

# Power transistor (60V, 3A)

## 2SC5825

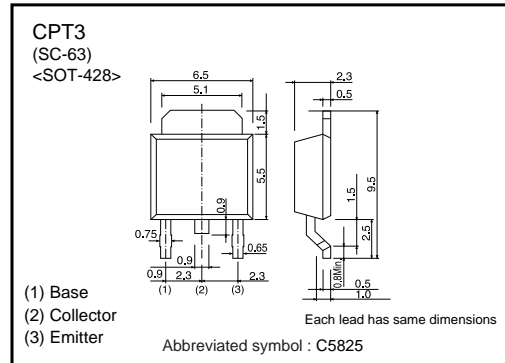
### ●Features

- 1) High speed switching.  
(Tf : Typ. : 30ns at Ic = 3A)
- 2) Low saturation voltage, typically  
(Typ. : 200mV at Ic = 2A, Ib = 0.2mA)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2073

### ●Applications

Low frequency amplifier  
High speed switching

### ●Dimensions (Unit : mm)



### ●Structure

NPN Silicon epitaxial planar transistor

### ●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	2500
2SC5825		○

### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	60	V
Collector-emitter voltage	V <sub>CE0</sub>	60	V
Emitter-base voltage	V <sub>EB0</sub>	6	V
Collector current	Continuous	I <sub>c</sub>	3 A
	Pulsed	I <sub>cP</sub>	6 A
Power dissipation	P <sub>c</sub>	1.0	W <sup>*1</sup>
		10.0	W <sup>*3</sup>
Junction temperature	T <sub>j</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	-55 to 150	°C

\*1 P<sub>w</sub>=10ms

\*2 Each terminal mounted on a recommended land

\*3 T<sub>c</sub>=25°C

Transistors

●Electrical characteristics (Ta=25°C)

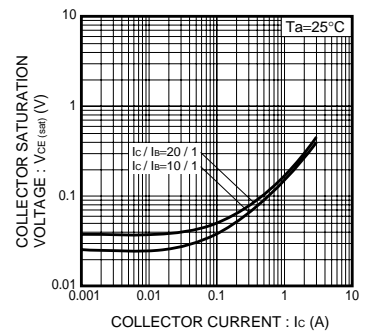
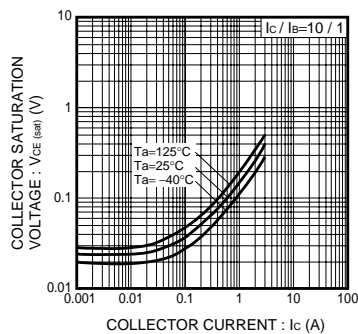
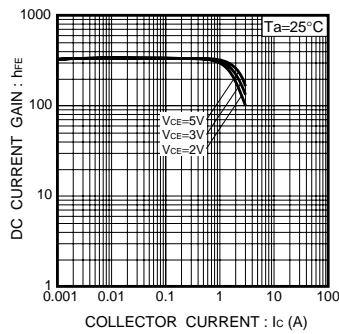
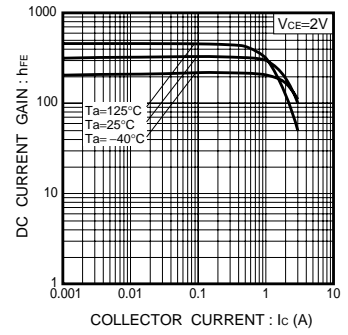
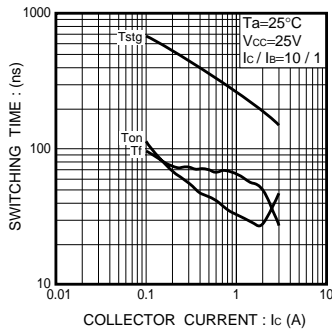
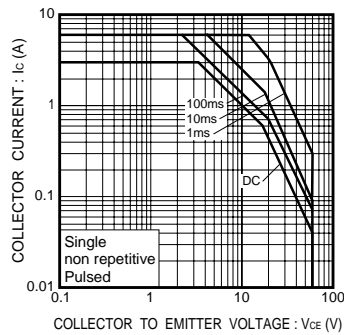
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	60	–	–	V	I <sub>C</sub> =1mA
Collector-base breakdown voltage	BV <sub>CBO</sub>	60	–	–	V	I <sub>C</sub> =100μA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	6	–	–	V	I <sub>E</sub> =100μA
Collector cut-off current	I <sub>CBO</sub>	–	–	1.0	μA	V <sub>CB</sub> =40V
Emitter cut-off current	I <sub>EBO</sub>	–	–	1.0	μA	V <sub>EB</sub> =4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	200	500	mV	I <sub>C</sub> =2A I <sub>B</sub> =200mA
DC current gain	h <sub>FE</sub>	120	–	390	–	V <sub>CE</sub> =2V I <sub>C</sub> =100mA
Transition frequency	f <sub>r</sub>	–	200	–	MHz	V <sub>CE</sub> =10V I <sub>E</sub> =–100mA f=10MHz
Corrector output capacitance	C <sub>ob</sub>	–	20	–	pF	V <sub>CB</sub> =10V I <sub>E</sub> =0mA f=1MHz
Turn-on time	T <sub>on</sub>	–	50	–	ns	I <sub>C</sub> =3A I <sub>B1</sub> =300mA I <sub>B2</sub> =–300mA
Storage time	T <sub>stg</sub>	–	150	–	ns	V <sub>CC</sub> ≒25V
Fall time	T <sub>f</sub>	–	30	–	ns	

