High voltage discharge, High speed switching, Low Noise (–60V, –3A)

2SA2072

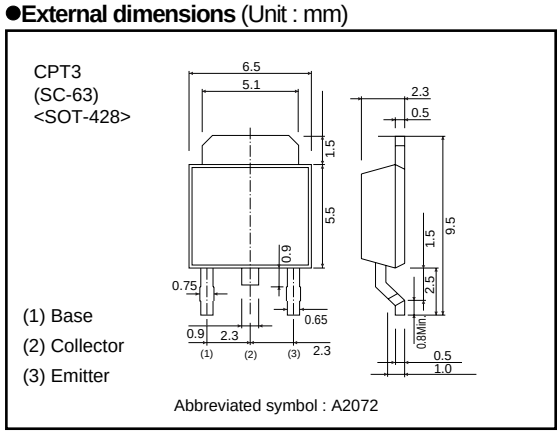
●Features

1) High speed switching. (Tf : Typ. : 20ns at I_C=−3A)
2) Low saturation voltage, typically.
   (Typ. : −200mV at I_C=−2.0A, I_B=−200mA)
3) Strong discharge power for inductive load and capacitance load.
4) Low Noise.
5) Complements the 2SC5825.

●Applications

High speed switching, Low noise

●External dimensions (Unit : mm)



Abbreviated symbol : A2072

●Structure

PNP silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	2500
2SA2072		◯

●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	–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=100ms
∗2 Ta=25°C
∗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}=–20V
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 ∗1 I_B=–0.2A
DC current gain	h_{FE}	120	–	270	–	V_{CE}=–2V I_C=–100mA
Transistor frequency	f_T	–	180	–	MHz	V_{CE}=–10V ∗1 I_E=100mA f=10MHz
Collector output capacitance	Cob	–	50	–	pF	V_{CB}=–10V I_E=0mA f=1MHz
Turn-on time	ton	–	20	–	ns	I_C=–3A ∗2 I_{B1}=–300mA I_{B2}=300mA V_{CC}≒–25V
Storage time	tstg	–	150	–	ns	
Fall time	tf	–	20	–	ns	

∗1 Non repetitive pulse
∗2 See switching characteristics measurement circuits

●h_{FE} **RANK**

Q
120–270

●Electrical characteristics curves

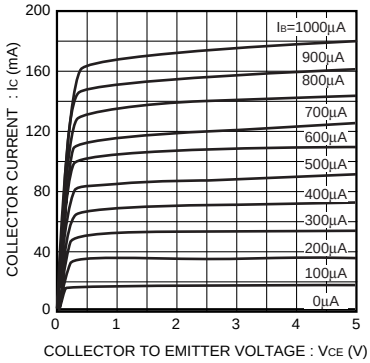


Fig.1 Typical output characteristics

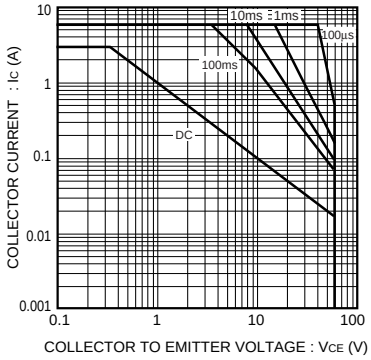


Fig.2 Safe operating area

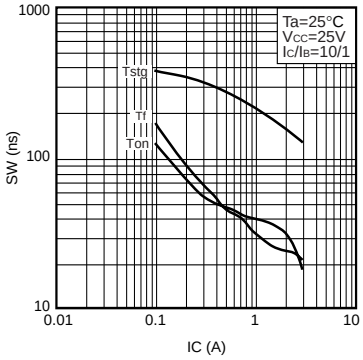


Fig.3 Switching Time

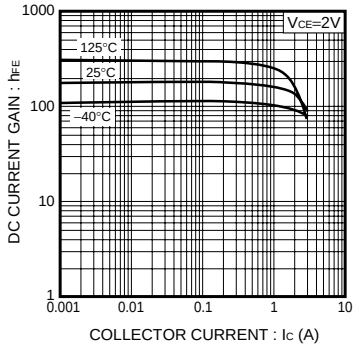


Fig.4 DC current gain vs.collector current (I)

