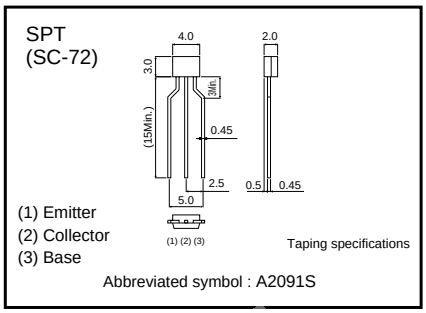
Medium power transistor (–60V, –1A)

2SA2091S

●Features

1) High speed switching. (Tf : Typ. : 30ns at I_C = −1A)
2) Low saturation voltage, typically
   (Typ. : −200mV at I_C = −0.5A, I_B = −50mA)
3) Strong discharge power for inductive load and capacitance load.
4) Complements the 2SC5879S

●External dimensions (Unit : mm)



●Applications

Small signal low frequency amplifier
High speed switching

●Structure

PNP Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	TP
	Basic ordering unit (pieces)	5000
2SA2091S		○

●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	–1.0	A
	Pulsed	I_{CP}	–2.0	A *
Power dissipation		P_C	300	mW
Junction temperature		Tj	150	°C
Range of storage temperature		Tstg	–55 to 150	°C

*Pw=100ms

●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= –500mA I_B= –50mA
DC current gain	h_{FE}	120	–	270	–	V_{CE}= –2V I_C= –100mA
Transition frequency	f_T	–	300	–	MHz	V_{CE}= –10V *1 I_E=100mA f=10MHz
Corrector output capacitance	C_{ob}	–	15	–	pF	V_{CB}= –10V I_E=0mA f=1MHz
Turn-on time	Ton	–	30	–	ns	I_C= –1.0A *2 I_{B1}= –100mA I_{B2}=100mA V_{CC}≒ –25V
Storage time	Tstg	–	100	–	ns	
Fall time	Tf	–	30	–	ns	

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

●h_{FE} RANK

Q
120–270

●Electrical characteristic curves

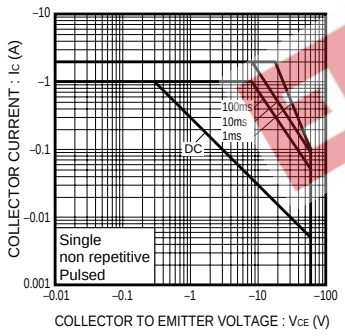


Fig.1 Safe Operating Area

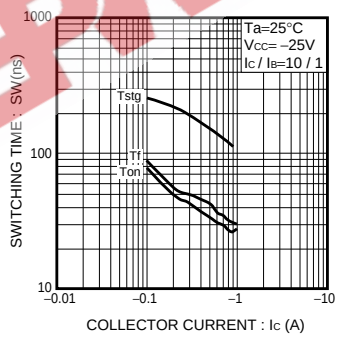


Fig.2 Switching Time

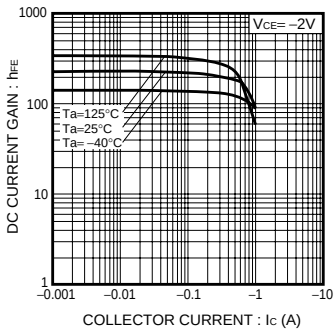


Fig.3 DC Current Gain vs. Collector Current (I)

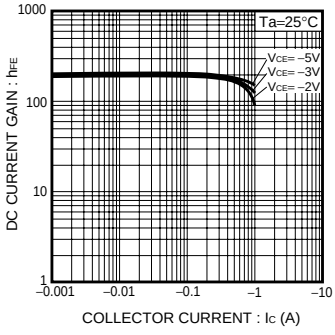


Fig.4 DC Current Gain vs. Collector Current (II)

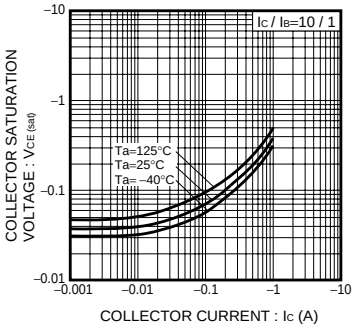


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

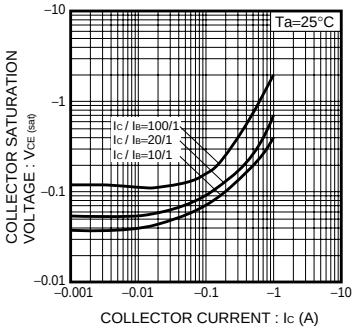


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

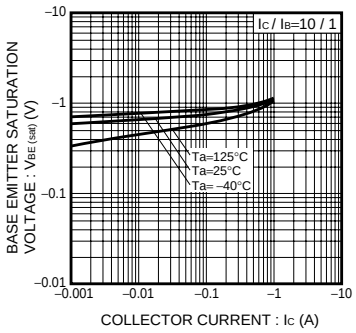


Fig.7 Base-Emitter Saturation Voltage vs. Collecter Current

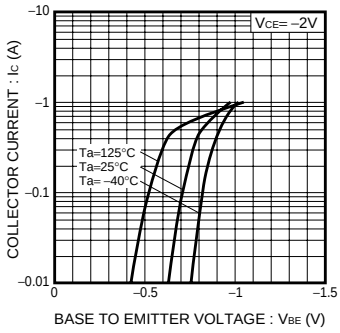


Fig.8 Grounded Emitter Propagation Characteristics

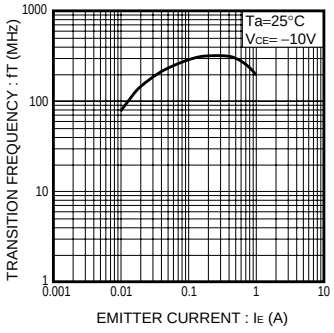


Fig.9 Transition Frequency

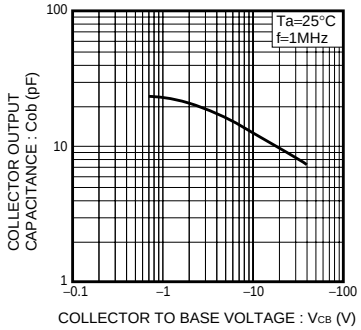
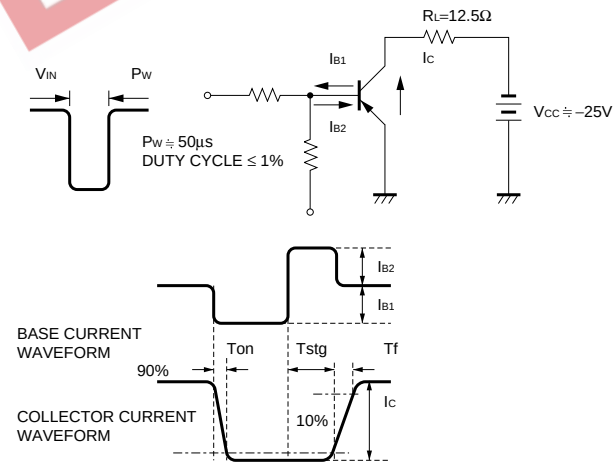


Fig.10 Collector Output Capacitance

●Switching characteristics measurement circuits



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