

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

2SA2072

●Features

- 1) High speed switching. (t_f : 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.

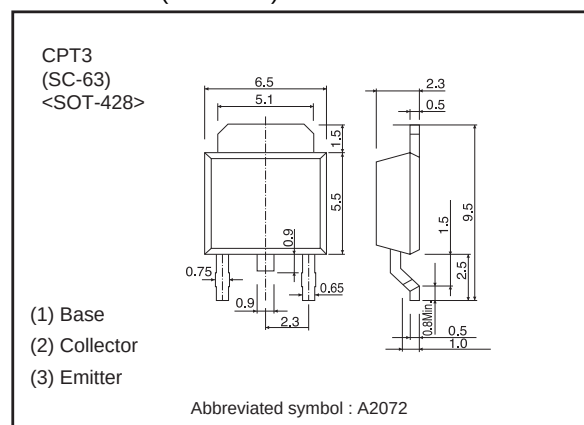
●Applications

High speed switching, Low noise

●Structure

PNP silicon epitaxial planar transistor

●Dimensions (Unit : mm)



●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} *1	–6	A
Power dissipation		P_C	1.0 *2	W
			10.0 *3	W
Junction temperature		t_j	150	°C
Range of storage temperature		t_{stg}	–55 to 150	°C

*1 $P_W = 100ms$

*2 $T_a = 25^\circ C$

*3 $T_c = 25^\circ C$

●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	$V_{CB} = -20\text{V}$
Emitter cut-off current	I_{EBO}	—	—	-1.0	μA	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$ ^{*1}	—	-200	-500	mV	$I_C = -2\text{A}$ $I_B = -0.2\text{A}$
DC current gain	h_{FE}	120	—	270	—	$V_{CE} = -2\text{V}$ $I_C = -100\text{mA}$
Transistor frequency	f_T ^{*1}	—	180	—	MHz	$V_{CE} = -10\text{V}$ $I_E = 100\text{mA}$ $f = 10\text{MHz}$
Collector output capacitance	C_{ob}	—	50	—	pF	$V_{CB} = -10\text{V}$ $I_E = 0\text{mA}$ $f = 1\text{MHz}$
Turn-on time	t_{on} ^{*2}	—	20	—	ns	$I_C = -3\text{A}$ $I_{B1} = -300\text{mA}$ $I_{B2} = 300\text{mA}$ $V_{CC} = -25\text{V}$
Storage time	t_{stg} ^{*2}	—	150	—	ns	
Fall time	t_f ^{*2}	—	20	—	ns	

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

●h_{FE} RANK

Q
120-270

●Electrical characteristics curves

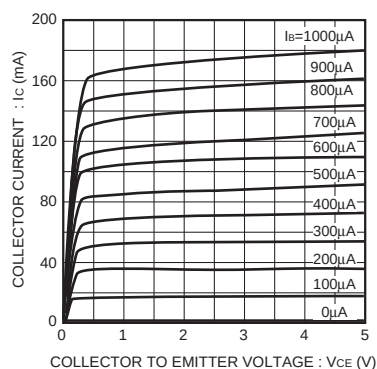


Fig.1 Typical output characteristics

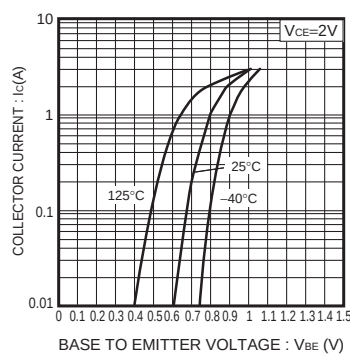


Fig.2 Grounded emitter propagation characteristics

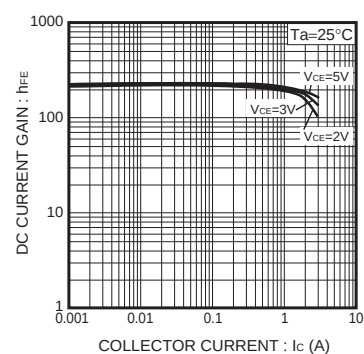


Fig.3 DC current gain vs. collector current (I)

