

2SC5865

- 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.

High speed switching, Low noise

NPN silicon epitaxial planar transistor

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

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	T_J	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

*2 Each terminal mounted on a recommended land

Dimensions (Unit: mm)

TSMT3

Technical drawing of the TSMT3 package showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 2.9
- Distance between leads (1) and (2): 1.9
- Lead width (1) and (2): 0.95
- Distance between lead (2) and lead (3): 0.4
- Lead width (3): 0.4
- Distance from lead (3) to package edge: 1.6
- Overall height: 2.8

Side View Dimensions:

- Maximum height: 1.0MAX
- Lead height: 0.85
- Lead thickness: 0.7
- Lead width: 0.16
- Lead spacing: 0.3-0.8
- Lead angle: 0-0.1

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

Each lead has same dimensions

Abbreviated symbol : VU

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	$I_C=100\mu A$
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	$V_{CE(sat)}$	–	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	$I_C=1A,$ $I_{B1}=100mA$ $I_{B2}=-100mA$ $V_{CC}\approx 25V^{*2}$
Storage time	t_{stg}	–	130	–	ns	
Fall time	t_f	–	50	–	ns	

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

● h_{FE} RANK

Q	R
120-270	180-390

Transistors

●Electrical characteristics curves

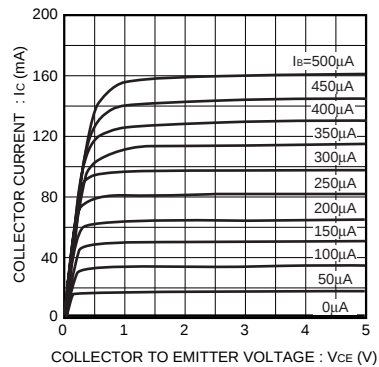


Fig.1 Typical output characteristics

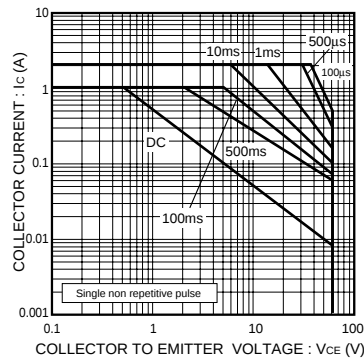


Fig.2 Safe operating area

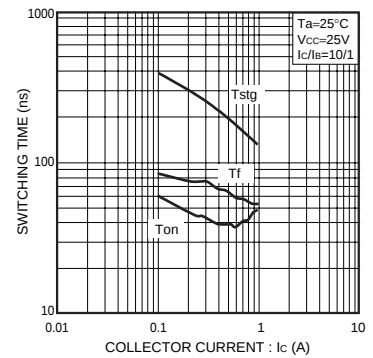


Fig.3 Switching Time

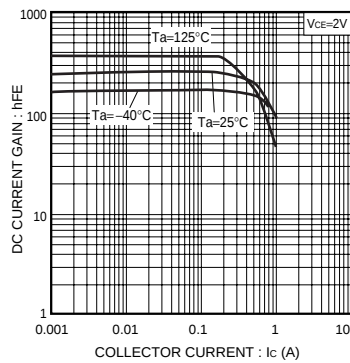
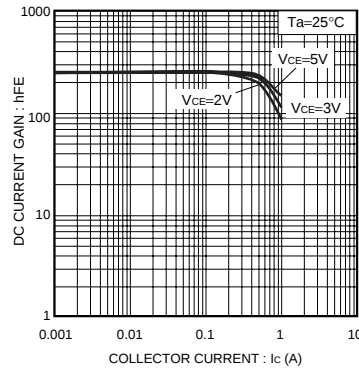
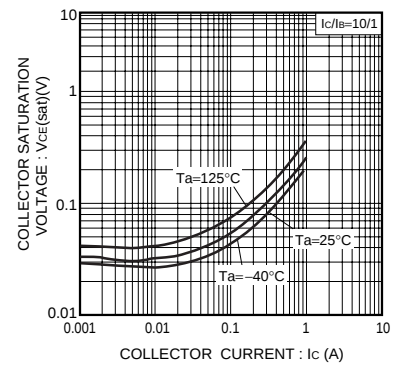
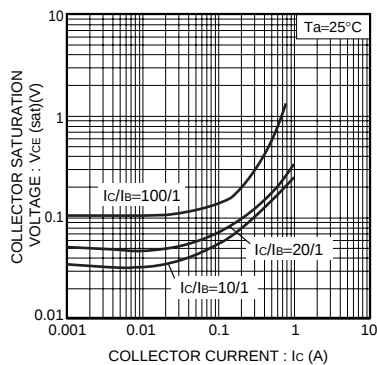
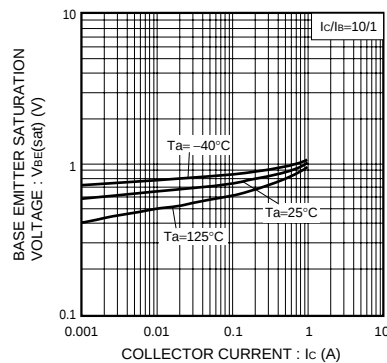
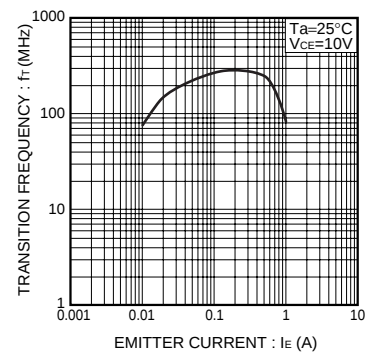
Fig.4 DC current gain
vs. collector current (I)Fig.5 DC current gain
vs. collector current (II)Fig.6 Collector-emitter saturation voltage
vs. collector current (I)Fig.7 Collector-emitter saturation voltage
vs. collector current (II)Fig.8 Base-emitter saturation voltage
vs. collector current

Fig.9 Transition frequency

Transistors

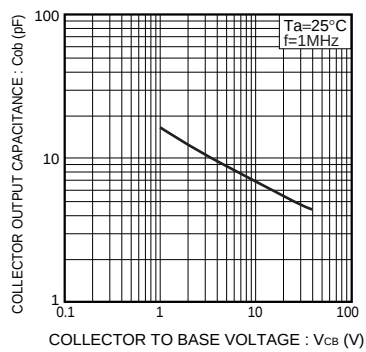


Fig.10 Collector output capacitance

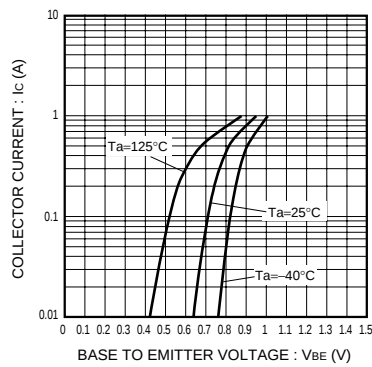
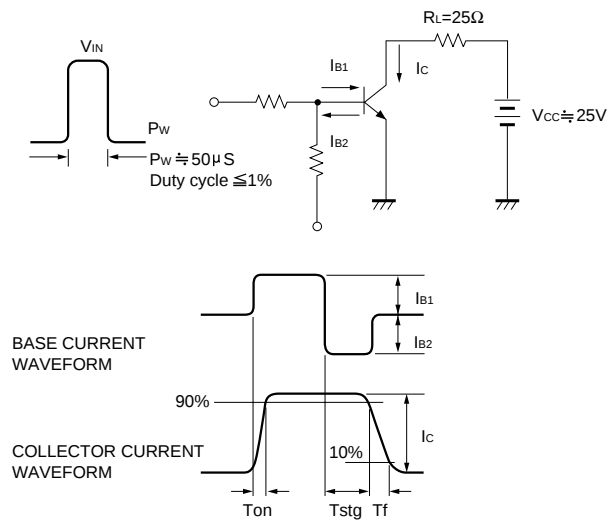


Fig.11 Ground emitter propagation characteristics

●Switching characteristics measurement circuits



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