

2SC4309

Silicon NPN Triple-Diffused Planar Type

High Breakdown Voltage, High Speed Switching

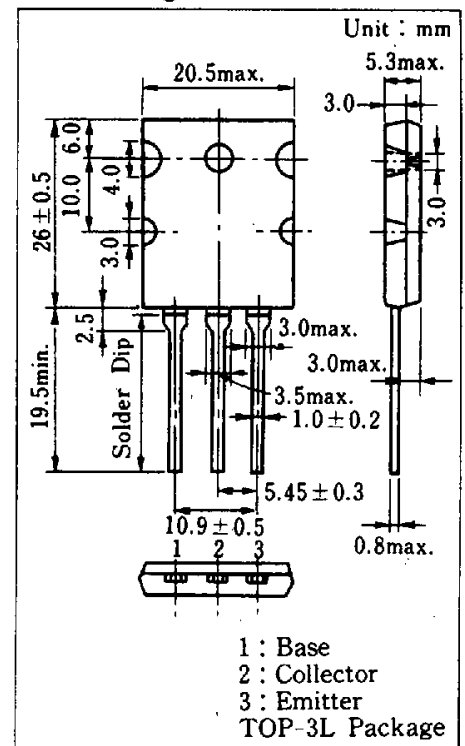
■ Features

- High speed switching
- High collector-base voltage (V_{CB0})
- Wide area of safety operation (ASO)
- Good linearity of DC current gain (h_{FE})

■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-base voltage	V_{CB0}	1000	V
Collector-emitter voltage	V_{CES}	1000	V
	V_{CEO}	800	V
Emitter-base voltage	V_{EBO}	7	V
Peak collector current	I_{CP}	12	A
Collector current	I_C	6	A
Base current	I_B	2.4	A
Collector power dissipation	$T_C=25^\circ\text{C}$	150	W
	$T_a=25^\circ\text{C}$	3.5	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

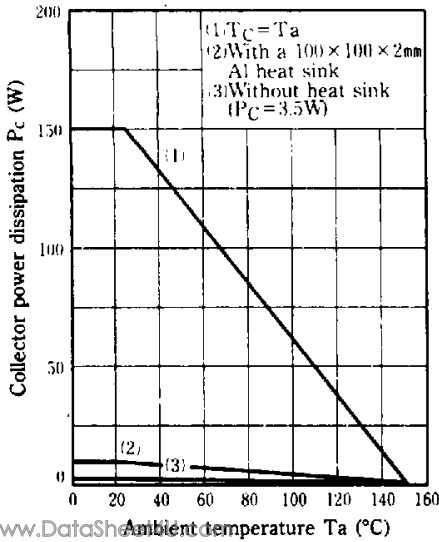
■ Package Dimensions



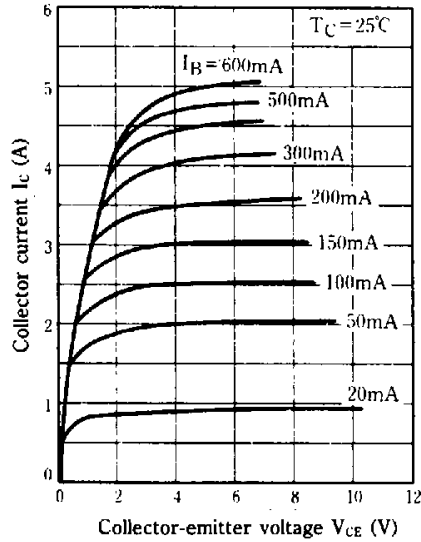
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CB0}	$V_{CB}=1000\text{V}, I_E=0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			100	μA
Collector-emitter voltage	V_{CEO}	$I_C=10\text{mA}, I_B=0$	800			V
DC current gain	h_{FE1}	$V_{CE}=5\text{V}, I_C=0.1\text{A}$	10			
	h_{FE2}	$V_{CE}=5\text{V}, I_C=3\text{A}$	7			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=0.6\text{A}$			2.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=3\text{A}, I_B=0.6\text{A}$			1.5	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=1\text{A}, f=1\text{MHz}$		6		MHz
Turn-on time	t_{on}	$I_C=3\text{A}$			0.5	μs
Storage time	t_{stg}	$I_{B1}=0.6\text{A}, I_{B2}=-1.2\text{A}$			2.0	μs
Collector current fall time	t_f	$V_{CC}=250\text{V}$			0.13	μs

