

Power transistor (60V, 2A)

2SC5880

●Features

- 1) High speed switching.
(t_f : Typ. : 35ns at $I_c = 2A$)
- 2) Low saturation voltage, typically
(Typ. : 200mV at $I_c = 1.0A$, $I_B = 100mA$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2093

●Applications

Low frequency amplifier
High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

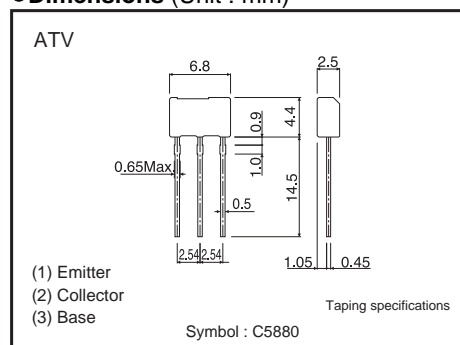
Type	Package	Taping
	Code	TV2
	Basic ordering unit (pieces)	2500
2SC5880		○

●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	2	A
	Pulsed	I_{CP}	4	A *
Power dissipation		P_c	1.0	W
Junction temperature		t_j	150	°C
Range of storage temperature		t_{stg}	-55 to 150	°C

* $P_w=10ms$

●Dimensions (Unit : mm)



●Electrical characteristics (Ta=25°C)

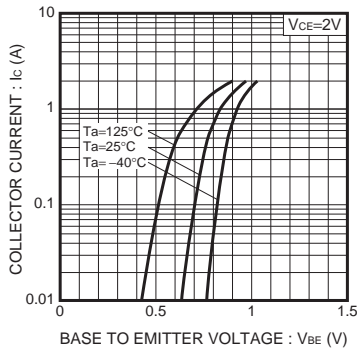
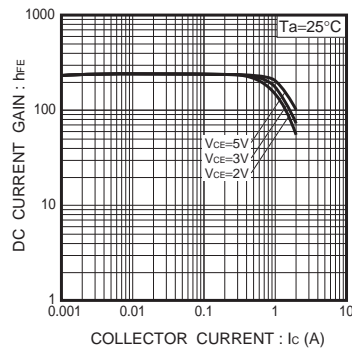
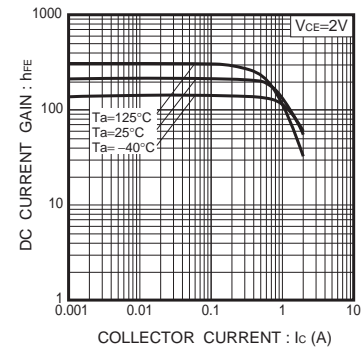
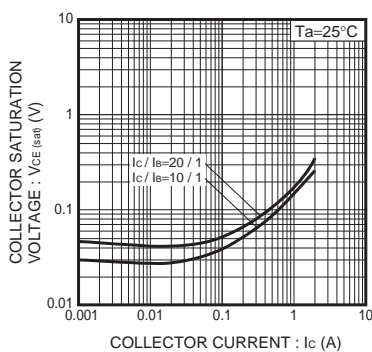
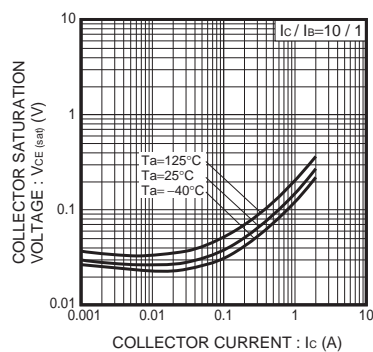
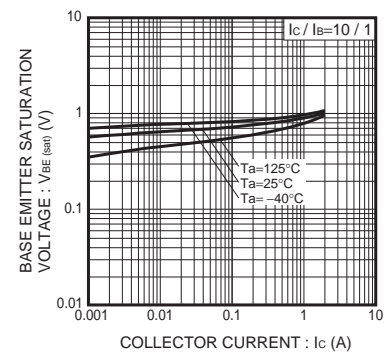
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-emitter breakdown voltage	BV_{CEO}	60	—	—	V	$I_C=1\text{mA}$
Collector-base breakdown voltage	BV_{CBO}	60	—	—	V	$I_C=100\mu\text{A}$
Emitter-base breakdown voltage	BV_{EBO}	6	—	—	V	$I_E=100\mu\text{A}$
Collector cut-off current	I_{CBO}	—	—	1.0	μA	$V_{CB}=40\text{V}$
Emitter cut-off current	I_{EBO}	—	—	1.0	μA	$V_{EB}=4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	200	500	mV	$I_C=1.0\text{A}$ $I_B=0.1\text{A}$
DC current gain	h_{FE}	120	—	390	—	$V_{CE}=2\text{V}$ $I_C=100\text{mA}$
Transition frequency	f_T	—	200	—	MHz	$V_{CE}=10\text{V}$ $I_E=-100\text{mA}$ $f=10\text{MHz}$
Corrector output capacitance	C_{ob}	—	10	—	pF	$V_{CB}=10\text{V}$ $I_E=0\text{mA}$ $f=1\text{MHz}$
Turn-on time	t_{on}	—	50	—	ns	$I_C=2\text{A}$ $I_{B1}=200\text{mA}$ $I_{B2}=-200\text{mA}$ $V_{CC}\approx 25\text{V}$
Storage time	t_{stg}	—	120	—	ns	
Fall time	t_f	—	35	—	ns	

