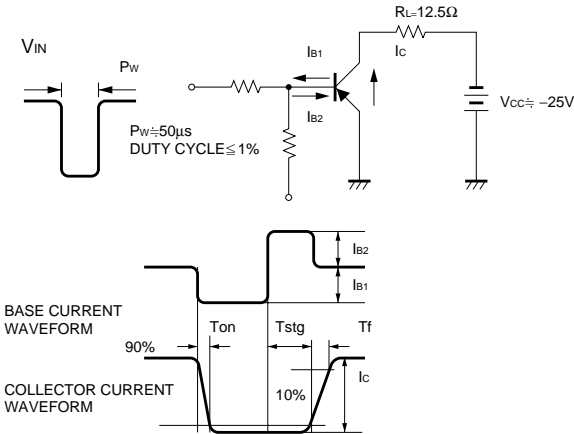


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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