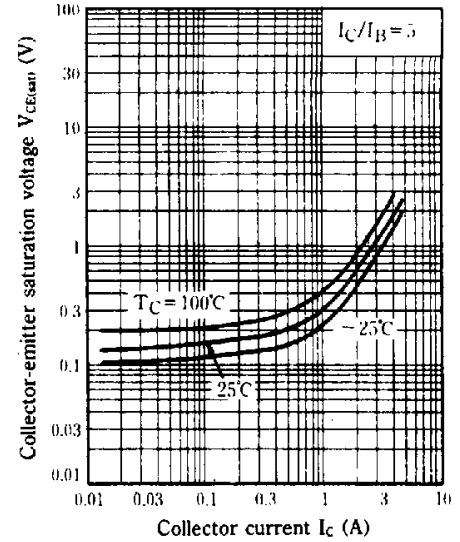
$P_C - T_a$



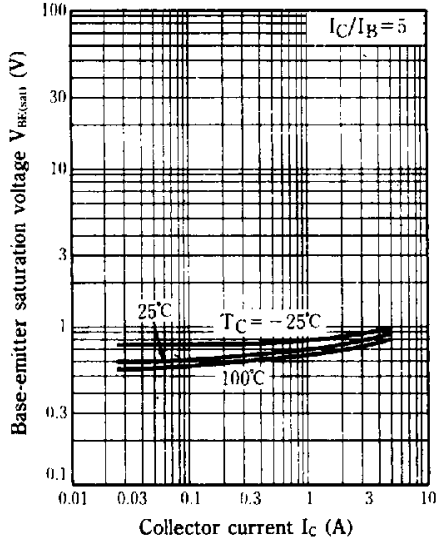
$I_C - V_{CE}$



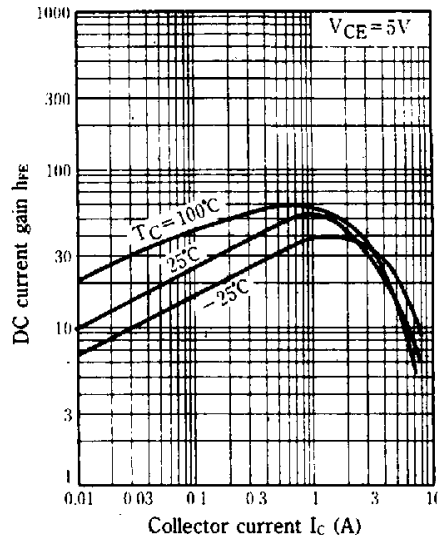
$V_{CE(sat)} - I_C$



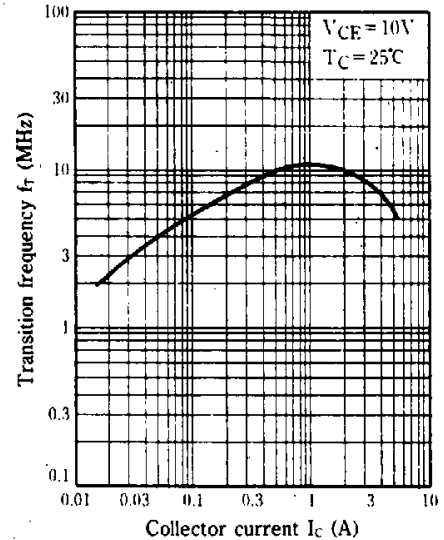
$V_{BE(sat)} - I_C$



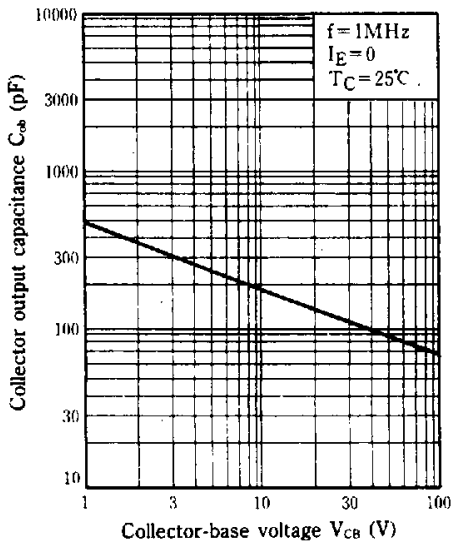
$h_{FE} - I_C$



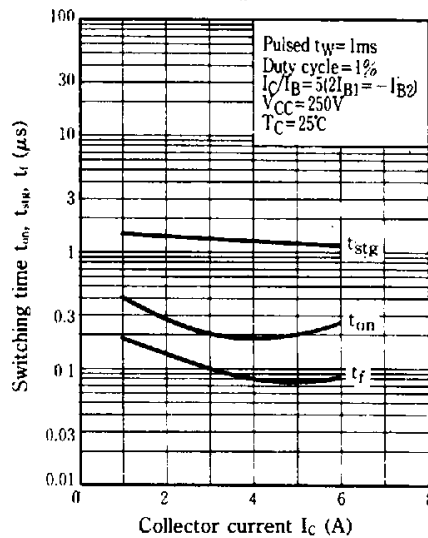
