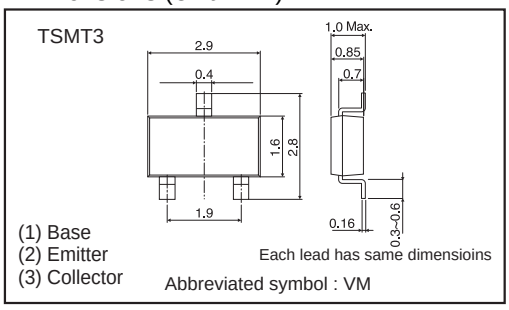
Medium power transistor (–60V, –0.5A)

2SA2090

●Features

1) High speed switching. (Tf : Typ. : 35ns at I_C = 500mA)
2) Low saturation voltage, typically.
   (Typ. : −150mV at I_C = −100mA, I_B = −10mA)
3) Strong discharge power for inductive load and capacitance load.
4) Complements the 2SC5868.

●Dimensions (Unit : mm)



●Applications

High speed switching, Low noise

●Structure

PNP Silicon epitaxial planar

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SA2090		◯

●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	I_C	–0.5	A
	I_{CP}	–1.0	A *1
Power dissipation	P_C	500	mW *2
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

*1 Pw=10ms
*2 Each terminal mounted on a recommended land.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	–60	–	–	V	I_C= –1mA
Collector-base breakdown voltage	BV_{CBO}	–60	–	–	V	I_C= –100mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E= –100μA
Collector cut-off current	I_{CBO}	–	–	–1.0	μA	V_{CB}= –60V
Emitter cut-off current	I_{EBO}	–	–	–1.0	μA	V_{EB}= –4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–150	–300	mV	I_C= –100mA, I_B= –10mA
DC current gain	h_{FE}	120	–	270	–	V_{CE}= –2V, I_C= –50mA
Transition frequency	fT	–	400	–	MHz	V_{CE}= –10V, I_E=100mA, f=10MHz ∗1
Collector output capacitance	Cob	–	10	–	pF	V_{CB}= –10V, I_E=0mA, f=1MHz
Turn-on time	Ton	–	35	–	ns	I_C= –500mA, I_{B1}= –50mA I_{B2}=50mA V_{CC} ≃ –25V ∗1
Storage time	Tstg	–	100	–	ns	
Fall time	Tf	–	60	–	ns	

∗1 Measured using pulse current

●h_{FE} RANK

Q
120-270

●Electrical characteristic curves

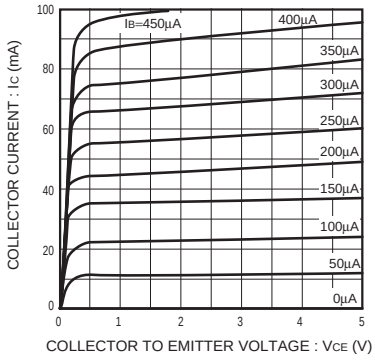


Fig.1 Typical output characteristics

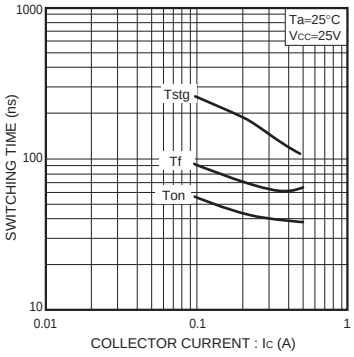


Fig.2 Switching Time

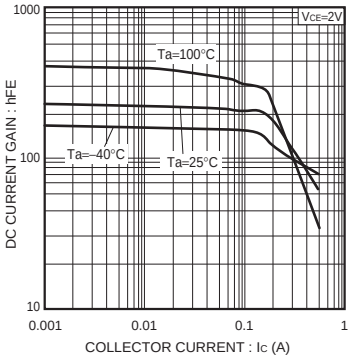


Fig.3 DC current gain vs. collector current (I)

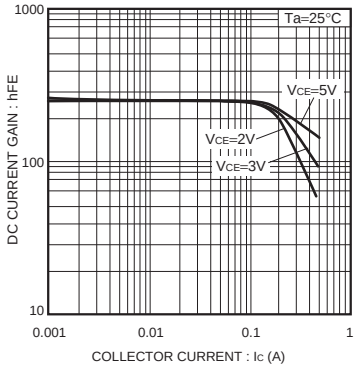


Fig.4 DC current gain vs. collector current (II)

