

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

●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)

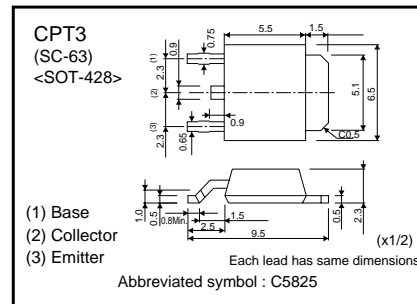
Parameter		Symbol	Limits	Unit
Collector-base voltage		V _{CB0}	60	V
Collector-emitter voltage		V _{CE0}	60	V
Emitter-base voltage		V _{EB0}	6	V
Collector current	Continuous	I _c	3	A
	Pulsed	I _{cP}	6	A *1
Power dissipation		P _c	1.0	W *2
			10.0	W *3
Junction temperature		T _j	150	°C
Range of storage temperature		T _{stg}	-55 to 150	°C

*1 P_w=10ms

*2 Each terminal mounted on a recommended land

*3 T_c=25°C

●External dimensions (Unit : mm)



Transistors

●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	$V_{CE(sat)}$	-	200	500	mV	$I_C=2A$ $I_B=200mA$
DC current gain	h_{FE}	120	-	390	-	$V_{CE}=2V$ $I_C=100mA$
Transition frequency	f_r	-	200	-	MHz	$V_{CE}=10V$ $I_E=-100mA$ $f=10MHz$
Corrector output capacitance	C_{ob}	-	20	-	pF	$V_{CB}=10V$ $I_E=0mA$ $f=1MHz$
Turn-on time	T_{on}	-	50	-	ns	$I_C=3A$ $I_{B1}=300mA$ $I_{B2}=-300mA$ $V_{CC}\approx 25V$
Storage time	T_{stg}	-	150	-	ns	
Fall time	T_f	-	30	-	ns	

*1 Non repetitive pulse

*2 See Switching characteristics measurement circuits

●hFE RANK

Q	R
120-270	180-390

●Electrical characteristic curves

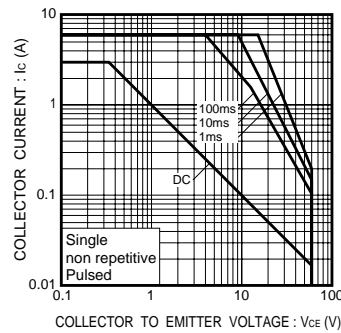


Fig.1 Safe Operating Area

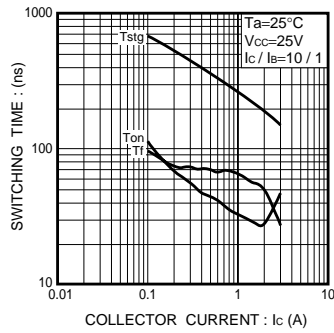


Fig.2 Switching Time

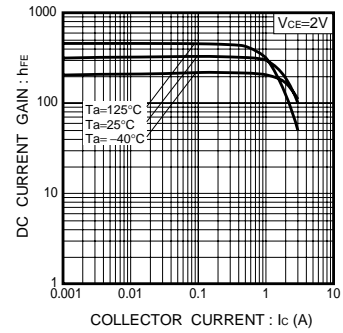


Fig.3 DC Current Gain vs. Collector Current (I)

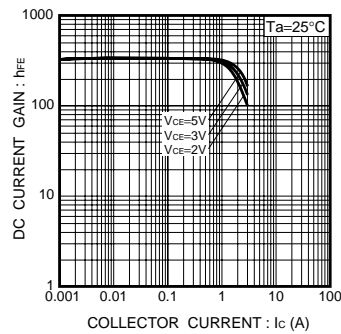


Fig.4 DC Current Gain vs. Collector Current (II)

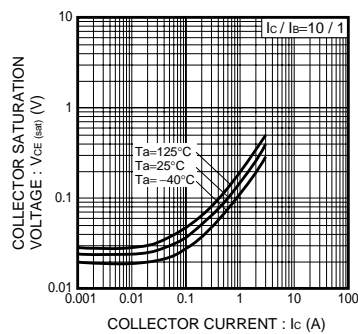


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

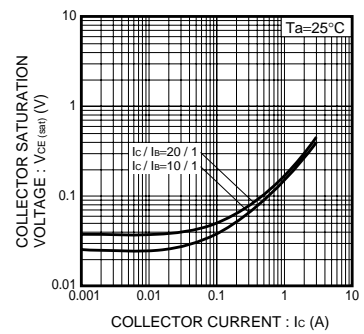


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

Transistors

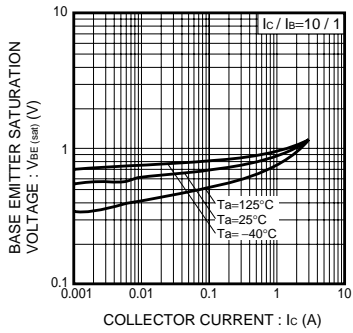


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

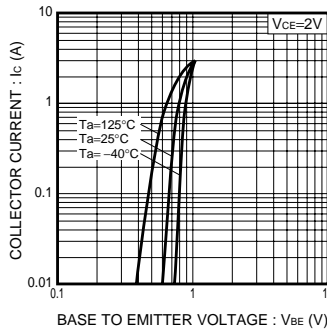


Fig.8 Grounded Emitter Propagation Characteristics

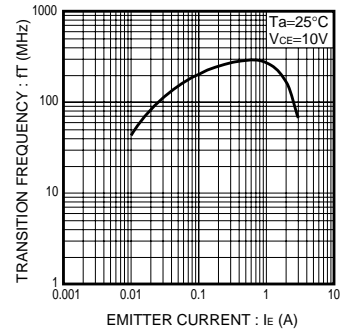


Fig.9 Transition Frequency

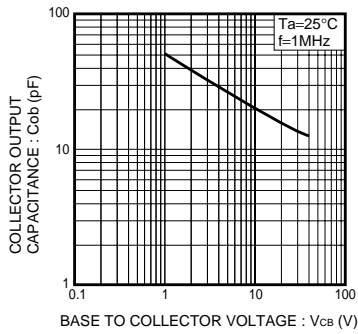
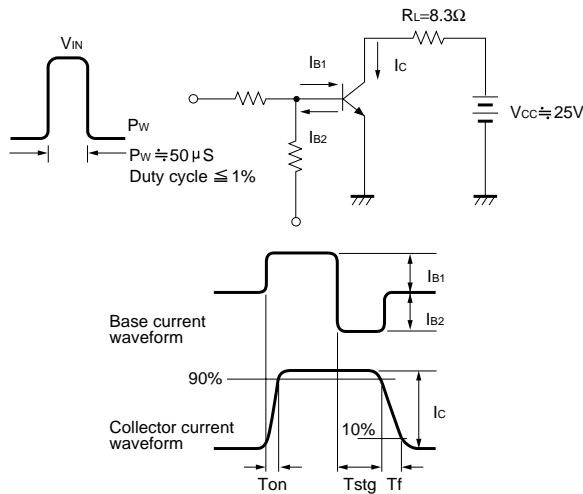


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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