



2SC4106

400V/7A Switching Regulator Applications

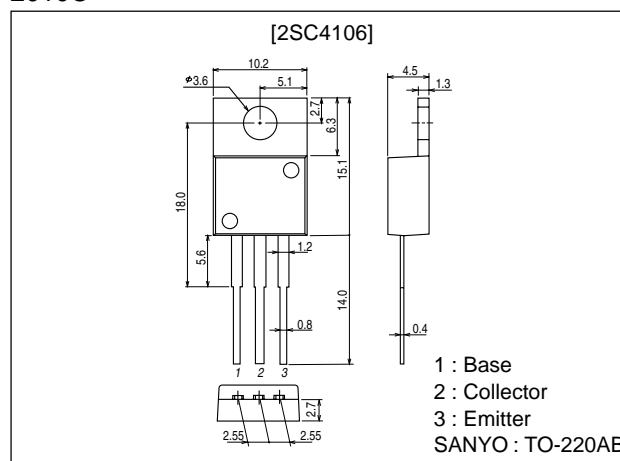
Features

- High breakdown voltage and high reliability.
- High-speed switching.
- Wide ASO.
- Adoption of MBIT process.

Package Dimensions

unit:mm

2010C



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		500	V
Collector-to-Emitter Voltage	V _{CEO}		400	V
Emitter-to-Base Voltage	V _{EBO}		7	V
Collector Current	I _C		7	A
Collector Current (Pulse)	I _{CP}	PW≤300μs, duty cycle≤10%	14	A
Base Current	I _B		3	A
Collector Dissipation	P _C		1.75	W
		T _C =25°C	50	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =400V, I _E =0			10	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =5V, I _C =0			10	μA

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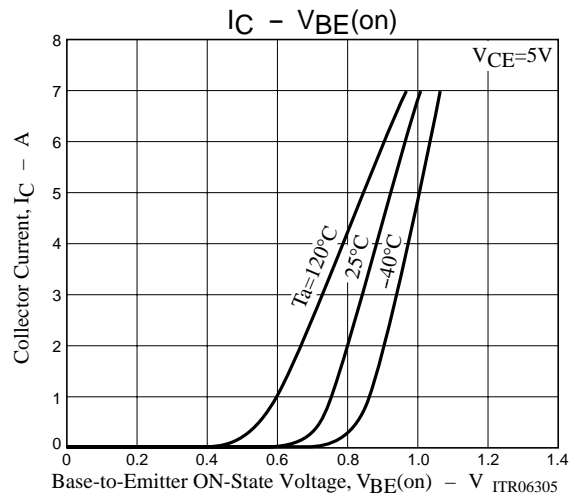
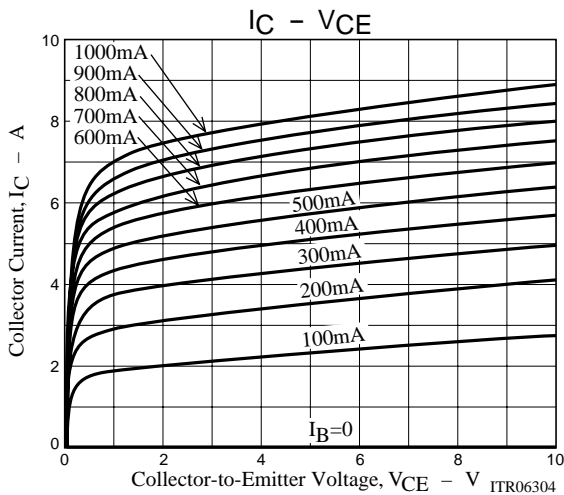
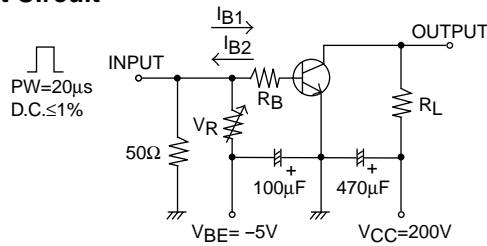
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	h_{FE1}	$V_{CE}=5V, I_C=0.8A$	15*		50*	
	h_{FE2}	$V_{CE}=5V, I_C=4A$	10			
	h_{FE3}	$V_{CE}=5V, I_C=10mA$	10			
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=4A, I_B=0.8A$			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=4A, I_B=0.8A$			1.5	V
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.8A$		20		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		80		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	500			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	$I_C=3A, I_{B1}=0.3A, I_{B2}=-1.2A, L=1mH, \text{clamped}$	400			V
Turn-ON Time	t_{on}	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, R_L=40\Omega, V_{CC}=200V$			0.5	μs
Storage Time	t_{stg}	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, R_L=40\Omega, V_{CC}=200V$			2.5	μs
Fall Time	t_f	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, R_L=40\Omega, V_{CC}=200V$			0.3	μs