\*1 Non repetitive pulse  
\*2 See Switching characteristics measurement circuits

●h<sub>FE</sub> RANK

Q	R
120–270	180–390

●Electrical characteristic curves



Transistors

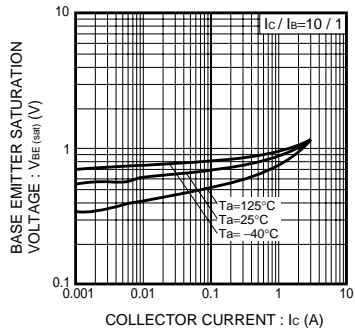


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

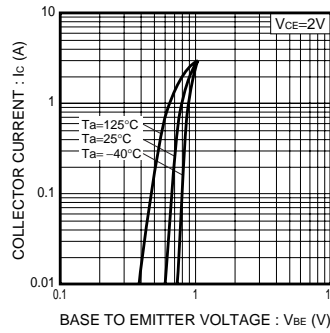


Fig.8 Grounded Emitter Propagation Characteristics

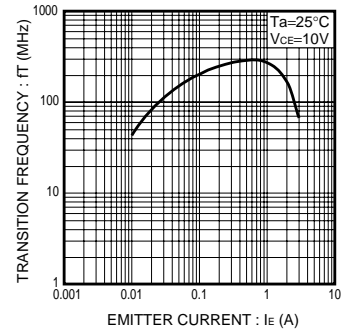


Fig.9 Transition Frequency

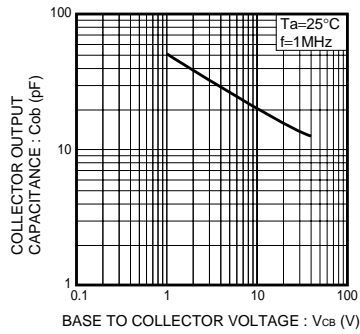
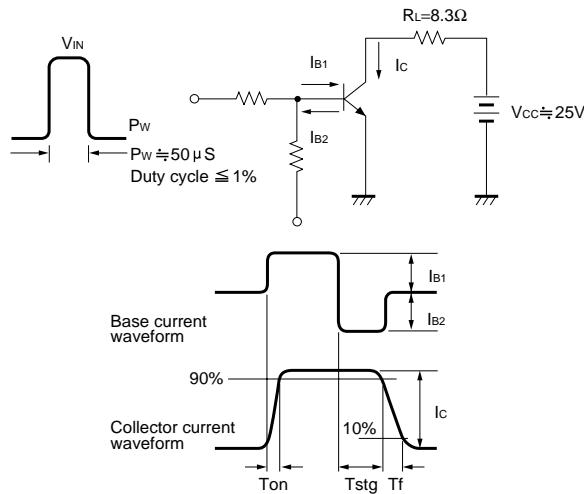


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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