*Non repetitive pulse

● h_{FE} RANK

Q	R
120–270	180–390

●Electrical characteristic curves

Fig.1 Grounded Emitter
Propagation CharacteristicsFig.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

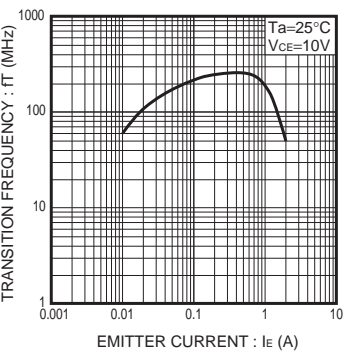


Fig.7 Transition Frequency

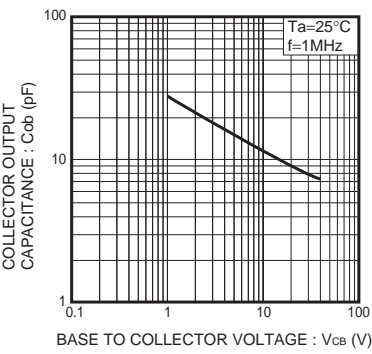


Fig.8 Collector Output Capacitance

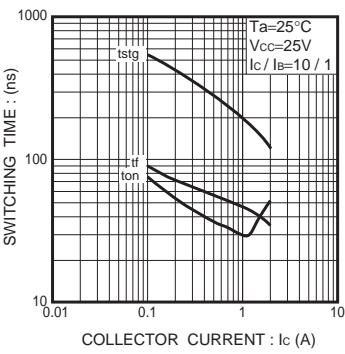
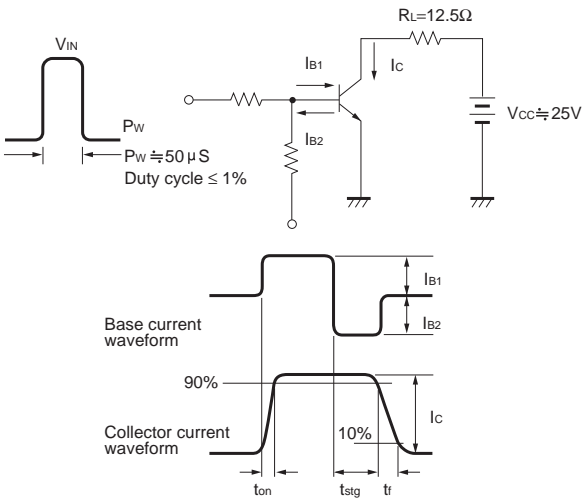


Fig.9 Switching Time

●Switching characteristics measurement circuits



Notes

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