

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

2SA2072

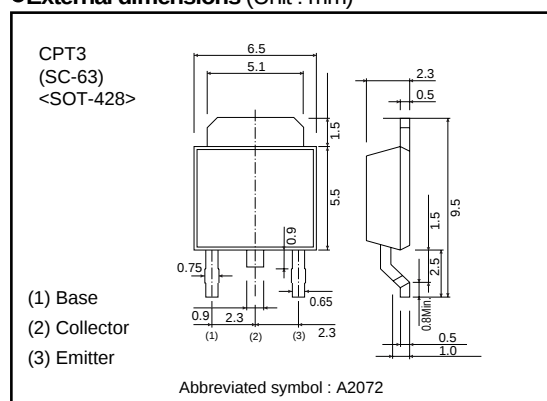
●Features

- 1) High speed switching. (Tf : Typ. : 20ns at Ic=–3A)
- 2) Low saturation voltage, typically.
(Typ. : –200mV at Ic=–2.0A, IB=–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)



●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 _{CB0}	–60	V
Collector-emitter voltage		V _{CE0}	–60	V
Emitter-base voltage		V _{EB0}	–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		T _J	150	°C
Range of storage temperature		T _{stg}	–55 to 150	°C

*1 PW=100ms

*2 Ta=25°C

*3 Tc=25°C

Transistors

●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	$V_{CE(sat)}$	—	-200	-500	mV	$I_C = -2\text{A}$ $I_B = -0.2\text{A}$ *1
DC current gain	h_{FE}	120	—	270	—	$V_{CE} = -2\text{V}$ $I_C = -100\text{mA}$
Transistor frequency	f_r	—	180	—	MHz	$V_{CE} = -10\text{V}$ *1 $I_E = 100\text{mA}$ $f = 10\text{MHz}$
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}	—	20	—	ns	$I_C = -3\text{A}$ *2 $I_{B1} = -300\text{mA}$ $I_{B2} = 300\text{mA}$ $V_{CC} \approx -25\text{V}$
Storage time	t_{stg}	—	150	—	ns	
Fall time	t_f	—	20	—	ns	

