



SANYO Semiconductors

## DATA SHEET

# 2SD1710C

 — NPN Triple Diffused Planar Silicon Transistor  
**500V / 7A Switching Regulator Applications**

## Features

- High breakdown voltage, high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.
- Micaless package facilitating mounting.

## Specifications

### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		900	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		500	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		7	V
Collector Current	I <sub>C</sub>		7	A
Collector Current (Pulse)	I <sub>CP</sub>	PW≤300μs, duty cycle≤10%	14	A
Base Current	I <sub>B</sub>		3	A
Collector Dissipation	P <sub>C</sub>		3	W
		T <sub>C</sub> =25°C	45	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> =500V, I <sub>E</sub> =0A			10	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0A			10	μA

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**SANYO Semiconductor Co., Ltd.**

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# 2SD1710C

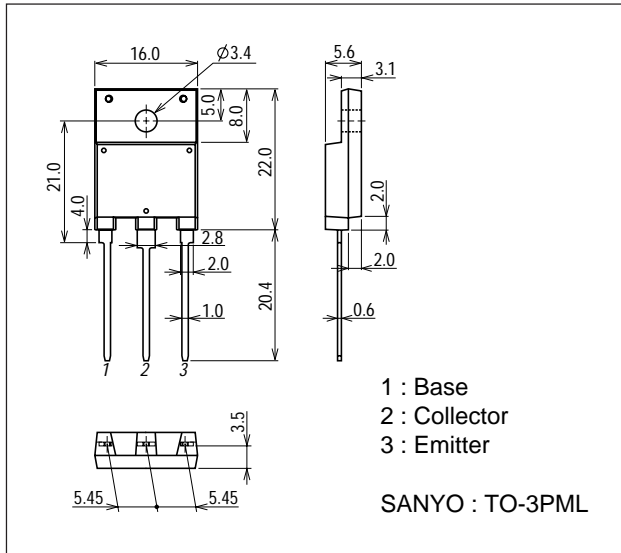
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	$h_{FE1}$	$V_{CE}=5V, I_C=0.6A$	20		50	
	$h_{FE2}$	$V_{CE}=5V, I_C=3A$	8			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=0.6A$		18		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		80		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=0.6A$			1	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=0.6A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0A$	900			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0A$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	$I_C=2.5A, I_{B1}=-I_{B2}=1A, L=1mH, \text{Clamped}$	500			V
Turn-ON Time	$t_{on}$	$V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=4A, R_L=50\Omega$			0.5	$\mu s$
Storage Time	$t_{stg}$	$V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=4A, R_L=50\Omega$			3.0	$\mu s$
Fall Time	$t_f$	$V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=4A, R_L=50\Omega$			0.3	$\mu s$

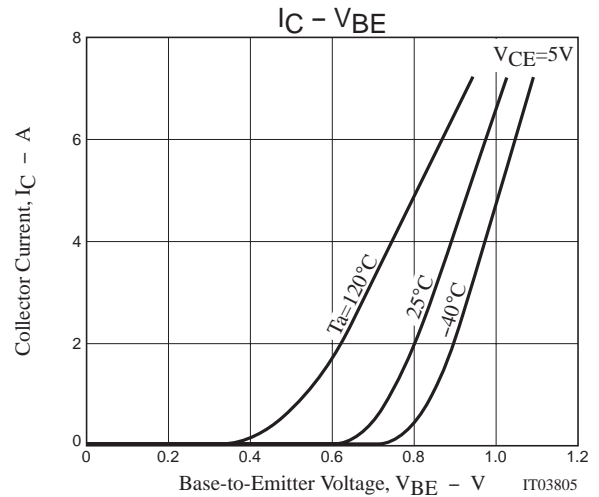
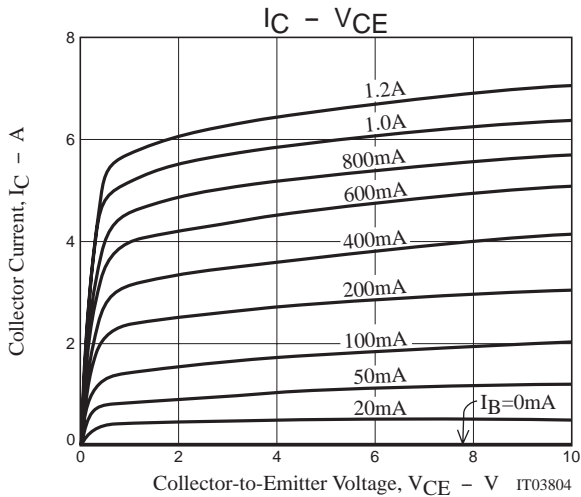
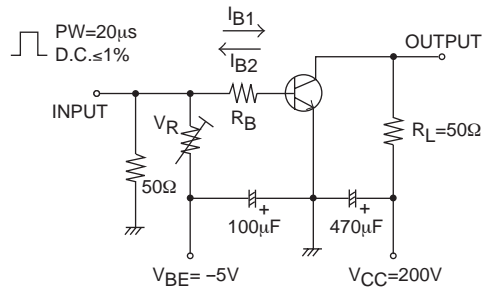
## Package Dimensions

