

Medium power transistor (60V, 0.5A)

2SC5876

●Features

- 1) High speed switching. (T_f : Typ. : 80ns at $I_c = 500\text{mA}$)
- 2) Low saturation voltage, typically
(Typ. : 150mV at $I_c = 100\text{mA}$, $I_B = 10\text{mA}$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2088

●Applications

Small signal low frequency amplifier
 High speed switching

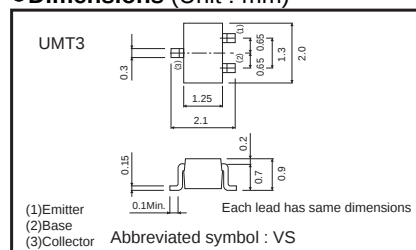
●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

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

●Dimensions (Unit : mm)



●Absolute maximum ratings ($T_a=25^\circ\text{C}$)

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	T_j	150	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

^{*1} $P_w=10\text{ms}$

^{*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	$I_C=100\mu A$
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	$V_{CE(sat)}$	—	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	—	300	—	MHz	$V_{CE}=10V, I_E=-100mA, f=10MHz$ *1
Collector output capacitance	C_{ob}	—	5	—	pF	$V_{CB}=10V, I_E=0mA, f=1MHz$
Turn-on time	t_{on}	—	70	—	ns	$I_C=500mA,$ $I_{B1}=50mA$ $I_{B2}=-50mA$ $V_{CC}\approx 25V$ *1
Storage time	t_{stg}	—	130	—	ns	
Fall time	t_f	—	80	—	ns	

*1 Pulse measurement

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

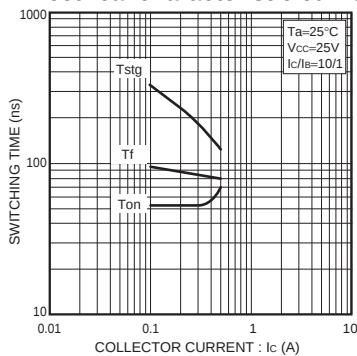


Fig.1 Switching Time

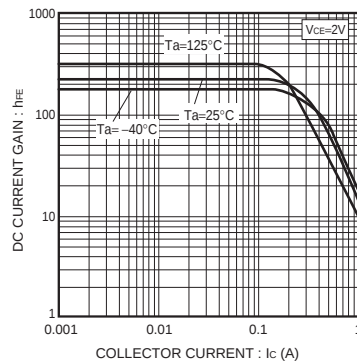


Fig.2 DC current gain vs. collector current

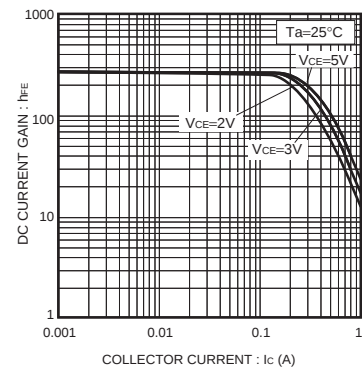


Fig.3 DC current gain vs. collector current

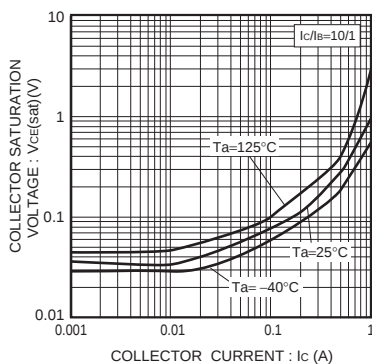


Fig.4 Collector-emitter saturation voltage vs. collector current

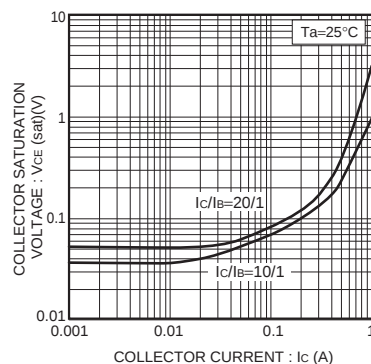


Fig.5 Collector-emitter saturation voltage vs. collector current

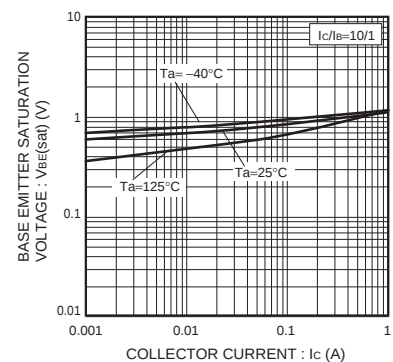


Fig.6 Base-emitter saturation voltage vs. collector current

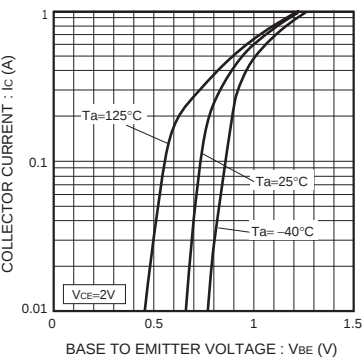


Fig.7 Ground emitter propagat on characteristics

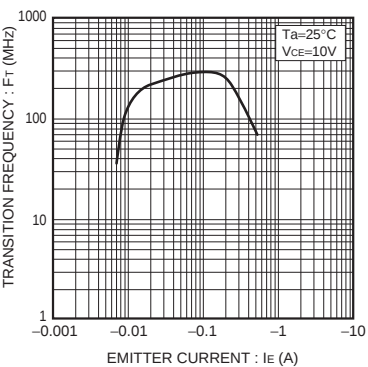


Fig.8 Transition frequency

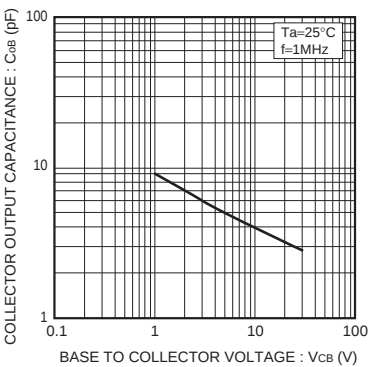
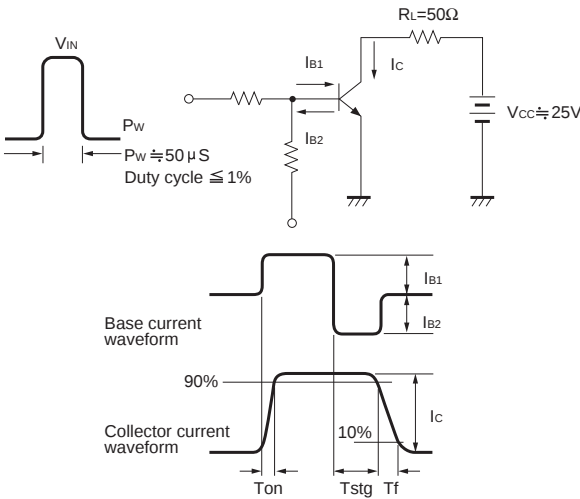


Fig.9 Collector output capacitance

●Switching characteristics measurement circuits



Notes

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