

Medium power transistor (60V, 2A)

2SC5866

●Features

- 1) High speed switching. (T_f : Typ. : 35ns at $I_c = 2A$)
- 2) Low saturation voltage, typically
(Typ. : 200mV at $I_c = 1.0A$, $I_B = 0.1A$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2094

●Applications

Low frequency amplifier
High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SC5866		○

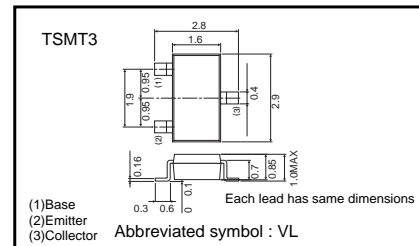
●Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	60	V
Collector-emitter voltage	V_{CE0}	60	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_c	2	A
	I_{cP}	4	A ^{*1}
Power dissipation	P_c	500	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.

●External dimensions (Units : mm)



Transistor

●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 =1A, I _B =0.1A *1
DC current gain	h _{FE}	120	-	390	-	V _{CE} =2V, I _C =100mA
Transition frequency	f _T	-	200	-	MHz	V _{CE} =10V, I _E =-100mA, f=10MHz*1
Collector output capacitance	C _{ob}	-	10	-	pF	V _{CB} =10V, I _E =0mA, f=1MHz
Turn-on time	T _{on}	-	50	-	ns	I _C =2A,
Storage time	T _{stg}	-	120	-	ns	I _{B1} =200mA
Fall time	T _f	-	35	-	ns	I _{B2} =-200mA V _{CC} =25V *2

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

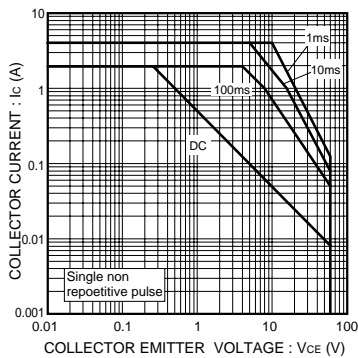


Fig.1 Safe operating area

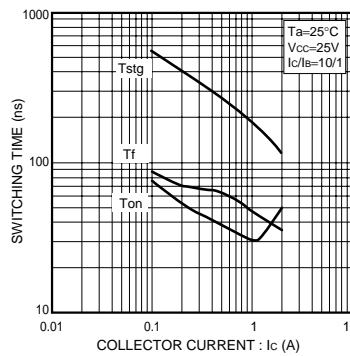


Fig.2 Switching Time

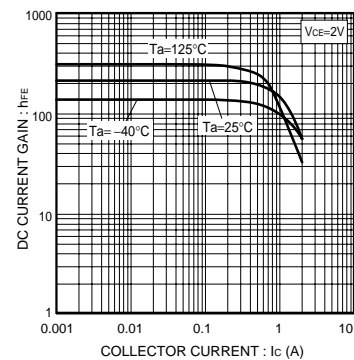


Fig.3 DC current gain vs. collector current

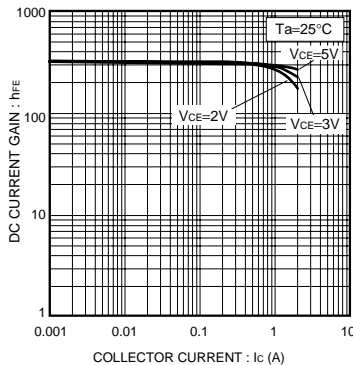


Fig.4 DC current gain vs. collector current

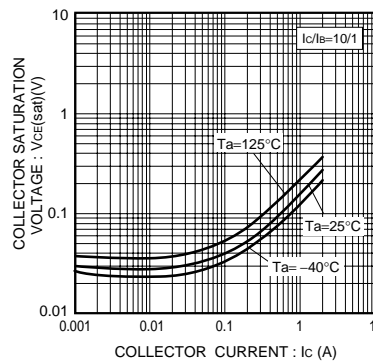


Fig.5 Collector-emitter saturation voltage vs. Collector Current

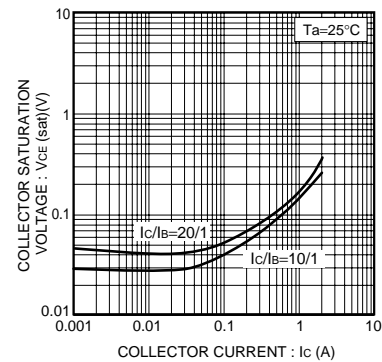


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistor

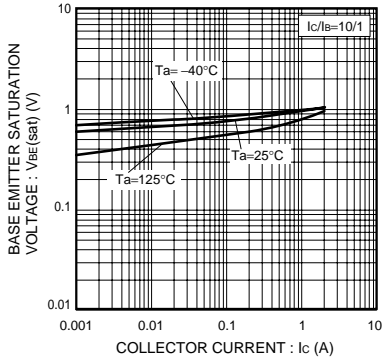


Fig.7 Base-emitter saturation voltage vs. collector current

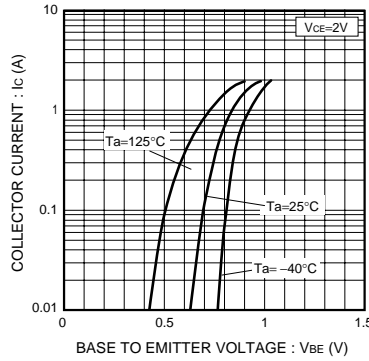


Fig.8 Ground emitter propagation characteristics

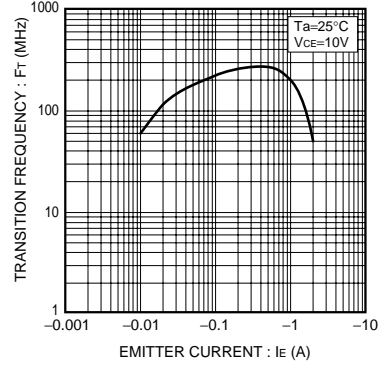


Fig.9 Transition frequency

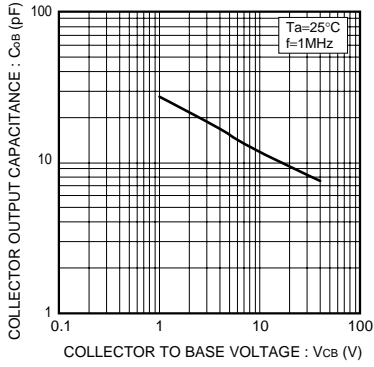
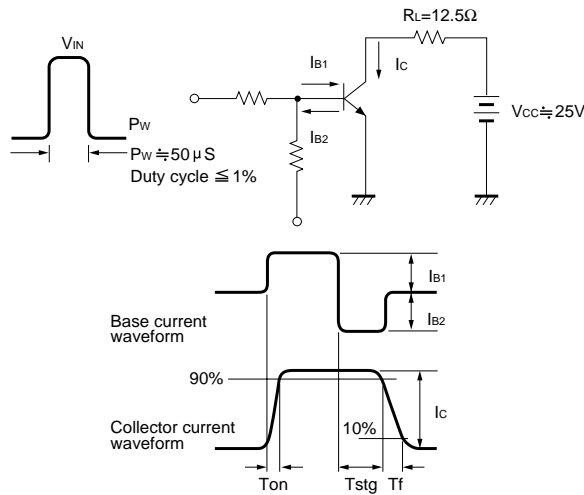


Fig.10 Collector output capacitance

●Switching characteristics measurement circuits



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