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

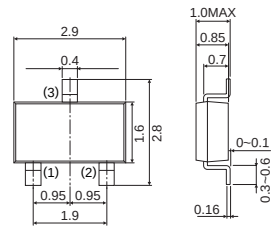
2SC5865

●**Features**

1) High speed switching. (Tf : 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.

●**Dimensions** (Unit : mm)

TSMT3



(1) Base
(2) Emitter
(3) Collector

Each lead has same dimensions

Abbreviated symbol : VU

●**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** (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	1.0	A
	I_{CP}	2.0	A *1
Power dissipation	P_C	500	mW *2
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	−55 to +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-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 saturatioin 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	fT	–	250	–	MHz	V_{CE}=10V, I_E= −100mA, f=10MHz*1
Collector output capacitance	Cob	–	10	–	pF	V_{CB}=10V, I_E=0mA, f=1MHz
Turn-on time	ton	–	50	–	ns	I_C=1A, I_{B1}=100mA I_{B2}= −100mA V_{CC}≒25V *2
Storage time	tstg	–	130	–	ns	
Fall time	tf	–	50	–	ns	

*1 Non repetitive pulse
*2 See switching characteristics measurement circuits

●h_{FE} **RANK**

Q	R
120-270	180-390

●**Electrical characteristics curves**

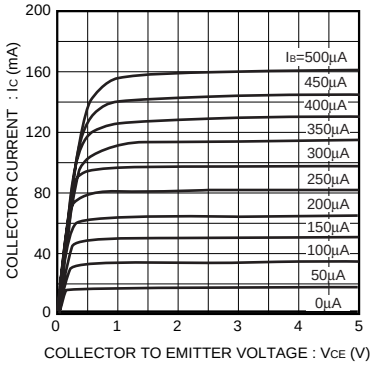


Fig.1 Typical output characteristics

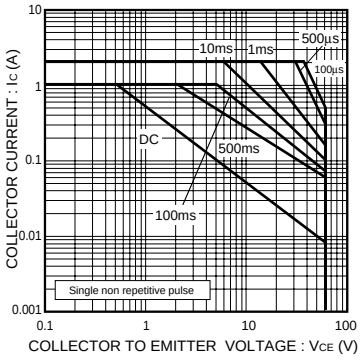


Fig.2 Safe operating area

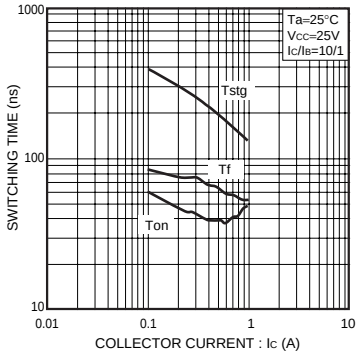


Fig.3 Switching Time

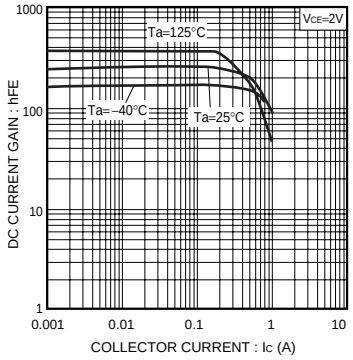


Fig.4 DC current gain
vs. collector current (I)

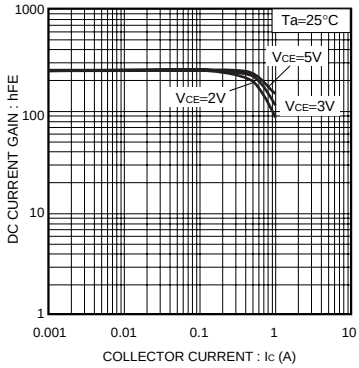


Fig.5 DC current gain
vs. collector current (II)

