

Medium power transistor (60V, 0.5A)

2SC5868
●Features

- 1) High speed switching.
(T_f : Typ.: 80ns at $I_c = 500\text{mA}$)
- 2) Low saturation voltage, typically
(Typ.: 75mV at $I_c = 100\text{mA}$, $I_B = 10\text{mA}$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2090

●Applications

Small signal low frequency amplifier
 High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

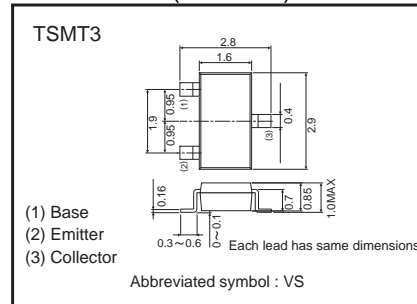
Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SC5868		○

●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	DC	I_c	0.5 A
	Pulsed	I_{CP}	1.0 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

*1 $P_w=10\text{ms}$

*2 Each terminal mounted on a recommended land

●Dimensions (Unit : mm)


●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
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	$V_{CE(sat)}$	–	75	300	mV	$I_C=100mA$ $I_B=10mA$
DC current gain	h_{FE}	120	–	390	–	$V_{CE}=2V$ $I_C=50mA$
Transition frequency	f_T	–	300	–	MHz	$V_{CE}=10V$ $I_E=-100mA$ $f=10MHz$
Corrector output capacitance	C_{ob}	–	5	–	pF	$V_{CB}=10V$ $I_E=0mA$ $f=1MHz$
Turn-on time	T_{on}	–	70	–	ns	$I_C=500mA$ $I_{B1}=50mA$ $I_{B2}=-50mA$ $V_{CC}\approx 25V$
Storage time	T_{stg}	–	130	–	ns	
Fall time	T_f	–	80	–	ns	

*1 Non repetitive pulse

*2 See Switching characteristics measurement circuits

●hFE RANK

Q	R
120–270	180–390

●Electrical characteristic curves

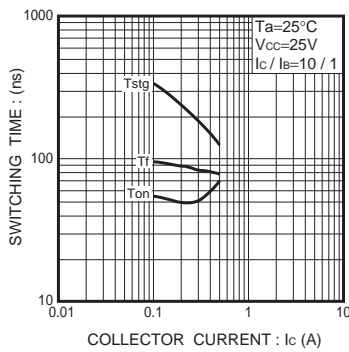


Fig.1 Switching Time

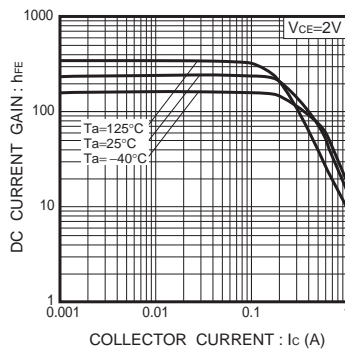


Fig.2 DC Current Gain vs. Collector Current (I)

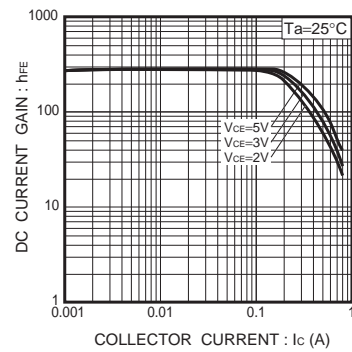


Fig.3 DC Current Gain vs. Collector Current (II)

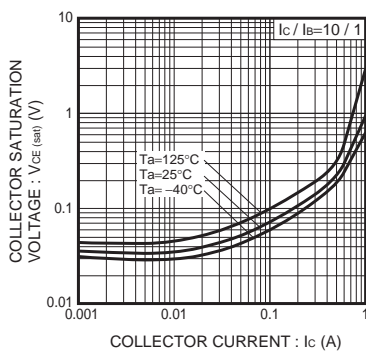


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

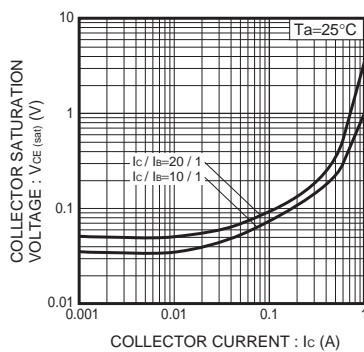


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

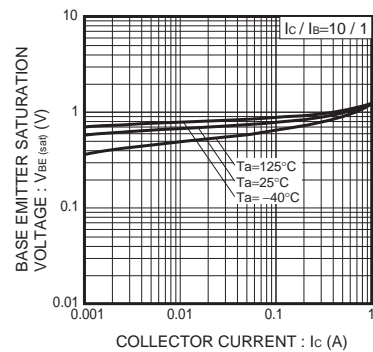


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

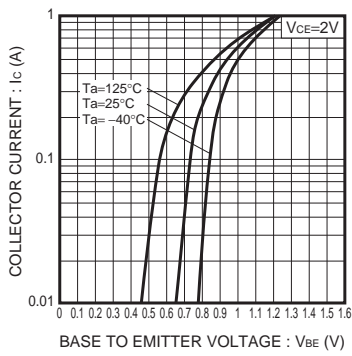


Fig.7 Grounded Emitter Propagation Characteristics

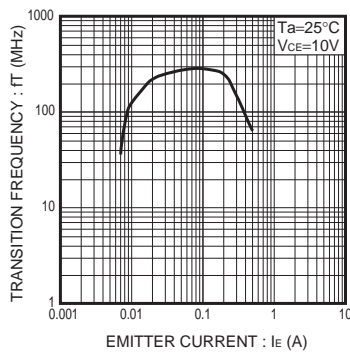


Fig.8 Transition Frequency

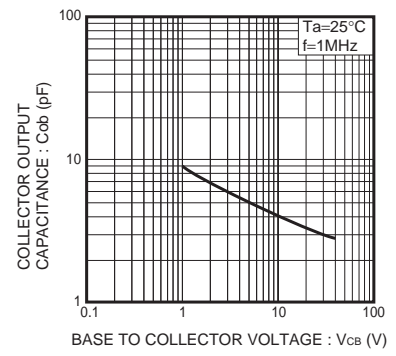
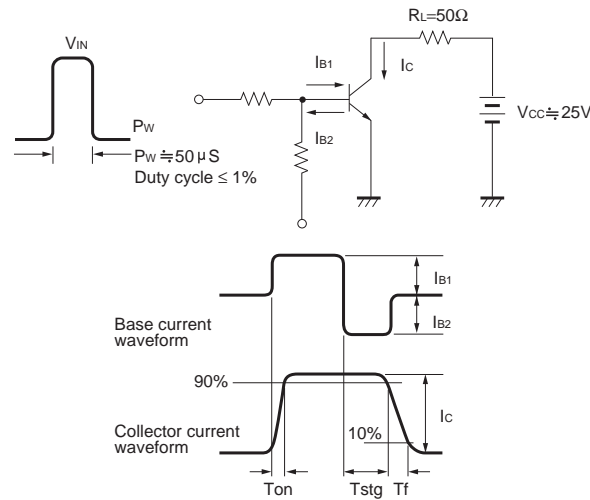


Fig.9 Collector Output Capacitance

●Switching characteristics measurement circuits



Notes

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