

2SA2047

Transistor

Medium power transistor (−30V, −0.5A)

2SA2047

●Features

- 1) High speed switching. (Tf : Typ. : 40ns at Ic = −500mA)
- 2) Low saturation voltage, typically
(Typ. : −150mV at Ic = −100A, Ib = −100mA)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SC5729

●Applications

Small signal low frequency amplifier
High speed switching

●Structure

PNP Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	T106
	Basic ordering unit (pieces)	3000
2SA2047		○

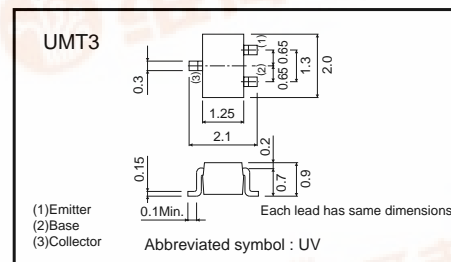
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	−30	V
Collector-emitter voltage	V _{CE0}	−30	V
Emitter-base voltage	V _{EB0}	−6	V
Collector current	I _c	−0.5	A
	I _{cP}	−1.0	A *1
Power dissipation	P _c	200	mW*2
Junction temperature	T _j	150	°C
Range of storage temperature	T _{stg}	−55~+150	°C

*1 Pw=10ms

*2 Each terminal mounted on a recommended land

●External dimensions (Units : mm)



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)}	-	-150	-300	mV	I _C = -100mA, I _B = -10mA
DC current gain	h _{FE}	120	-	390	-	V _{CE} = -2V, I _C = -50mA
Transition frequency	f _T	-	400	-	MHz	V _{CE} = -10V, I _E =100mA, f=10MHz
Collector output capacitance	C _{ob}	-	10	-	pF	V _{CB} = -10V, I _E =0A, f=1MHz
Turn-on time	T _{on}	-	40	-	ns	I _C = -500mA
Storage time	T _{stg}	-	100	-	ns	I _{B1} = -50mA
Fall time	T _f	-	40	-	ns	I _{B2} = -50mA V _{CC} ≈ -25V

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

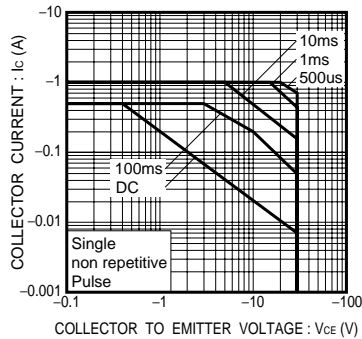


Fig.1 Safe Operating Area

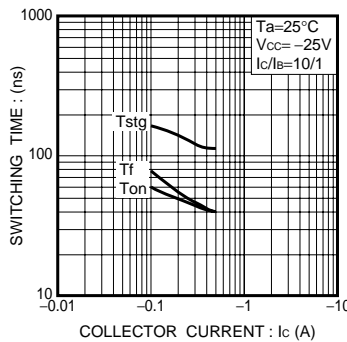


Fig.2 Switching Time

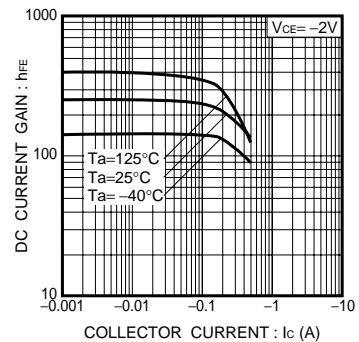


Fig.3 DC Current Gain vs. Collector Current (I)

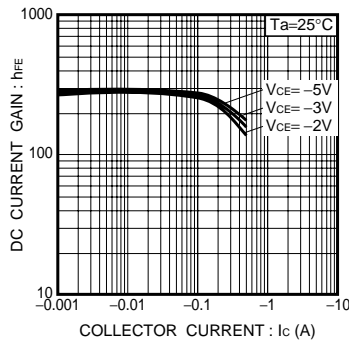


Fig.4 DC Current Gain vs. Collector Current (II)

