



SANYO Semiconductors

DATA SHEET

2SC5957M

 — NPN Triple Diffused Planar Silicon Transistor
Switching Regulator Applications

Features

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

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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		10	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu\text{s}$, duty cycle $\leq 10\%$	20	A
Base Current	I_B		3.5	A
Collector Dissipation	P_C		1.75	W
		$T_c=25^\circ\text{C}$	50	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB}=400\text{V}$, $I_E=0\text{A}$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0\text{A}$			10	μA
DC Current Gain	h_{FE1}	$V_{CE}=5\text{V}$, $I_C=1.2\text{A}$	20*		40*	
	h_{FE2}	$V_{CE}=5\text{V}$, $I_C=6\text{A}$	10			
	h_{FE3}	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$	10			

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Rank	M
h_{FE}	20 to 40

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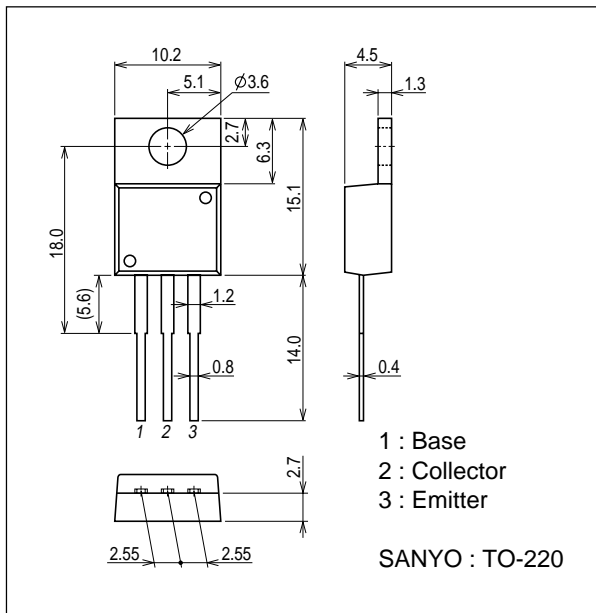
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=1.2A$		15		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		80		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=6A, I_B=1.2A$			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=6A, I_B=1.2A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0A$	500			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0A$	7			V
Turn-ON Time	t_{on}	$I_C=7A, I_{B1}=1.4A, I_{B2}=-2.8A, R_L=28.6\Omega, V_{CC}=200V$			0.5	μs
Storage Time	t_{stg}	$I_C=7A, I_{B1}=1.4A, I_{B2}=-2.8A, R_L=28.6\Omega, V_{CC}=200V$			2.5	μs
Fall Time	t_f	$I_C=7A, I_{B1}=1.4A, I_{B2}=-2.8A, R_L=28.6\Omega, V_{CC}=200V$			0.3	μs

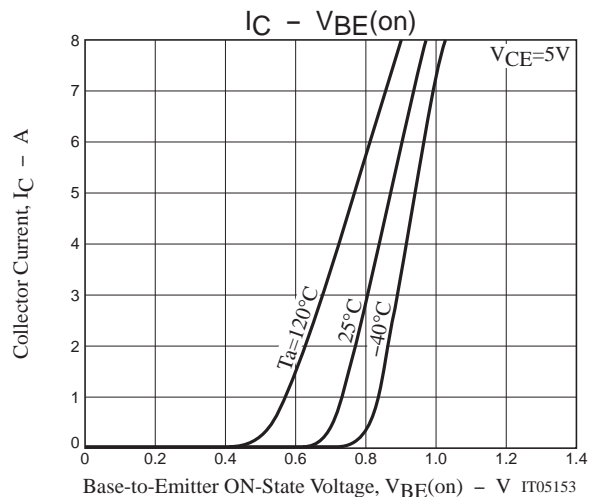
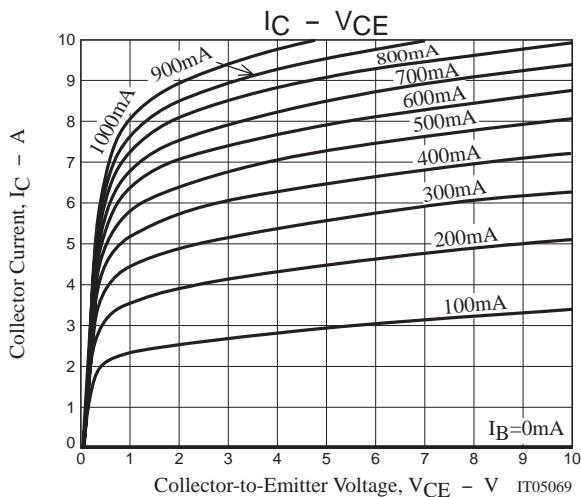
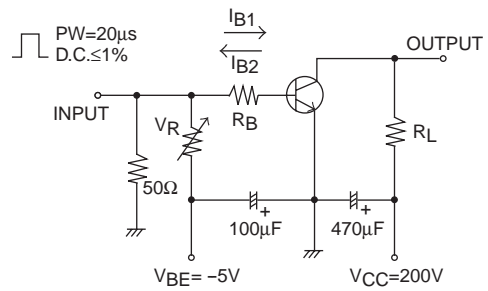
Package Dimensions

