



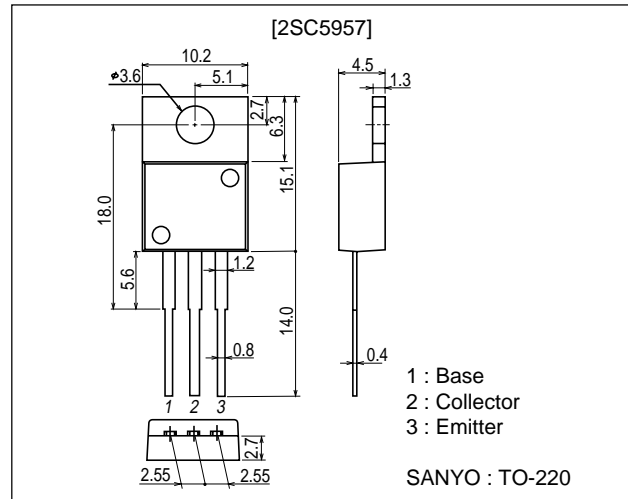
## Switching Regulator Applications

### 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 <sub>CB0</sub>		500	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		400	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		7	V
Collector Current	I <sub>C</sub>		10	A
Collector Current (Pulse)	I <sub>CP</sub>	PW≤300μs, duty cycle≤10%	20	A
Base Current	I <sub>B</sub>		3.5	A
Collector Dissipation	P <sub>C</sub>		1.75	W
		T <sub>c</sub> =25°C	50	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =400V, I <sub>E</sub> =0			10	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			10	μA

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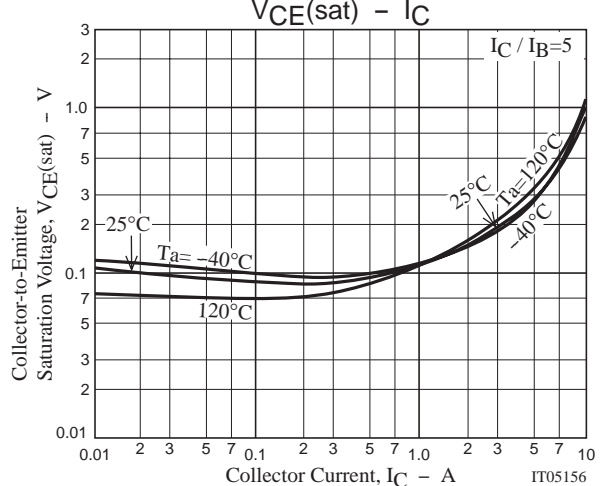
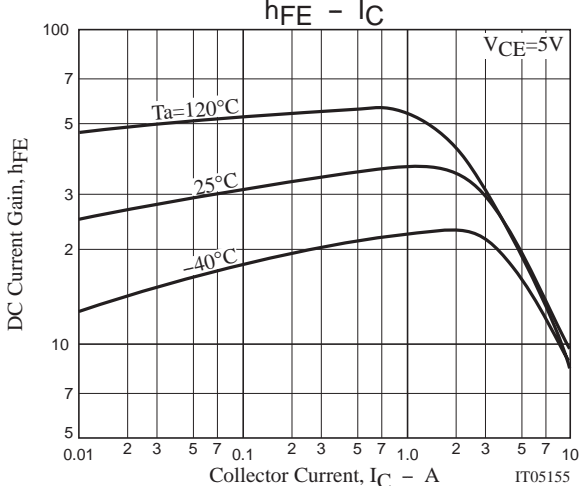
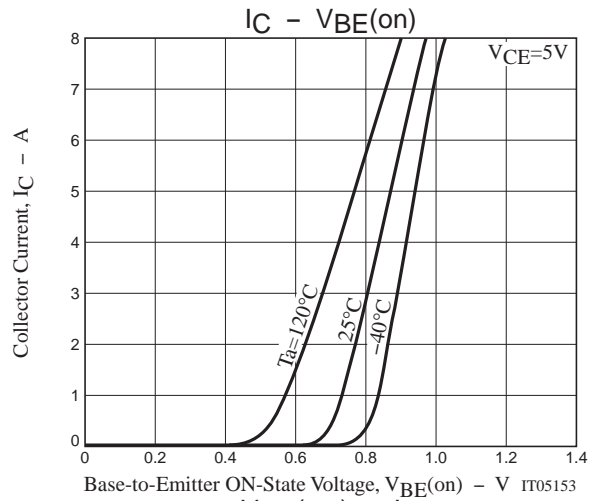
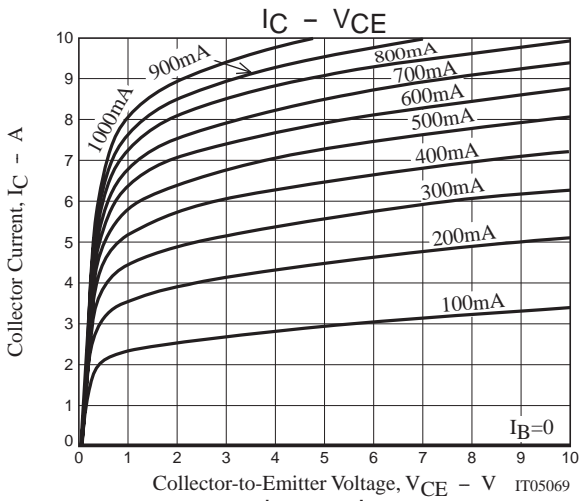