$f_T - I_C$



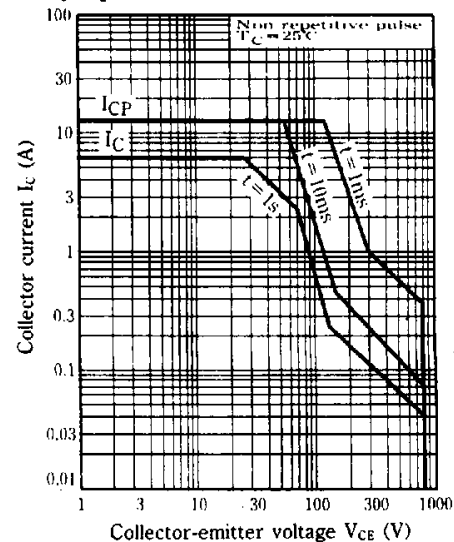
$C_{ob} - V_{CB}$



$t_{on}, t_{stg}, t_f - I_C$

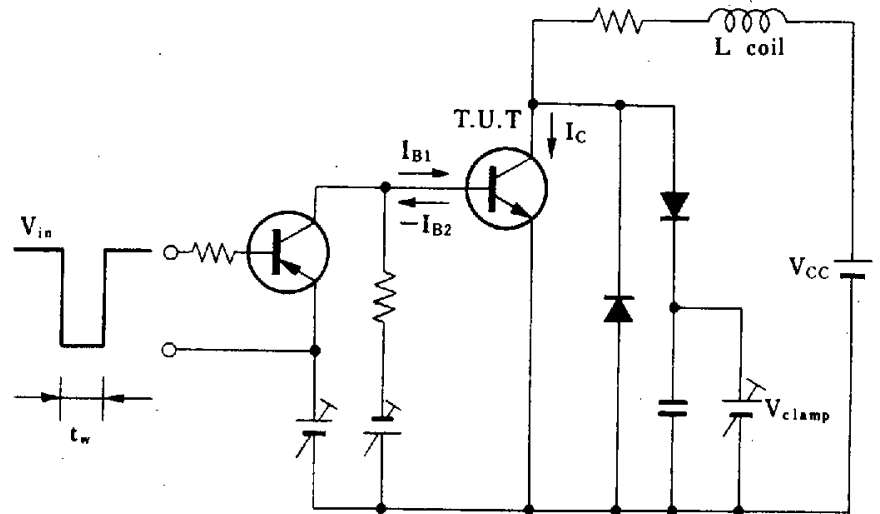
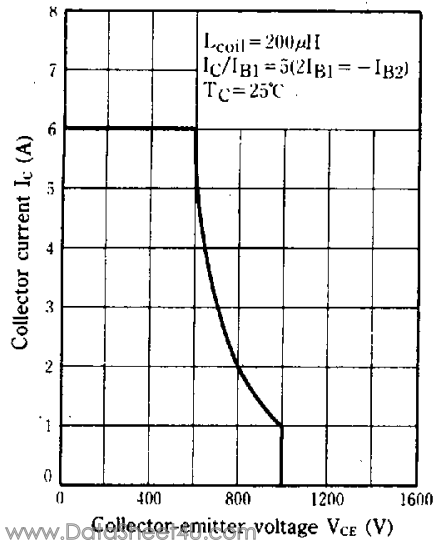


Safety operation area-forward bias (A)



Safety operation area-reverse bias (ASO)

Measurement circuit of reverse bias ASO



$R_{th(t)} - t$