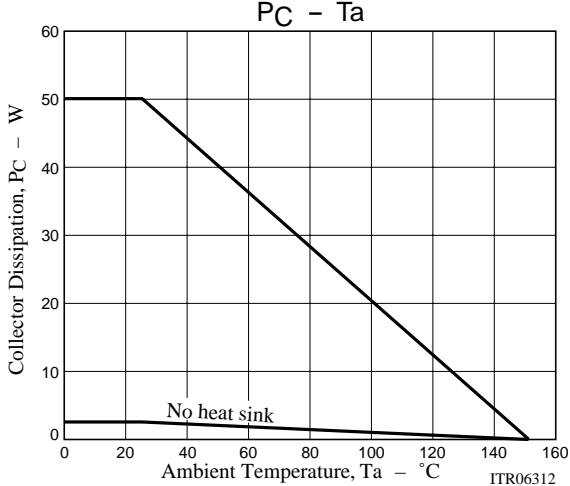
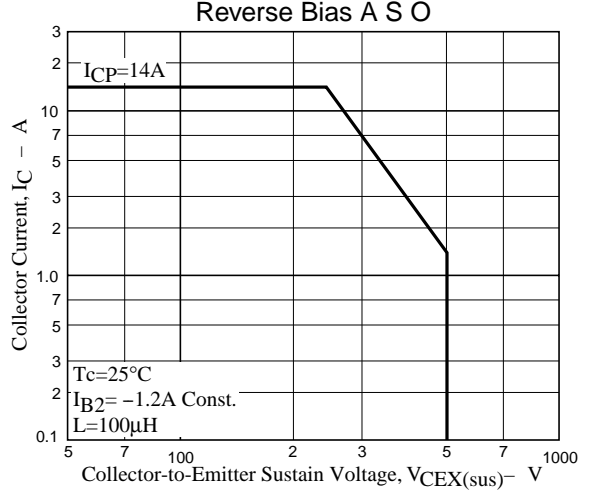
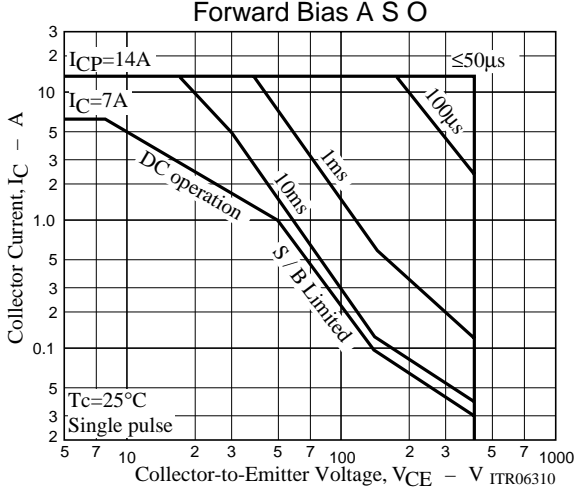
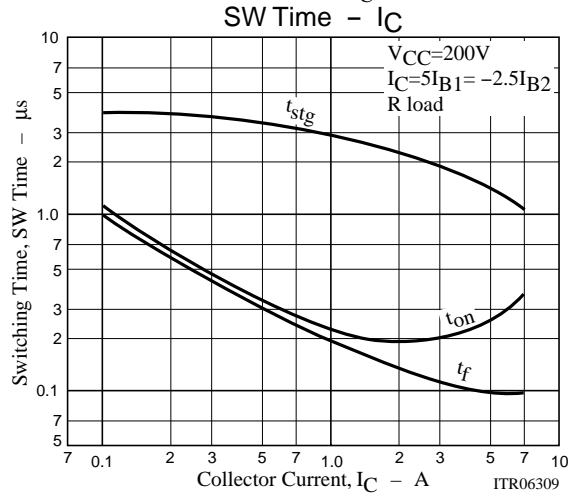
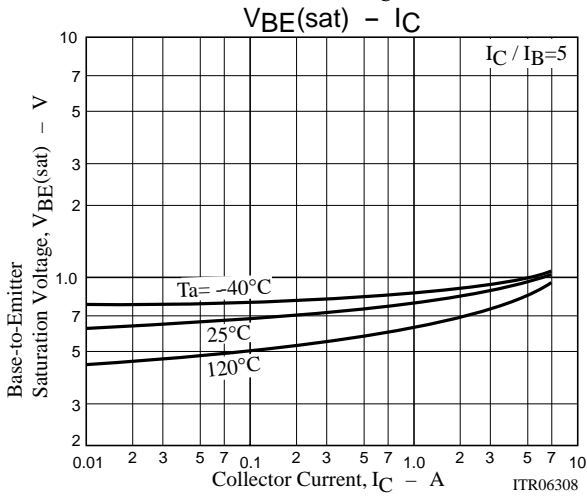
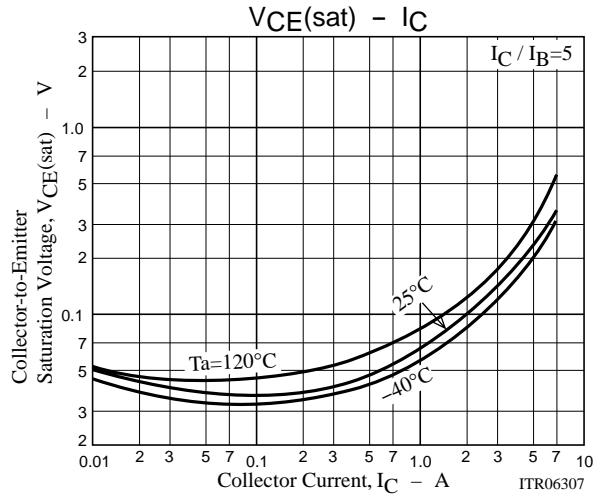
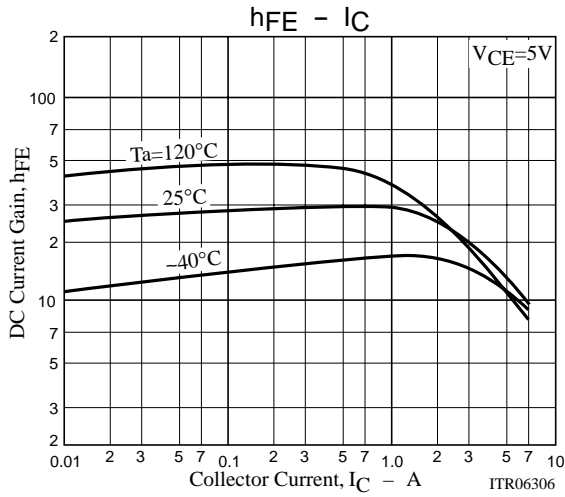
* : The h_{FE1} of the 2SC4106 is classified as follows. When specifying the h_{FE1} rank, specify two ranks or more in principle.

Rank	L	M	N
h_{FE}	15 to 30	20 to 40	30 to 50

Switching Time Test Circuit



2SC4106



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