2SC4109



400V/16A Switching Regulator Applications

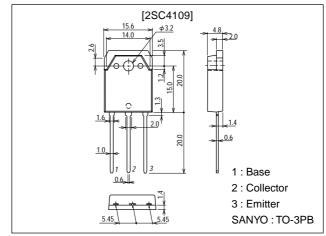
Features

- · High breakdown voltage and high reliability.
- · Fast switching speed.
- · Wide ASO.
- $\cdot \ Adoption \ of \ MBIT \ process.$

Package Dimensions

unit:mm

2022A



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		500	V
Collector-to-Emitter Voltage	V _{CEO}		400	V
Emitter-to-Base Voltage	V _{EBO}		7	V
Collector Current	IC		16	А
Collector Current (Pulse)	I _{CP}	PW≤300μs, duty cycle≤10%	32	А
Base Current	I _B		6	А
Collector Dissipation	PC		2.5	W
		Tc=25°C	140	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =400V, I _E =0			10	μA
Emitter Cutoff Current	IEBO	V _{EB} =5V, I _C =0			10	μA
	h _{FE} 1	V _{CE} =5V, I _C =2A	15*		50*	
DC Current Gain	h _{FE} 2	V _{CE} =5V, I _C =10A	10			
	h _{FE} 3	V _{CE} =5V, I _C =10mA	10			

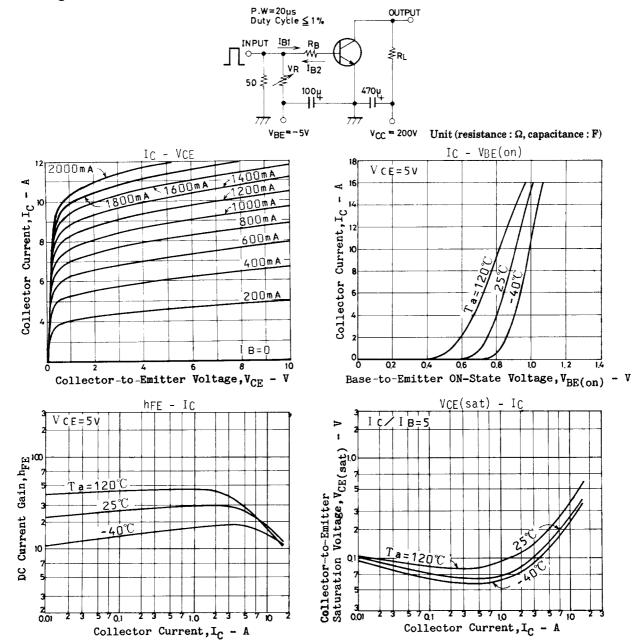
*: The $h_{FE}1$ of the 2SC4109 is classified as follows. When specifying the $h_{FE}1$ rank, specify two ranks or more in principle.

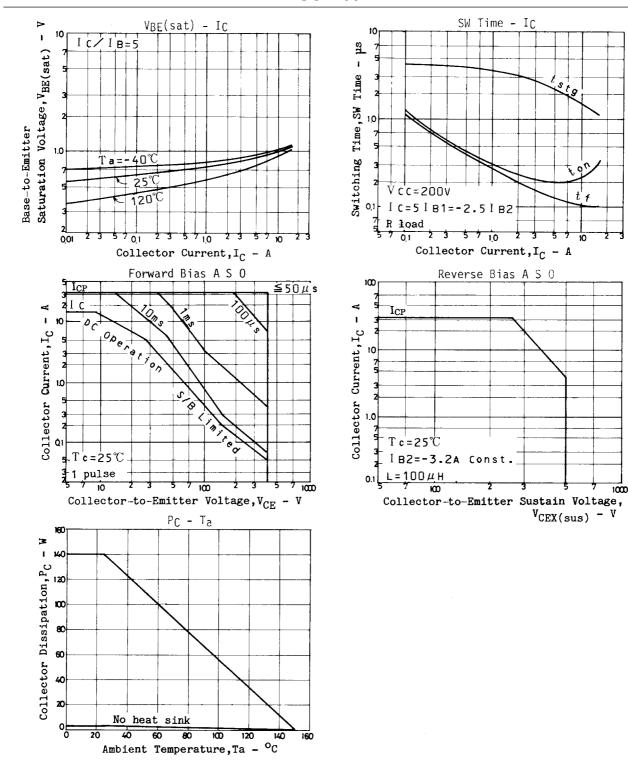
15 L 30 20 M 40 30 N 50

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =10A, I _B =2A			0.8	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =10A, I _B =2A			1.5	V
Gain-Bandwidth Product	fT	V _{CE} =10V, I _C =2A		20		MHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=1MHz		230		pF
Collector-to-Base Breakdown Voltage	V(BR)CBO	I _C =1mA, I _E =0	500			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I _C =10mA, R _{BE} =∞	400			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I _E =1mA, I _C =0	7			V
Collector-to-Emitter Sustain Voltage	V _{CEX(sus)}	I _C =8A, I _{B1} =0.8A, I _{B2} =-3.2A, L=200μH, clamped	400			V
Turn-ON Time	ton	I_{C} =12A, I_{B1} =2.4A, I_{B2} =-4.8A, R_{L} =16.6 Ω , V_{CC} =200 V			0.5	μs
Storage Time	t _{stg}	I_{C} =12A, I_{B1} =2.4A, I_{B2} =-4.8A, R_{L} =16.6 Ω , V_{CC} =200 V			2.5	μs
Fall Time	t _f	I_{C} =12A, I_{B1} =2.4A, I_{B2} =-4.8A, R_{L} =16.6 Ω , V_{CC} =200 V			0.3	μs

Switching Time Test Circuit





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