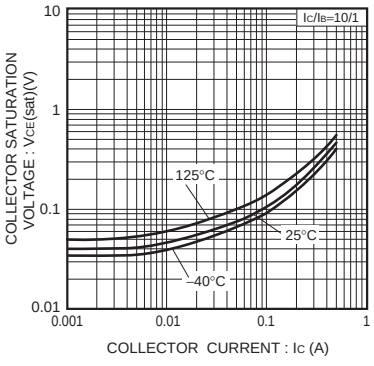


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

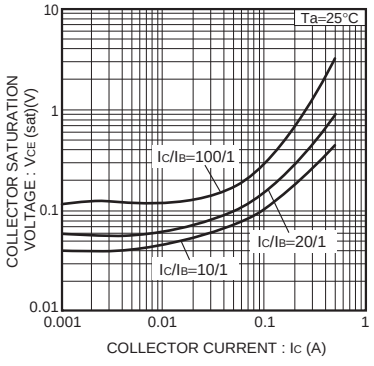


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

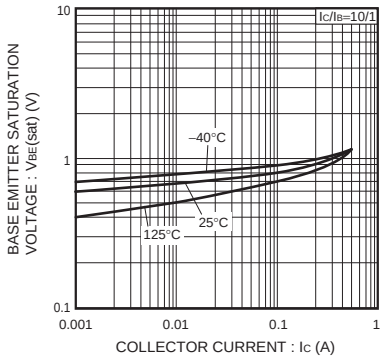


Fig.7 Base-emitter saturation voltage vs. collector current

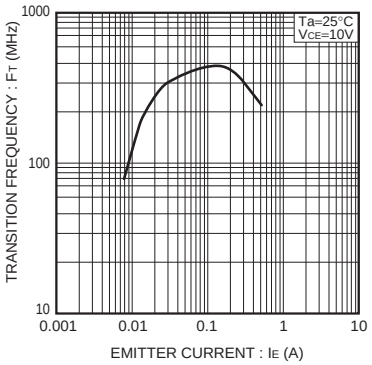


Fig.8 Transition frequency

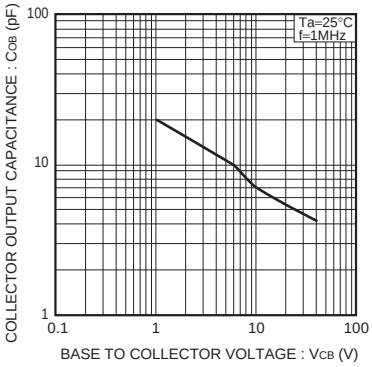


Fig.9 Collector output capacitance

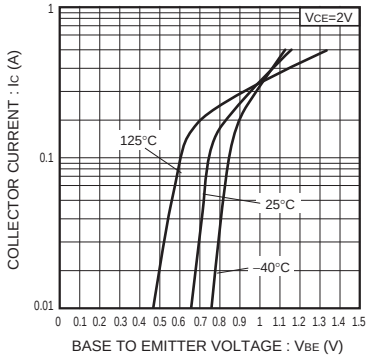
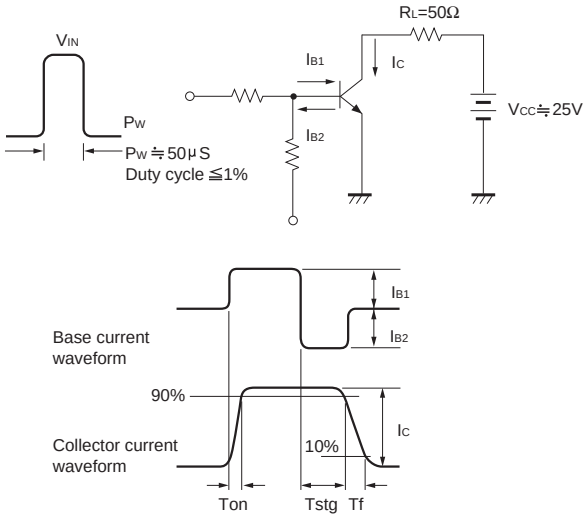


Fig.10 Ground emitter propagation characteristics

●Switching characteristics measurement circuits



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