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

● h_{FE} RANK

Q
120-270

Transistors

●Electrical characteristics curves

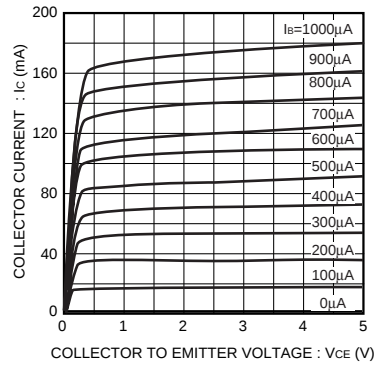


Fig.1 Typical output characteristics

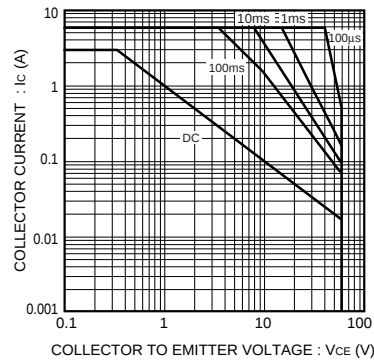


Fig.2 Safe operating area

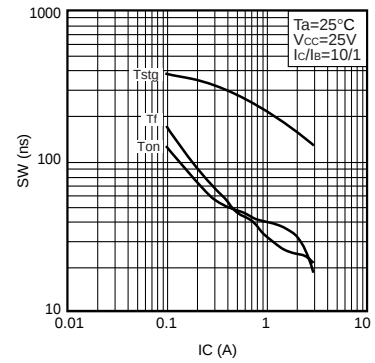


Fig.3 Switching Time

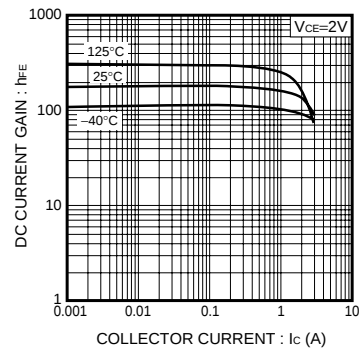
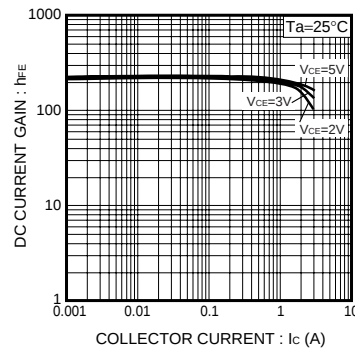
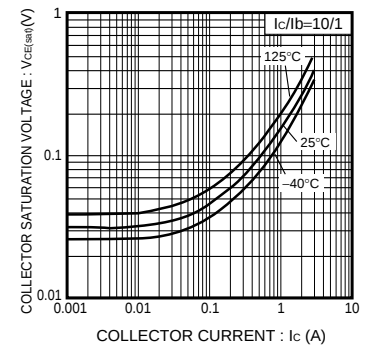
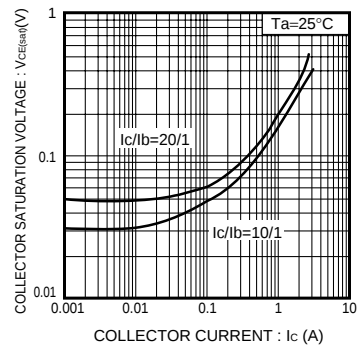
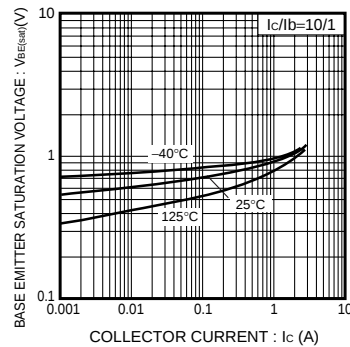
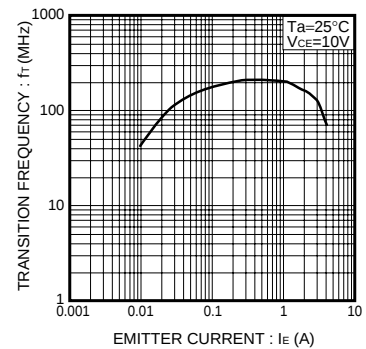
Fig.4 DC current gain
vs. collector current (I)Fig.5 DC current gain
vs. collector current (II)Fig.6 Collector-emitter saturation voltage
vs. collector current (I)Fig.7 Collector-emitter saturation voltage
vs. collector current (II)Fig.8 Base-emitter saturation voltage
vs. collector current

Fig.9 Transition frequency

Transistors

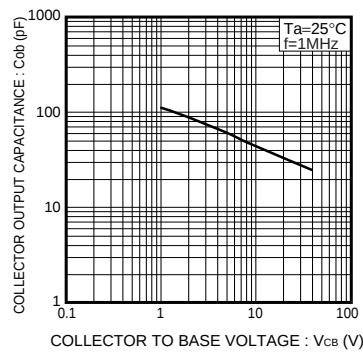


Fig.10 Collector output capacitance

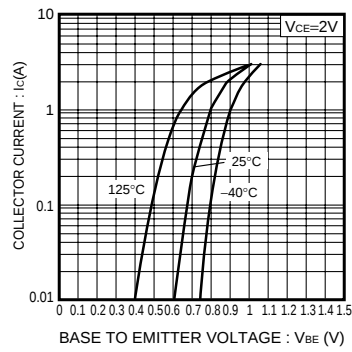
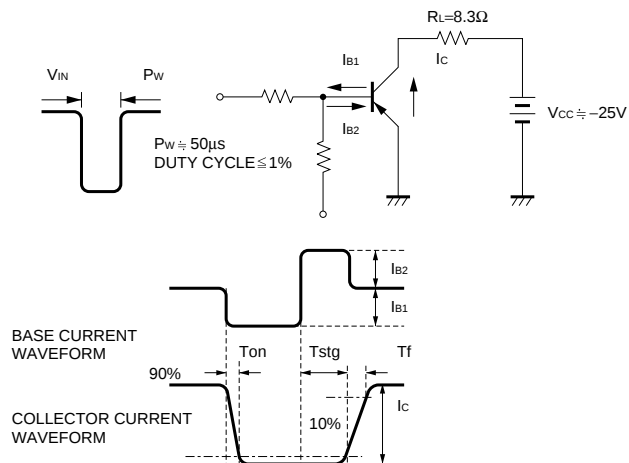


Fig.11 Grounded emitter propagation characteristics

●Switching characteristics measurement circuits



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