unit : mm

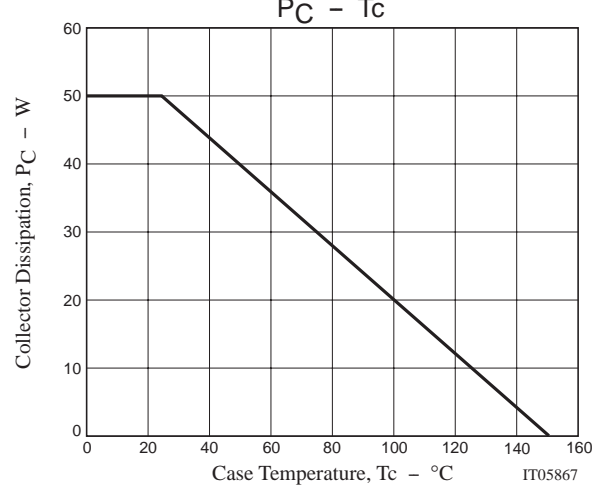
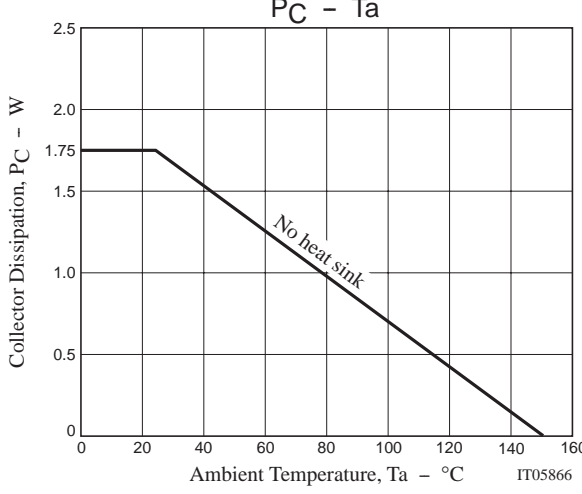
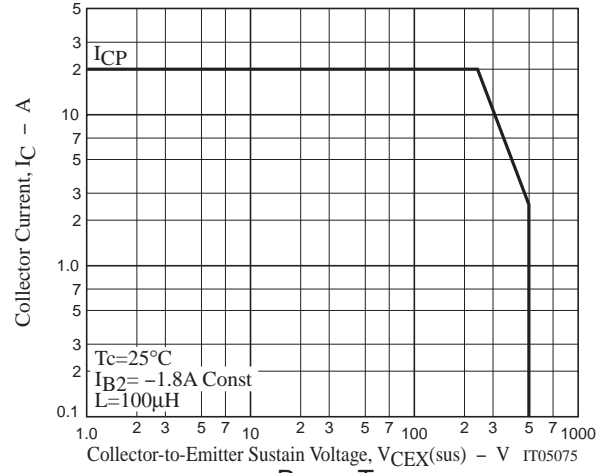
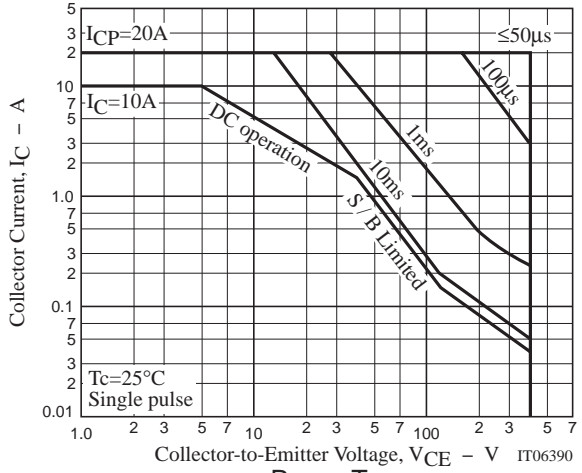
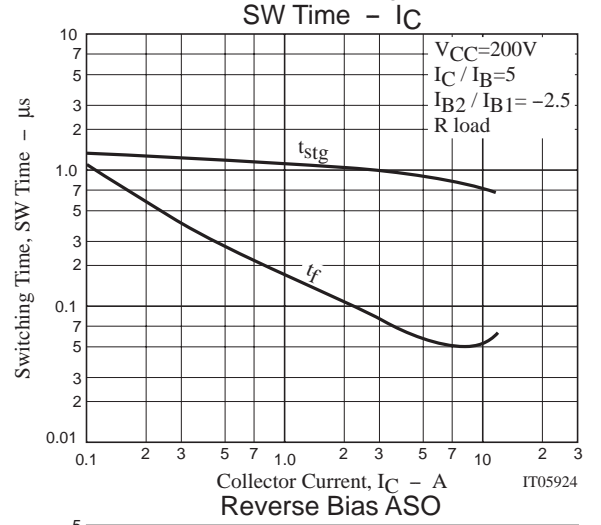
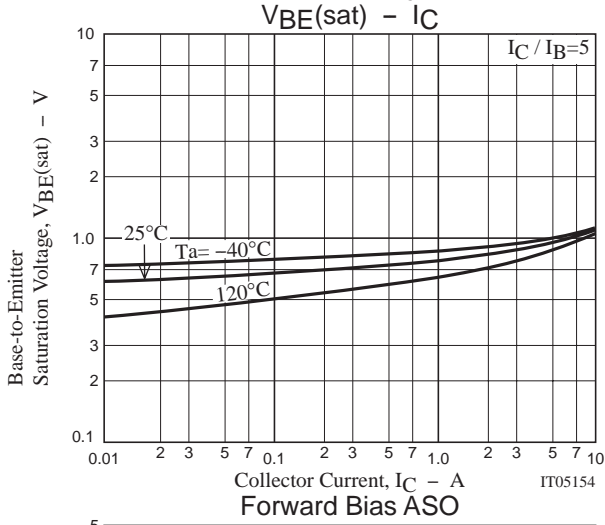