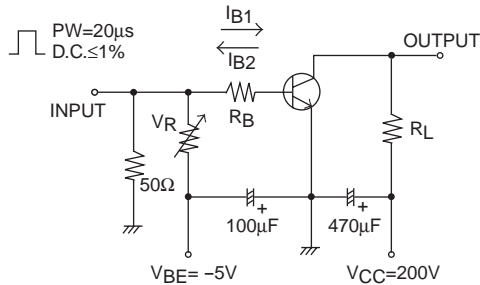
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	hFE1	VCE=5V, IC=1.2A	20*		50*	
	hFE2	VCE=5V, IC=6A	10			
	hFE3	VCE=5V, IC=1mA	10			
Gain-Bandwidth Product	fT	VCE=10V, IC=1.2A		15		MHz
Output Capacitance	Cob	VCB=10V, f=1MHz		80		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)	IC=6A, IB=1.2A			0.8	V
Base-to-Emitter Saturation Voltage	VBE(sat)	IC=6A, IB=1.2A			1.5	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC=1mA, IE=0	500			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC=5mA, RBE=∞	400			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	IE=1mA, IC=0	7			V
Turn-ON Time	ton	IC=7A, IB1=1.4A, IB2=-2.8A, RL=28.6Ω, VCC=200V			0.5	μs
Storage Time	tstg	IC=7A, IB1=1.4A, IB2=-2.8A, RL=28.6Ω, VCC=200V			2.5	μs
Fall Time	tf	IC=7A, IB1=1.4A, IB2=-2.8A, RL=28.6Ω, VCC=200V			0.3	μs