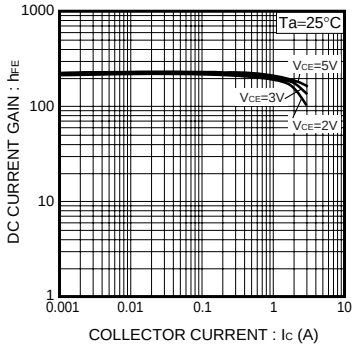


Fig.5 DC current gain vs.collector current (II)

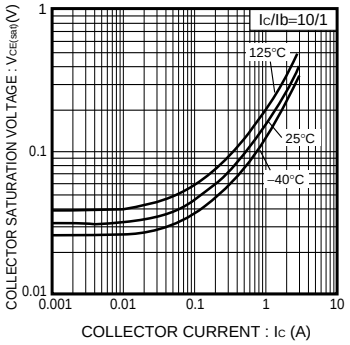


Fig.6 Collector-emitter saturation voltage vs.collector current (I)

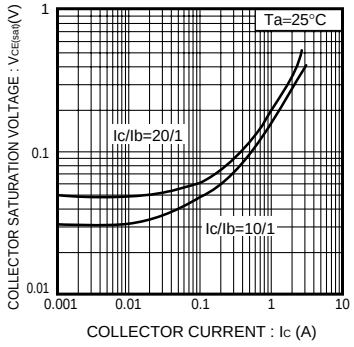


Fig.7 Collector-emitter saturation voltage vs.collector current (II)

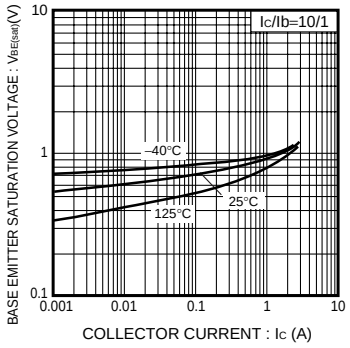


Fig.8 Base-emitter saturation voltage vs. collector current

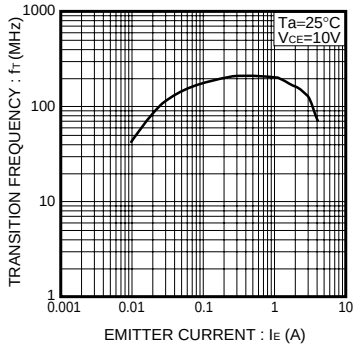


Fig.9 Transition frequency

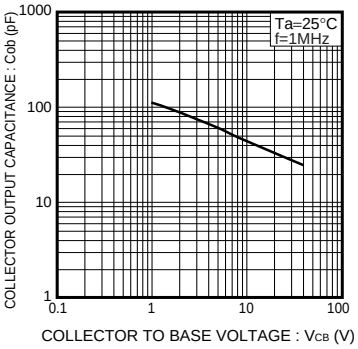


Fig.10 Collector output capacitance

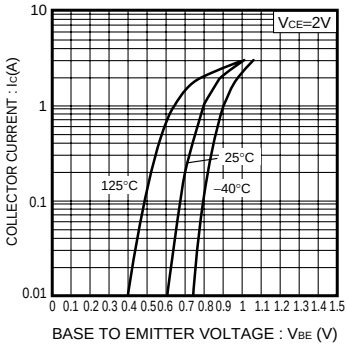
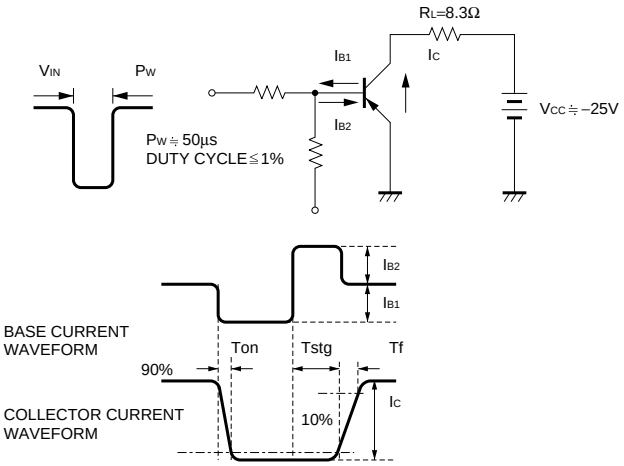


Fig.11 Grounded emitter propagation characteristics

●Switching characteristics measurement circuits



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