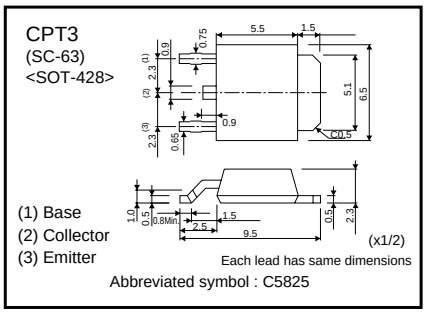
Power transistor (60V, 3A)

2SC5825

●Features

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

●External dimensions (Unit : mm)



●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_{CBO}	60	V	
Collector-emitter voltage		V_{CEO}	60	V	
Emitter-base voltage		V_{EBO}	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		Tj	150	°C	
Range of storage temperature		Tstg	−55 to 150	°C	

∗1 Pw=10ms
∗2 Each terminal mounted on a recommended land
∗3 Tc=25°C

●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=100μA
Emitter-base breakdown voltage	BV_{EBO}	6	–	–	V	I_E=100μA
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 *1
DC current gain	h_{FE}	120	–	390	–	V_{CE}=2V, I_C=100mA
Transition frequency	f_T	–	200	–	MHz	V_{CE}=10V, I_E= −100mA, f=10MHz *1
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}≒25V *2
Storage time	T_{stg}	–	150	–	ns	
Fall time	T_f	–	30	–	ns	

*1 Non repetitive pulse
*2 See Switching charactaristics measurement cicuits

●h_{FE} RANK

Q	R
120–270	180–390

●Electrical characteristic curves

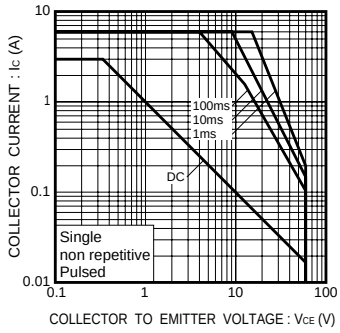


Fig.1 Safe Operating Area

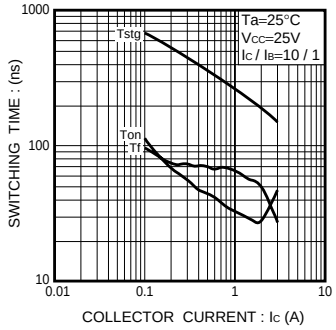


Fig.2 Switching Time

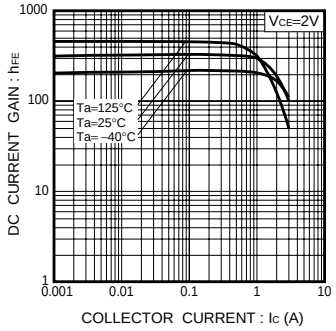


Fig.3 DC Current Gain vs. Collector Current (I)

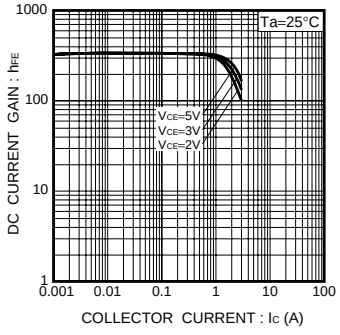


Fig.4 DC Current Gain vs. Collector Current (II)

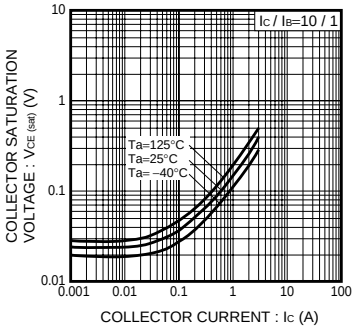


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

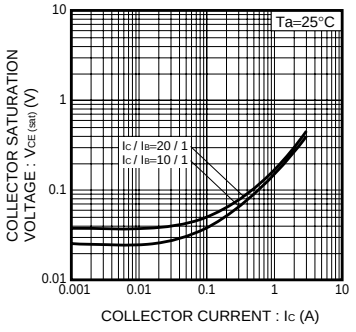


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

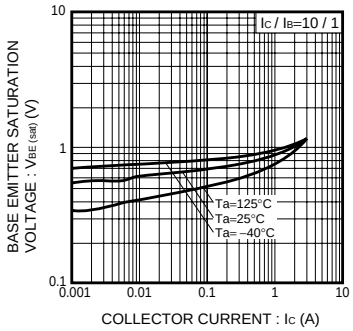


Fig.7 Base-Emitter Saturation Voltage vs.Collecter Current

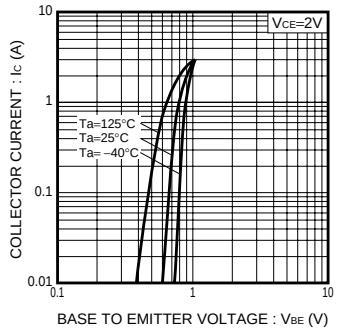


Fig.8 Grounded Emitter Propagation Characteristics

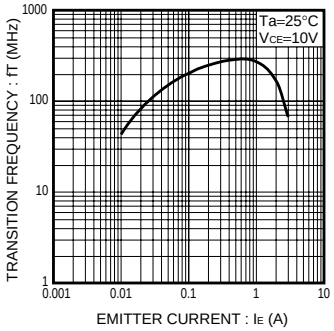


Fig.9 Transition Frequency

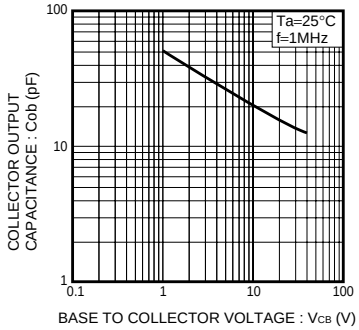
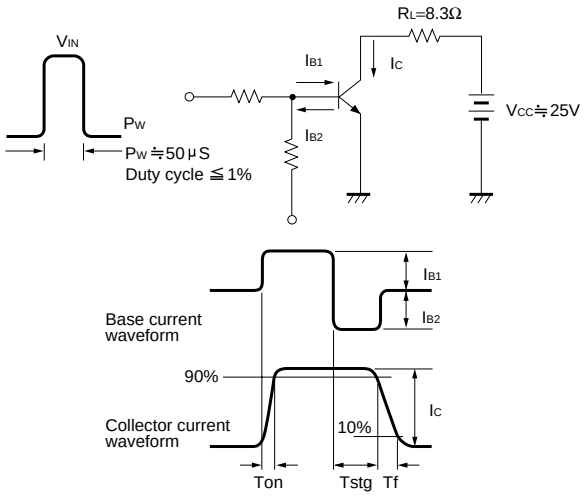


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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