unit : mm (typ)

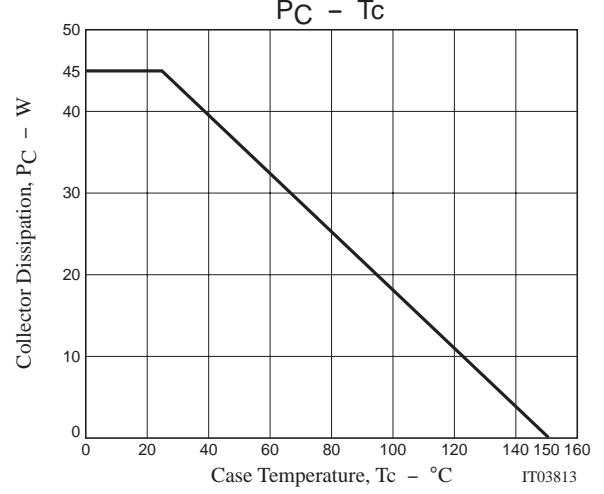
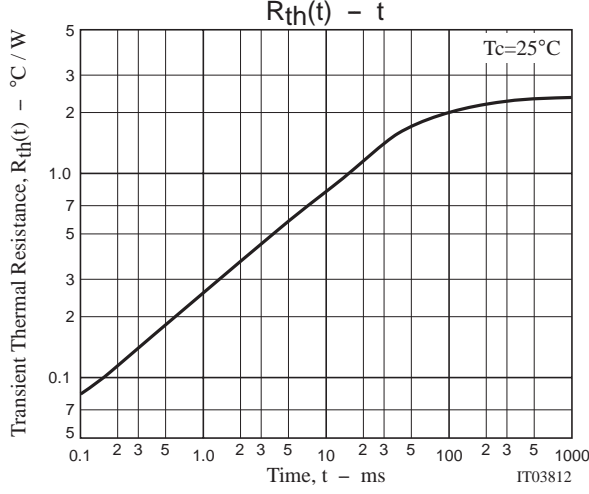
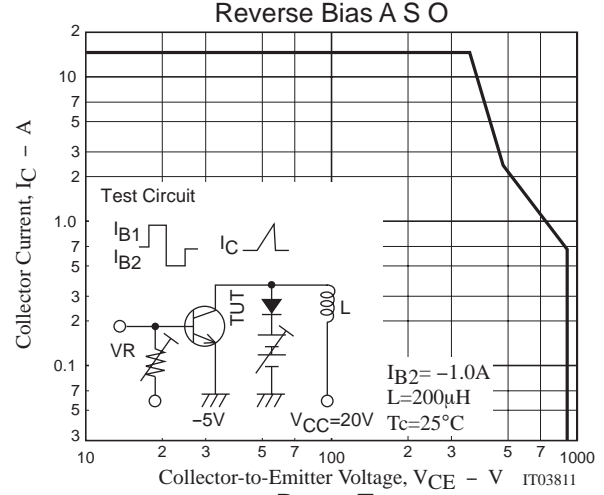
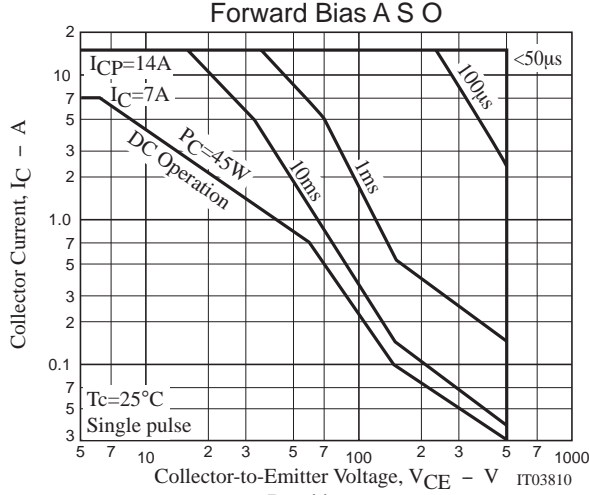
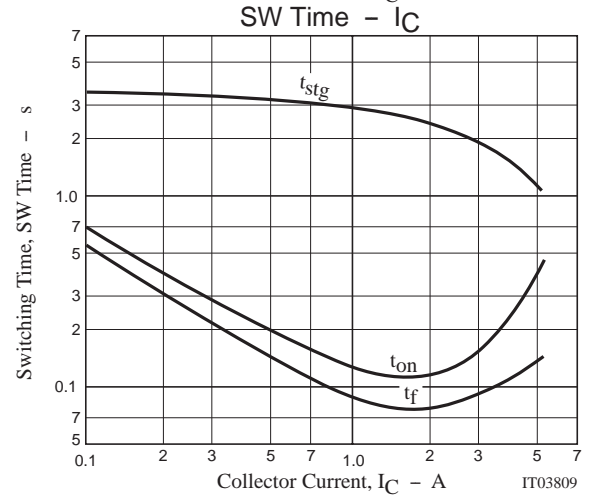
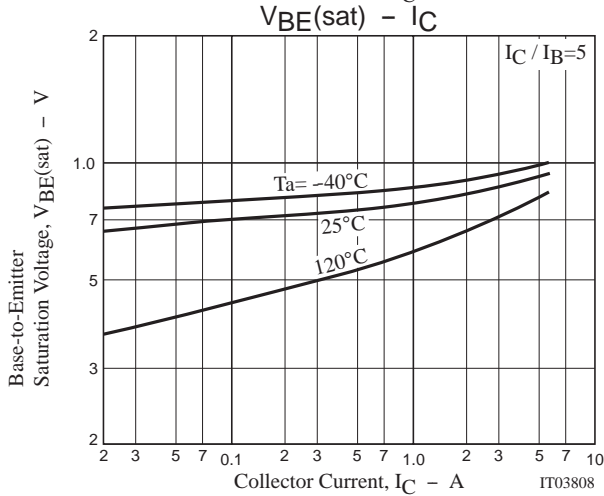
