

High voltage discharge, High speed switching, Low Noise (60V, 1A)

2SC5865

●Features

- 1) High speed switching. (T_f : Typ. : 50ns at $I_c=1.0A$)
- 2) Low saturation voltage, typically.
(Typ. : 200mV at $I_c=500mA$, $I_B=50mA$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Low Noise.
- 5) Complements the 2SA2092.

●Applications

High speed switching, Low noise

●Structure

NPN silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SC5865		○

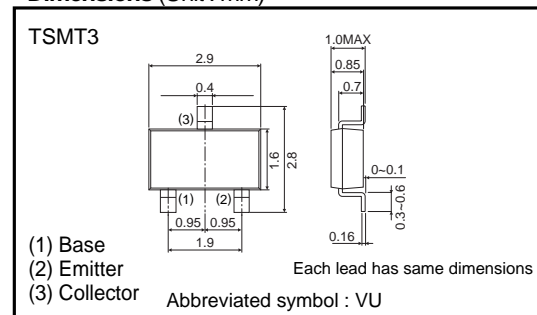
●Absolute maximum ratings ($T_a=25^{\circ}C$)

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	1.0	A
	I_{cP}	2.0	A *1
Power dissipation	P_c	500	mW *2
Junction temperature	T_j	150	$^{\circ}C$
Range of storage temperature	T_{stg}	-55 to +150	$^{\circ}C$

*1 $P_w=10ms$

*2 Each terminal mounted on a recommended land

●Dimensions (Unit : mm)



Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV _{CEO}	60	–	–	V	I _C =1mA
Collector-base breakdown voltage	BV _{CBO}	60	–	–	V	I _C =100μA
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 =500mA, I _B =50mA
DC current gain	h _{FE}	120	–	390	–	V _{CE} =2V, I _C =100mA
Transistor frequency	f _T	–	250	–	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 =1A, I _{B1} =100mA
Storage time	t _{stg}	–	130	–	ns	I _{B2} = –100mA
Fall time	t _f	–	50	–	ns	V _{CC} ≈25V *2

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

●h_{FE} RANK

Q	R
120-270	180-390

Transistors

●Electrical characteristics curves

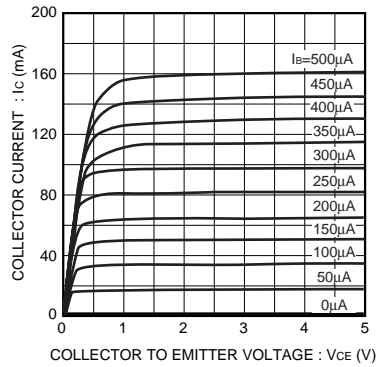


Fig.1 Typical output characteristics

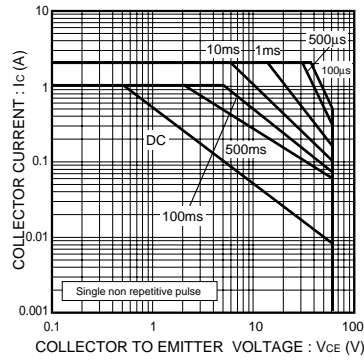


Fig.2 Safe operating area

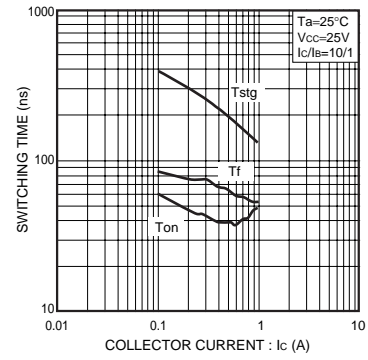


Fig.3 Switching Time

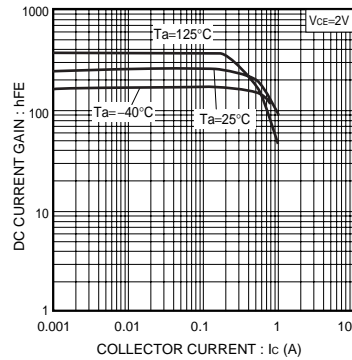


Fig.4 DC current gain vs. collector current (I)