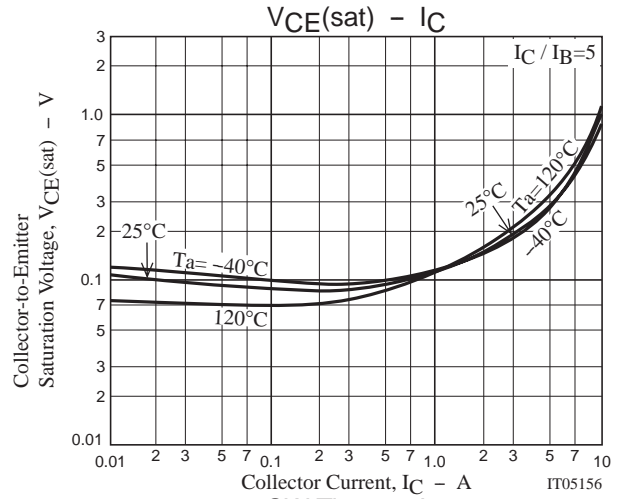
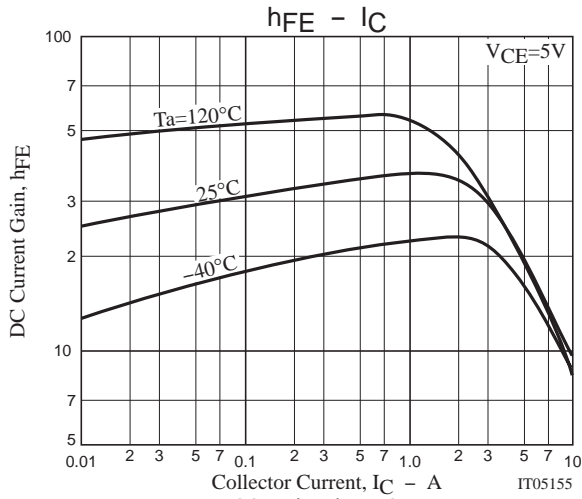
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Switching Time Test Circuit



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