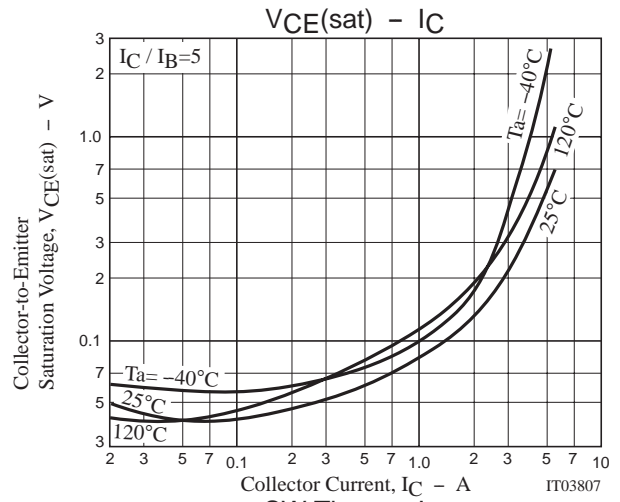
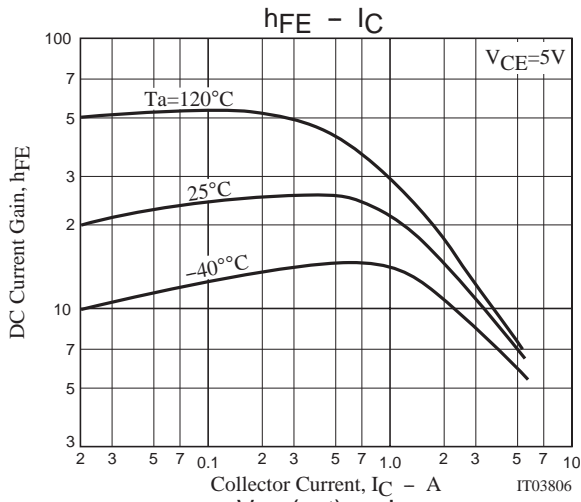
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## Switching Time Test Circuit



# 2SD1710C



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