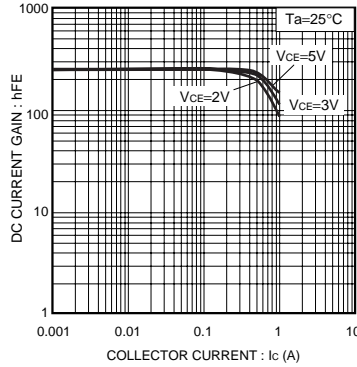


Fig.5 DC current gain vs. collector current (II)

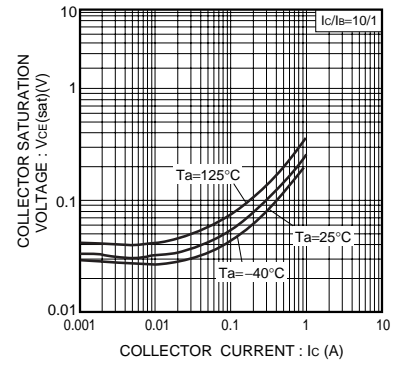


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

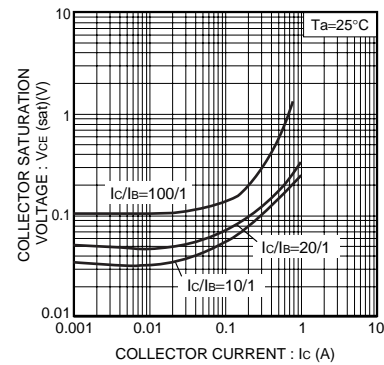


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

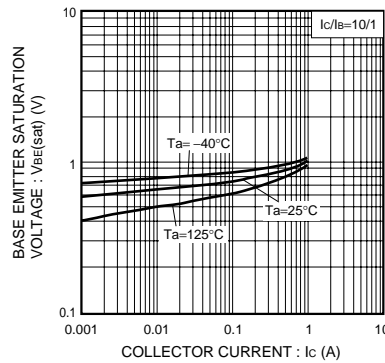


Fig.8 Base-emitter saturation voltage vs. collector current

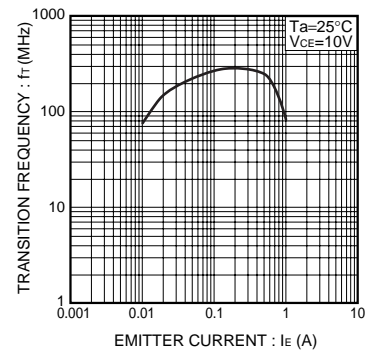


Fig.9 Transition frequency

Transistors

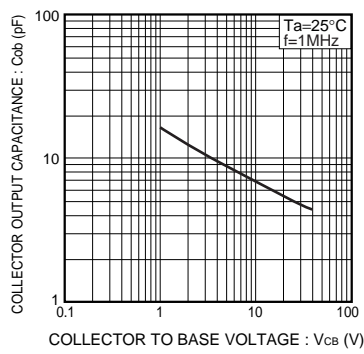


Fig.10 Collector output capacitance

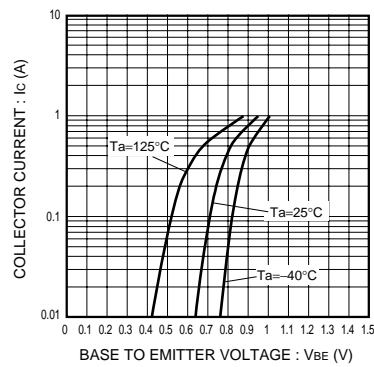
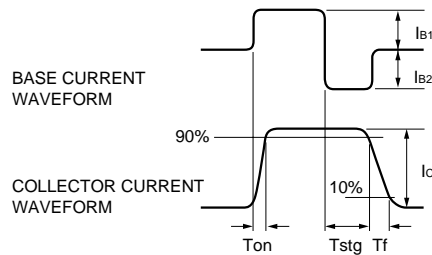
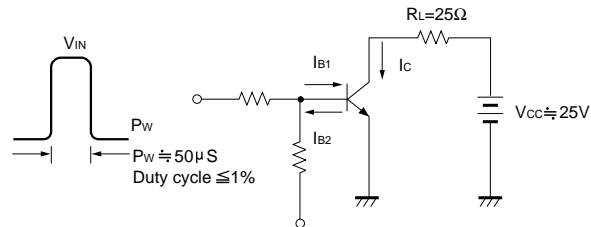


Fig.11 Ground emitter propagation characteristics

●Switching characteristics measurement circuits



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