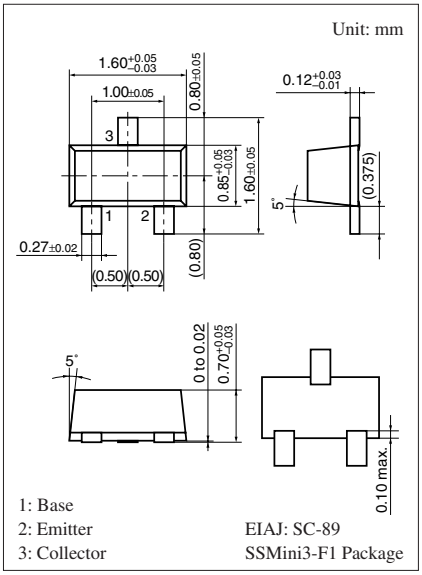
2SC4691J

Silicon NPN epitaxial planar type

For high speed switching

■ Features

- High-speed switching
- Low collector to emitter saturation voltage $V_{CE(sat)}$
- SS-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing



Marking Symbol: 2Y

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	40	V
Collector to emitter voltage	V_{CES}	40	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	300	mA
Collector current	I_C	100	mA
Collector power dissipation	P_C	125	mW
Junction temperature	T_j	125	°C
Storage temperature	T_{stg}	−55 to +125	°C

■ Electrical Characteristics $T_a = 25°C \pm 3°C$

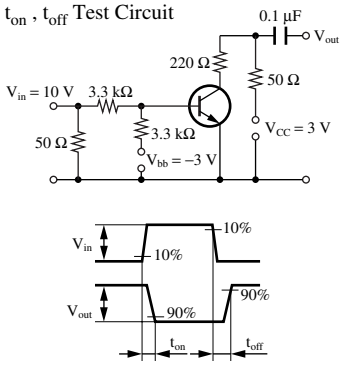
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 40 V, I_E = 0			0.1	µA
Emitter cutoff current	I_{EBO}	V_{EB} = 4 V, I_C = 0			0.1	µA
DC current gain *	h_{FE}	V_{CE} = 1 V, I_C = 10 mA	60		200	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 10 mA, I_B = 1 mA		0.17	0.25	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 10 mA, I_B = 1 mA			1.0	V
Gain bandwidth product	f_T	V_{CB} = 10 V, I_E = −10 mA, f = 200 MHz		450		MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz		2	6	pF
Turn-on time	t_{on}	Refer to the measurement circuit		17		ns
Turn-off time	t_{off}			17		ns
Storage time	t_{stg}			10		ns

Note) *: h_{FE} rank classification

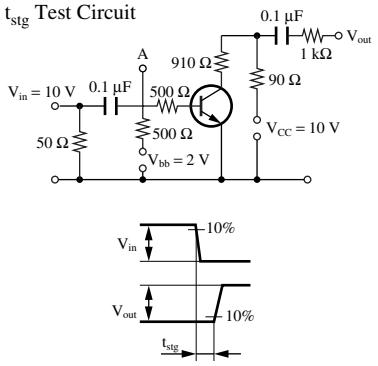
Rank	Q	R	No rank
h_{FE}	60 to 120	90 to 200	60 to 200

Switching time measurement circuit

t_{on} , t_{off} Test Circuit

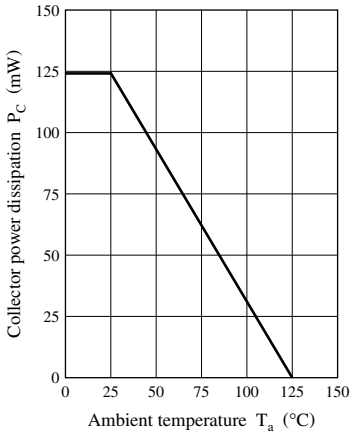


t_{stg} Test Circuit

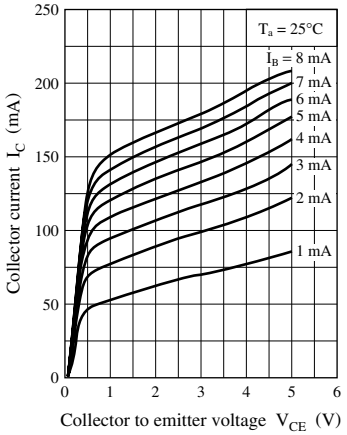


(Waveform at A)

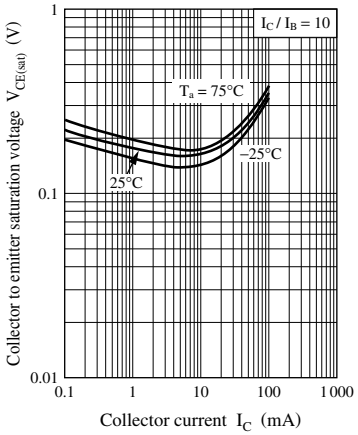
P_C — T_a



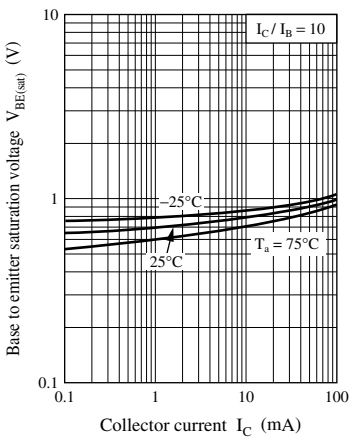
I_C — V_{CE}



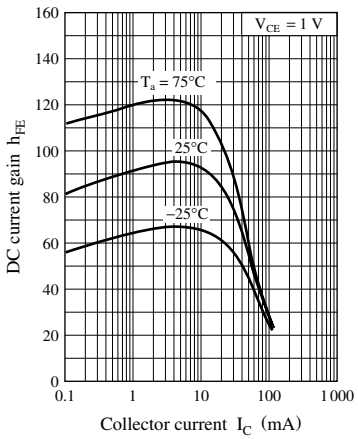
$V_{CE(sat)}$ — I_C



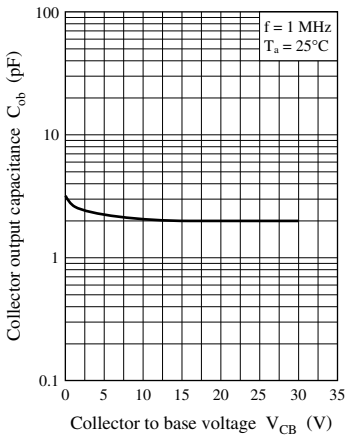
$V_{BE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}



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