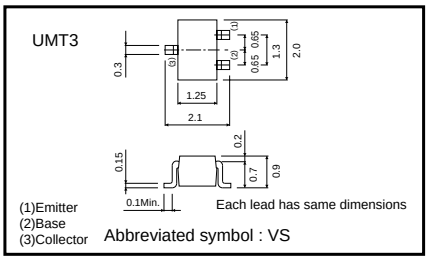
Medium power transistor (60V, 0.5A)

2SC5876

●Features

1) High speed switching. (Tf : Typ. : 80ns at I_C = 500mA)
2) Low saturation voltage, typically
   (Typ. : 150mV at I_C = 100mA, I_B = 10mA)
3) Strong discharge power for inductive load and capacitance load.
4) Complements the 2SA2088

●External dimensions (Units : mm)



●Applications

Small signal low frequency amplifier
High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	T106
	Basic ordering unit (pieces)	3000
2SC5876		○

●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	0.5	A
	I_{CP}	1.0	A *1
Power dissipation	P_C	200	mW *2
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	–55~+150	°C

*1 Pw=10ms
*2 Each terminal mounted on a recommended land.

●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 staturation 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	fT	–	300	–	MHz	V_{CE}=10V, I_E= –100mA, f=10MHz *1
Collector output capacitance	Cob	–	5	–	pF	V_{CB}=10V, I_E=0mA, f=1MHz
Turn-on time	Ton	–	70	–	ns	I_C=500mA, I_{B1}=50mA I_{B2}= –50mA V_{CC}≒25V *1
Storage time	Tstg	–	130	–	ns	
Fall time	Tf	–	80	–	ns	

