



# SANYO Semiconductors

## DATA SHEET

# 2SA2043

PNP Epitaxial Planar Silicon Transistor

## DC / DC Converter Applications

### Applications

- Relay drivers, lamp drivers, motor drivers, flash.

### Features

- Adoption of FBET and MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		-15	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		-15	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-5	V
Collector Current	I <sub>C</sub>		-10	A
Collector Current (Pulse)	I <sub>CP</sub>		-13	A
Base Current	I <sub>B</sub>		-1.2	A
Collector Dissipation	P <sub>C</sub>		1	W
		T <sub>c</sub> =25°C	15	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>CBO</sub>	V <sub>CB</sub> =-12V, I <sub>E</sub> =0A			-0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0A			-0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-500mA	200		560	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-500mA		220		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, f=1MHz		90		pF

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# 2SA2043

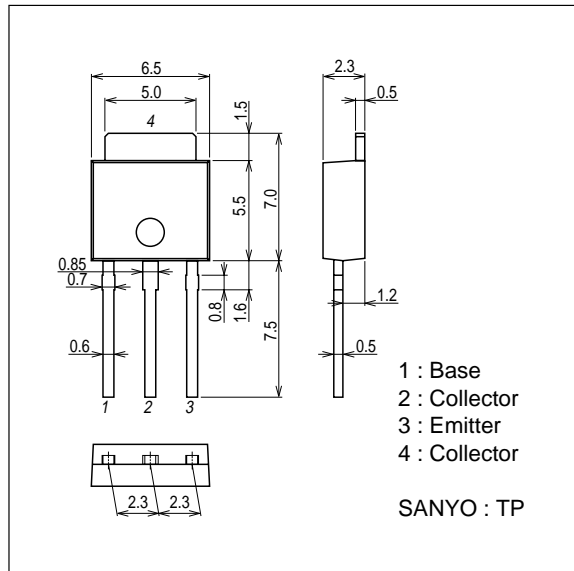
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = -3A, I_B = -60mA$		-110	-170	mV
	$V_{CE(sat)2}$	$I_C = -4.5A, I_B = -90mA$		-160	-240	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -3A, I_B = -60mA$		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0A$	-15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0A$	-5			V
Turn-On Time	$t_{on}$	See specified test circuit.		30		ns
Storage Time	$t_{stg}$	See specified test circuit.		120		ns
Fall Time	$t_f$	See specified test circuit.		14		ns

## Package Dimensions

unit : mm (typ)

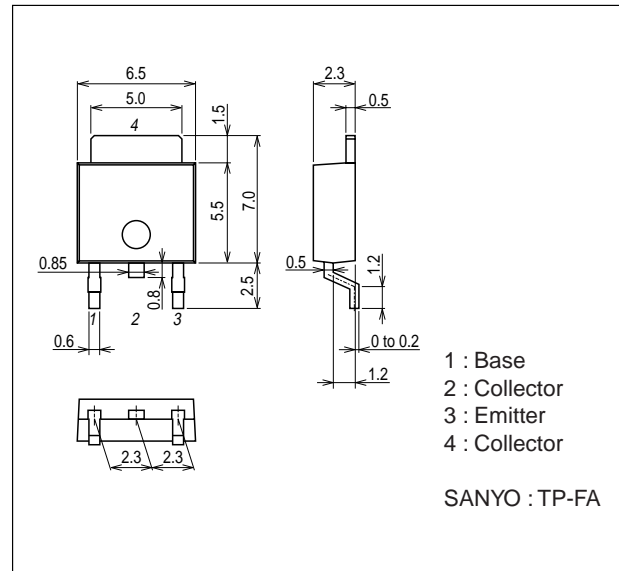
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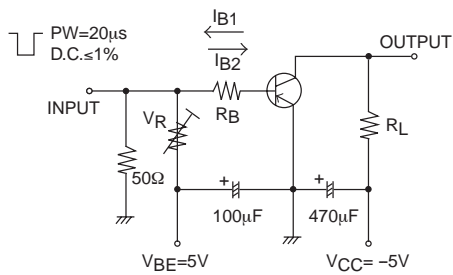
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unit : mm (typ)

