

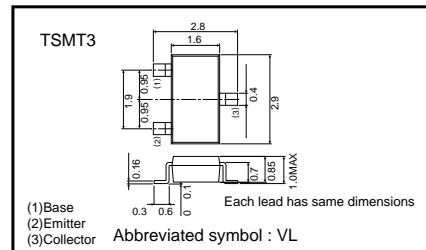
Medium power transistor (60V, 2A)

2SC5866

●Features

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

●External dimensions (Units : mm)



●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 (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	2	A
	I _{CP}	4	A *1
Power dissipation	P _c	500	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.

Transistor

●Electrical characteristics ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	—	—	V	$I_c=100\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	60	—	—	V	$I_c=1\text{mA}$
Emitter-base breakdown voltage	BV_{EBO}	6	—	—	V	$I_E=100\mu\text{A}$
Collector cut-off current	I_{CBO}	—	—	1.0	μA	$V_{\text{CB}}=40\text{V}$
Emitter cut-off current	I_{EBO}	—	—	1.0	μA	$V_{\text{EB}}=4\text{V}$
Collector-emitter saturation voltage	$V_{\text{CE}(\text{sat})}$	—	200	500	mV	$I_c=1\text{A}$, $I_b=0.1\text{A}$ *1
DC current gain	h_{FE}	120	—	390	—	$V_{\text{CE}}=2\text{V}$, $I_c=100\text{mA}$
Transition frequency	f_T	—	200	—	MHz	$V_{\text{CE}}=10\text{V}$, $I_E=-100\text{mA}$, $f=10\text{MHz}$ *1
Collector output capacitance	C_{ob}	—	10	—	pF	$V_{\text{CB}}=10\text{V}$, $I_E=0\text{mA}$, $f=1\text{MHz}$
Turn-on time	T_{on}	—	50	—	ns	$I_c=2\text{A}$, $I_{b1}=2000\text{mA}$ $I_{b2}=-200\text{mA}$ $V_{\text{CC}}=25\text{V}$ *2
Storage time	T_{stg}	—	120	—	ns	
Fall time	T_f	—	35	—	ns	

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

● h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

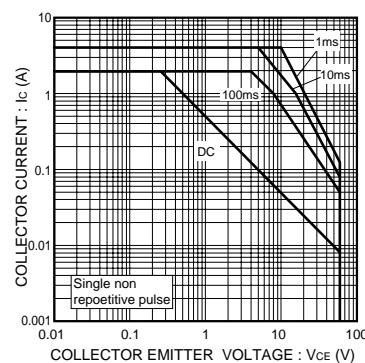


Fig.1 Safe operating area

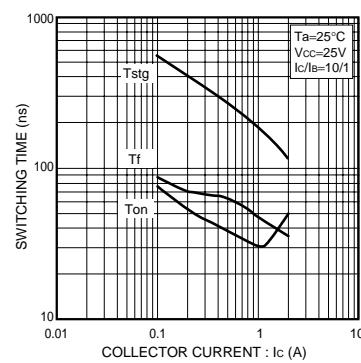


Fig.2 Switching Time

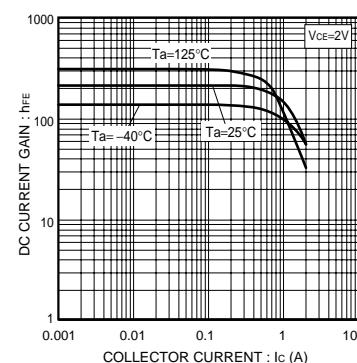


Fig.3 DC current gain vs. collector current

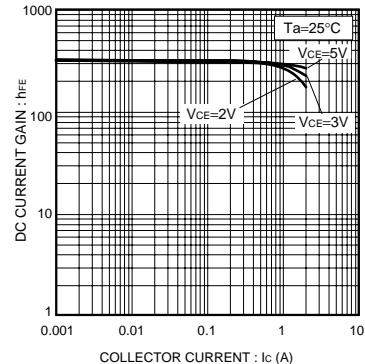


Fig.4 DC current gain vs. collector current

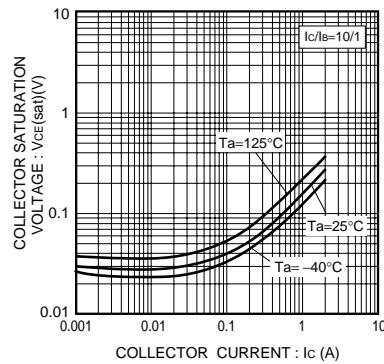


Fig.5 Collector-emitter saturation voltage vs. Collector Current

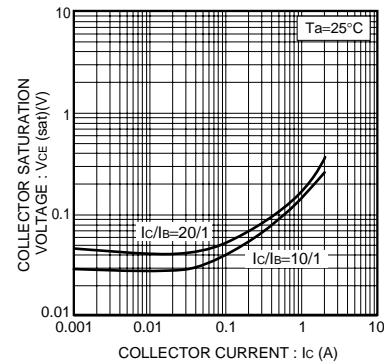


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistor

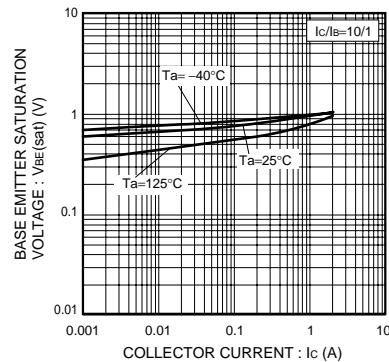


Fig.7 Base-emitter saturation voltage vs. collector current

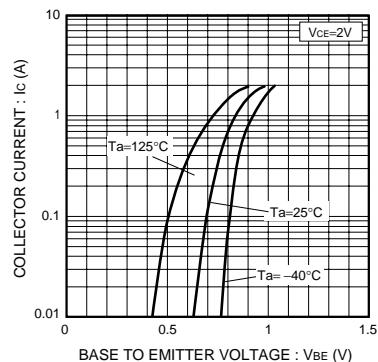


Fig.8 Ground emitter propagation characteristics

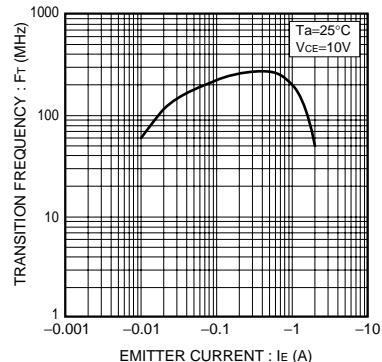


Fig.9 Transition frequency

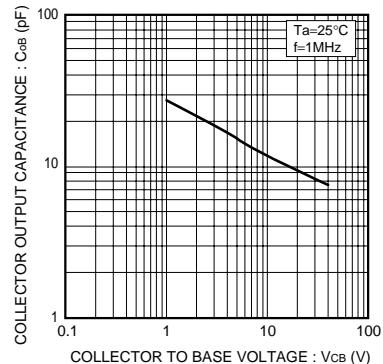


Fig.10 Collector output capacitance

●Switching characteristics measurement circuits