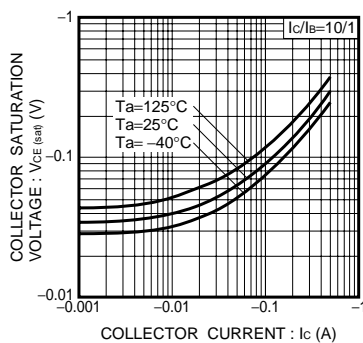


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

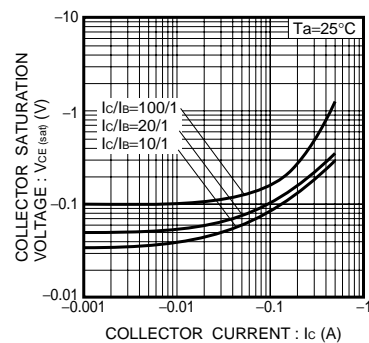


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

Transistor

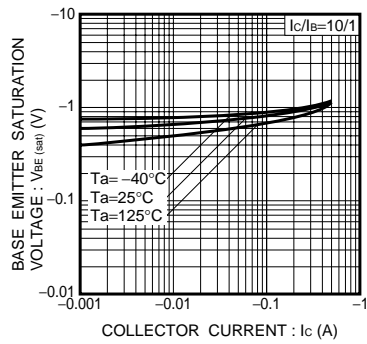


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

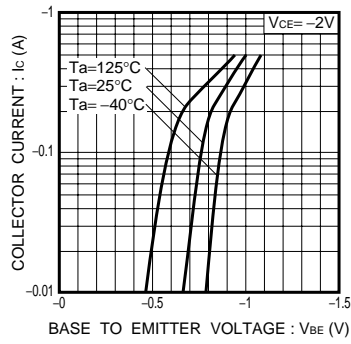


Fig.8 Grounded Emitter Propagation Characteristics

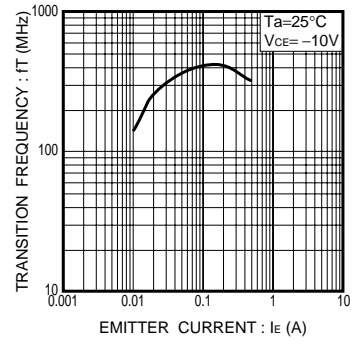


Fig.9 Transition Frequency

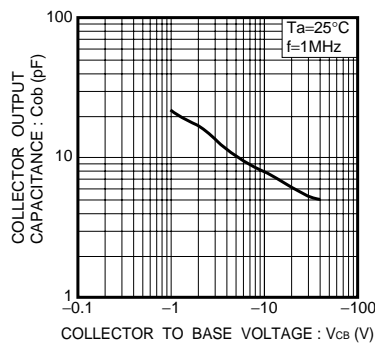
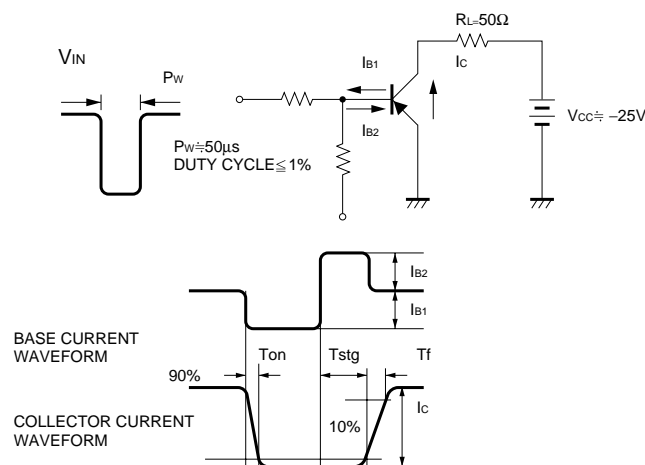


Fig.10 Collector Output Capacitance

● Switching characteristics measurement circuits



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