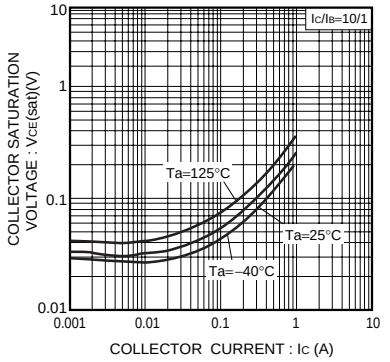


Fig.6 Collector-emitter saturation voltage
vs. collector current (I)

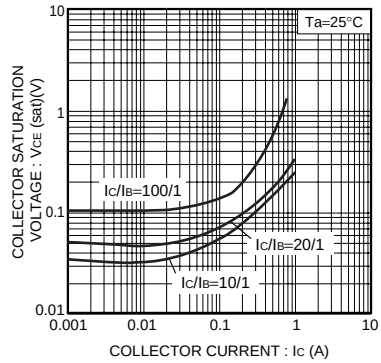


Fig.7 Collector-emitter saturation voltage
vs. collector current (II)

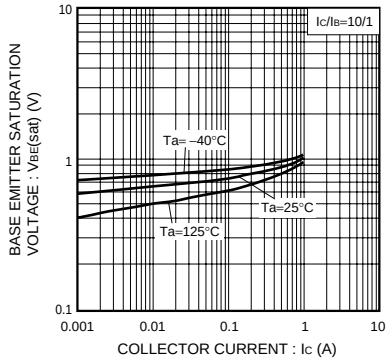


Fig.8 Base-emitter saturation voltage
vs. collector current

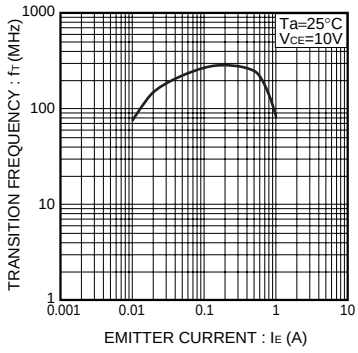


Fig.9 Transition frequency

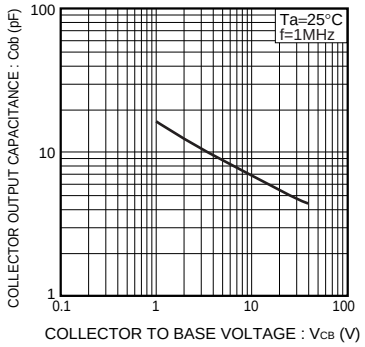


Fig.10 Collector output capacitance

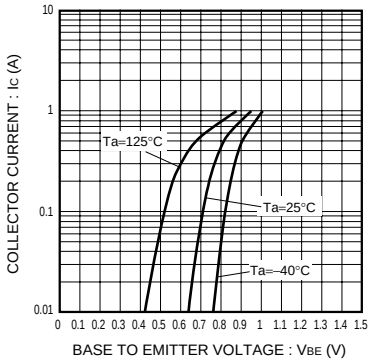
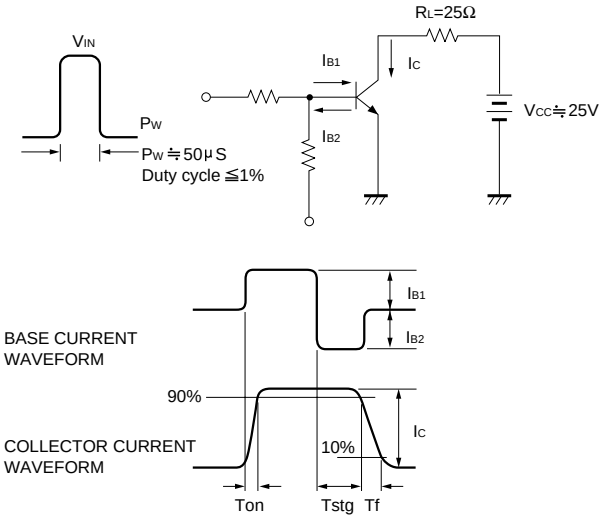


Fig.11 Ground emitter propagation characteristics

●Switching characteristics measurement circuits



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