*1 Pulse measurement

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

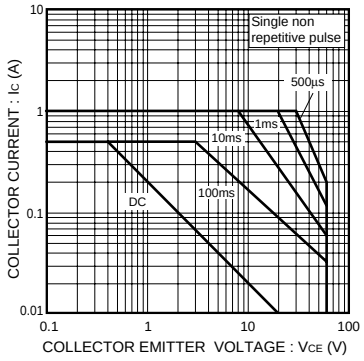


Fig.1 Safe operating area

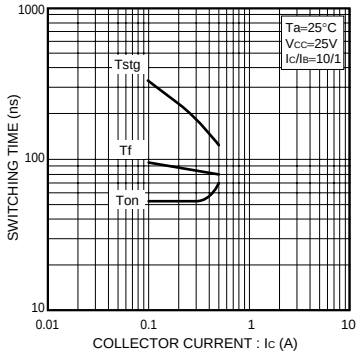


Fig.2 Switching Time

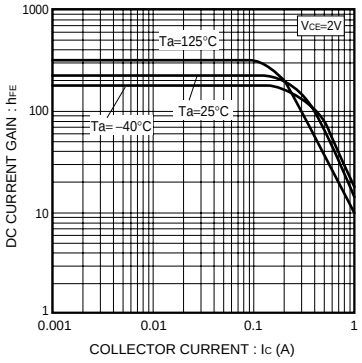


Fig.3 DC current gain vs. collector current

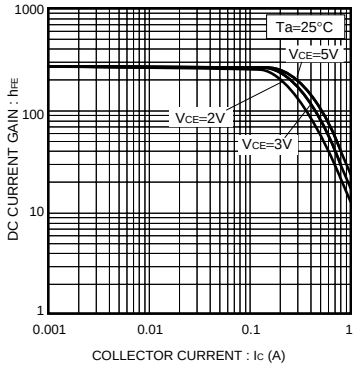


Fig.4 DC current gain vs. collector current

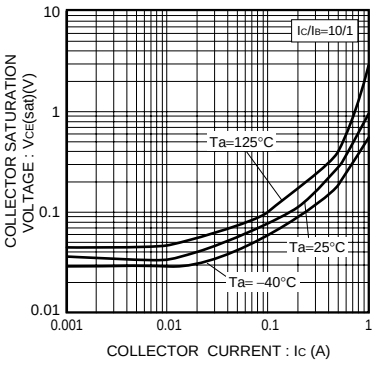


Fig.5 Collector-emitter saturation voltage vs. collector current

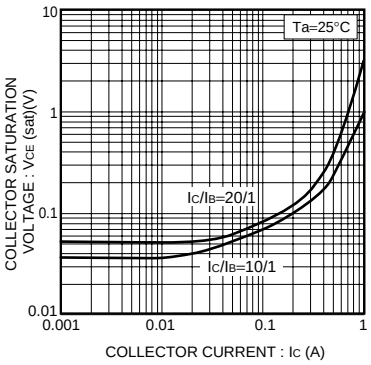


Fig.6 Collector-emitter saturation voltage vs. collector current

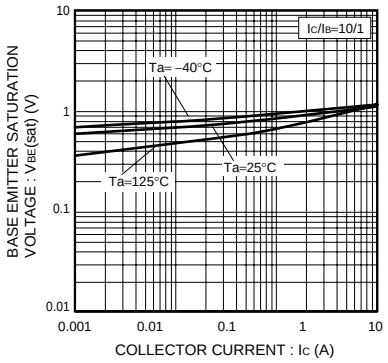


Fig.7 Base-emitter saturation voltage vs. collector current

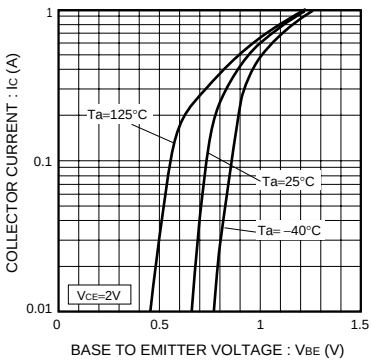


Fig.8 Ground emitter propagat on characteristics

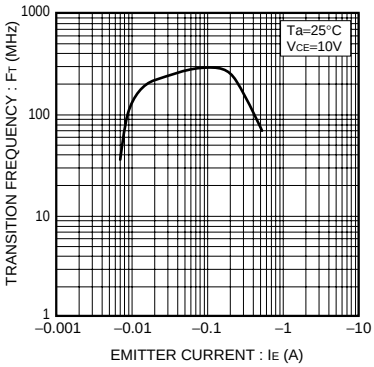


Fig.9 Transition frequency

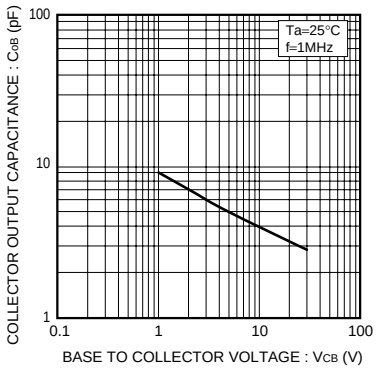
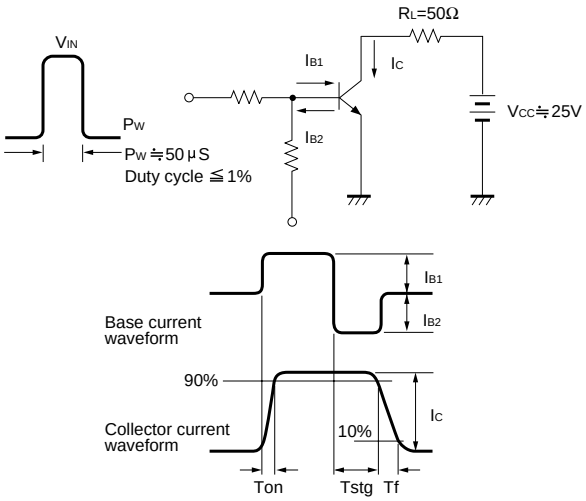


Fig.10 Collector output capacitance

●Switching characteristics measurement circuits



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