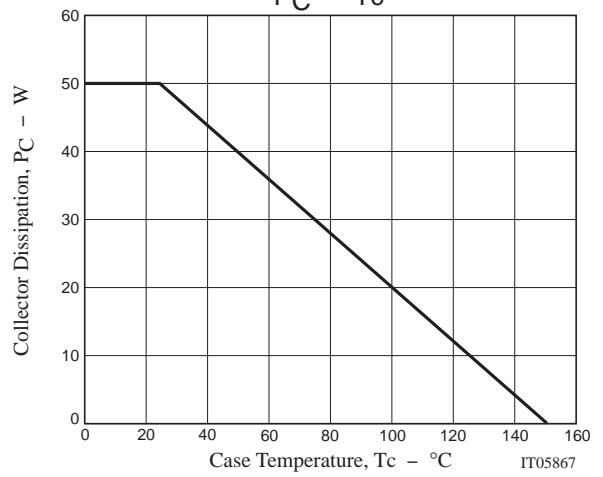
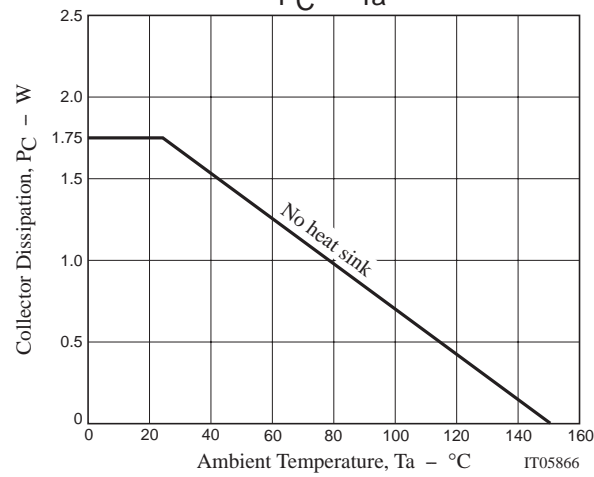
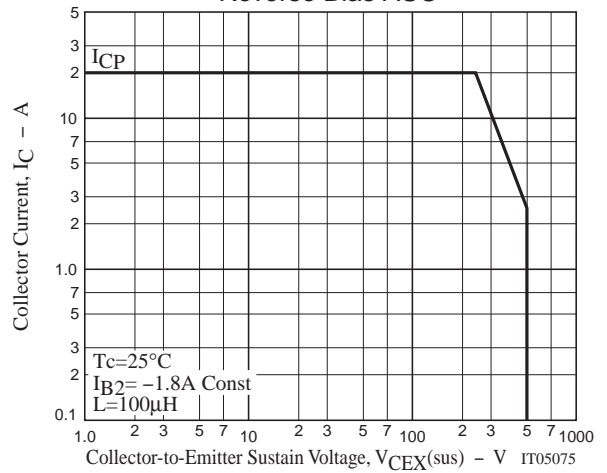
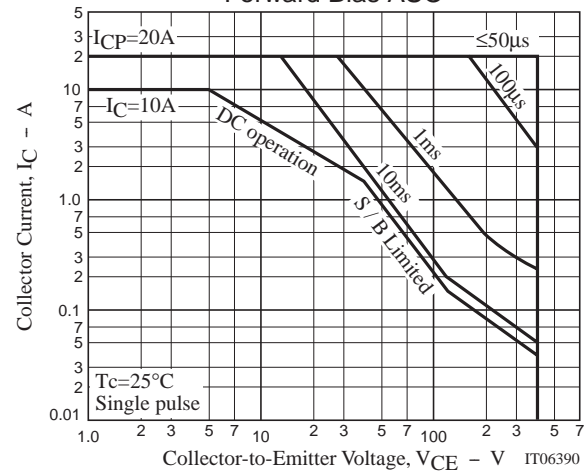
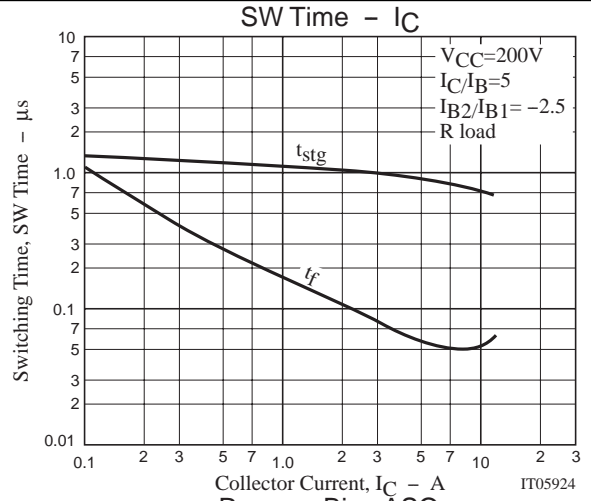
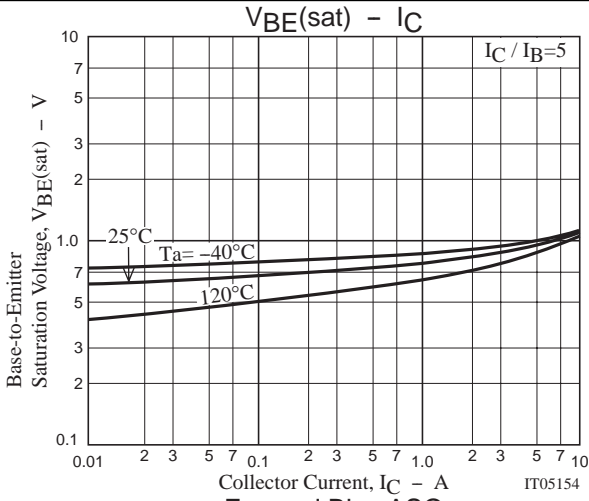
\* : The hFE1 of the 2SC5957 is classified as follows.

Rank	M	N
hFE	20 to 40	30 to 50

Switching Time Test Circuit



# 2SC5957



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