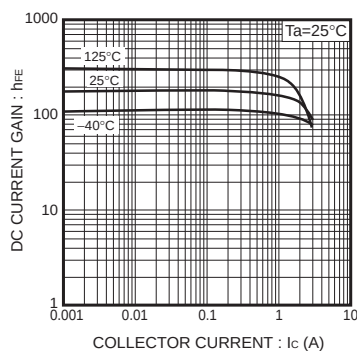


Fig.4 DC current gain vs. collector current (II)

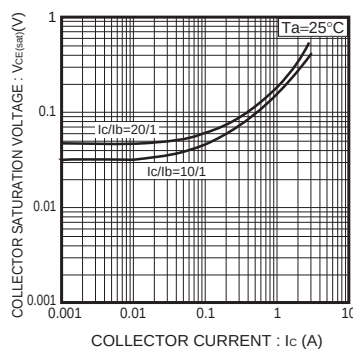


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

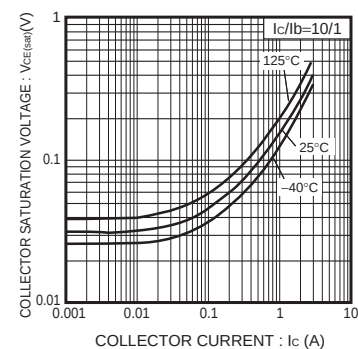


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

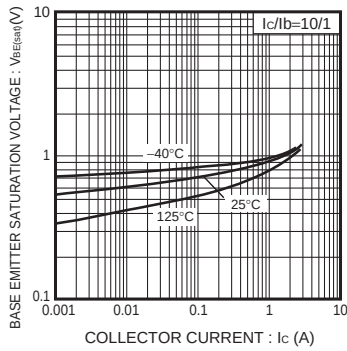


Fig.7 Base-emitter saturation voltage vs. collector current

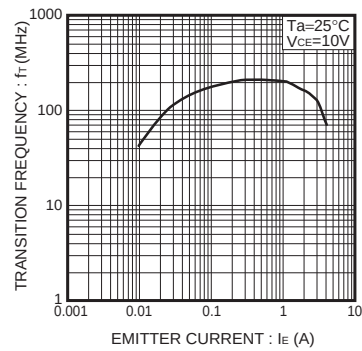


Fig.8 Transition frequency

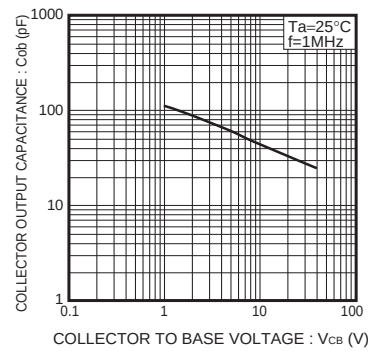


Fig.9 Collector output capacitance

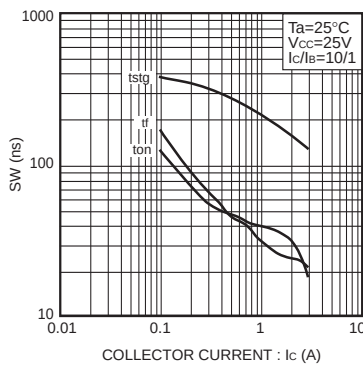
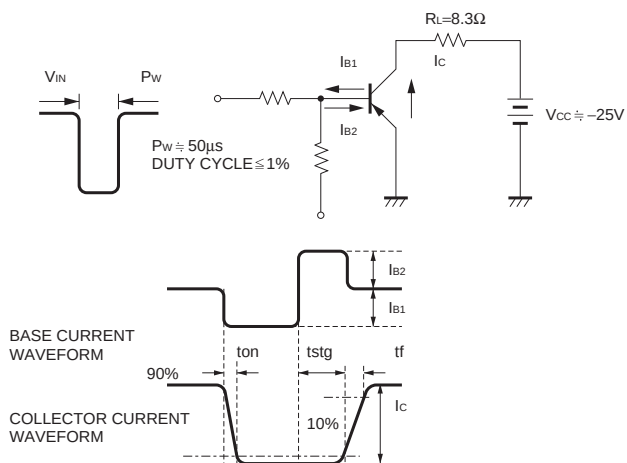


Fig.10 Switching Time

●Switching characteristics measurement circuits



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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А