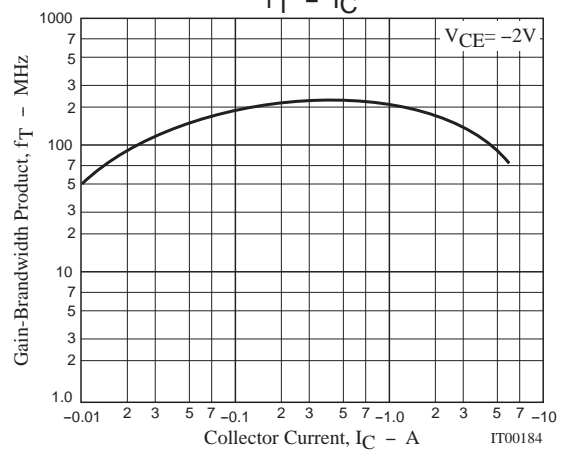
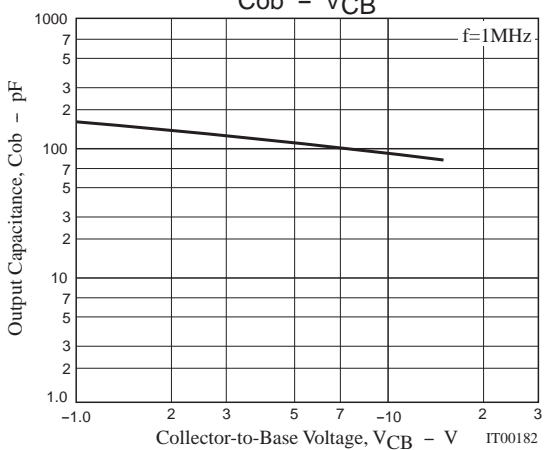
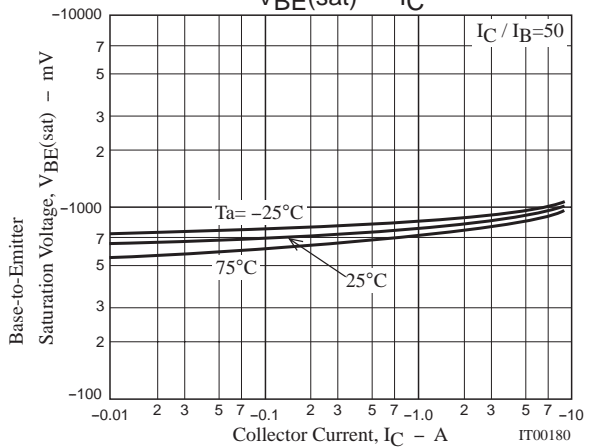
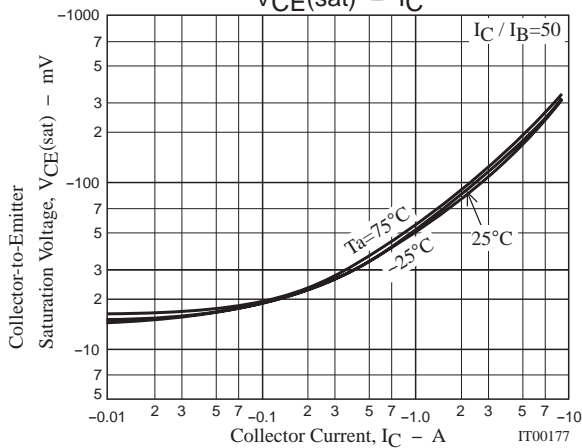
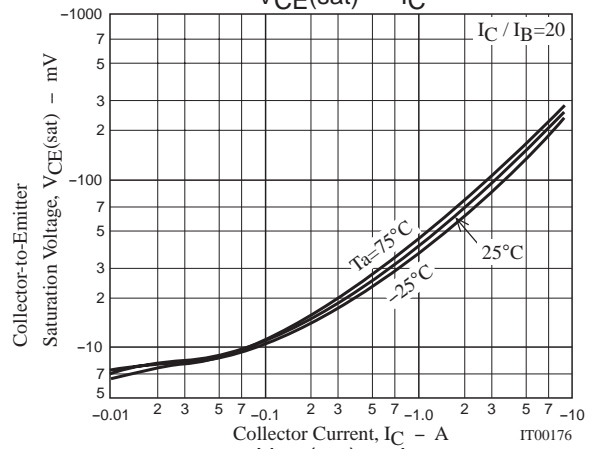
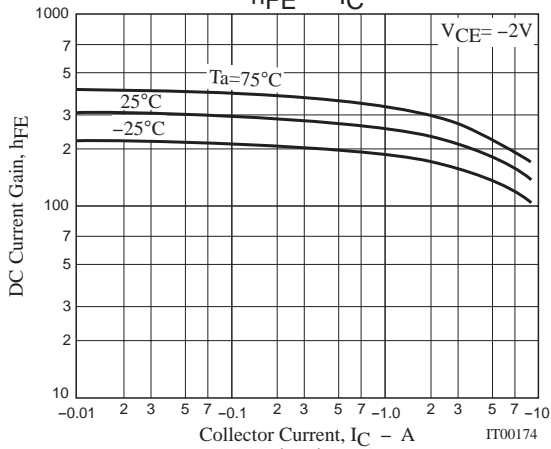
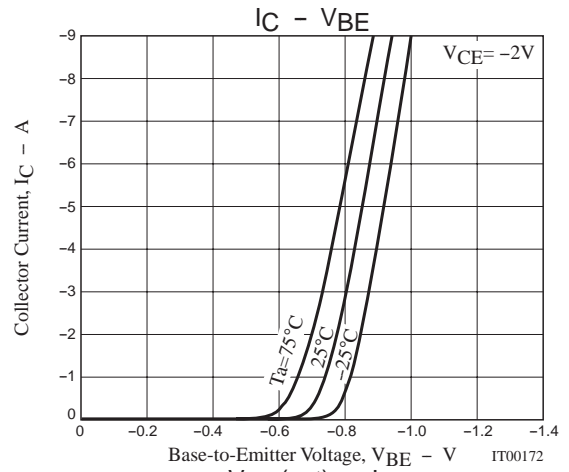
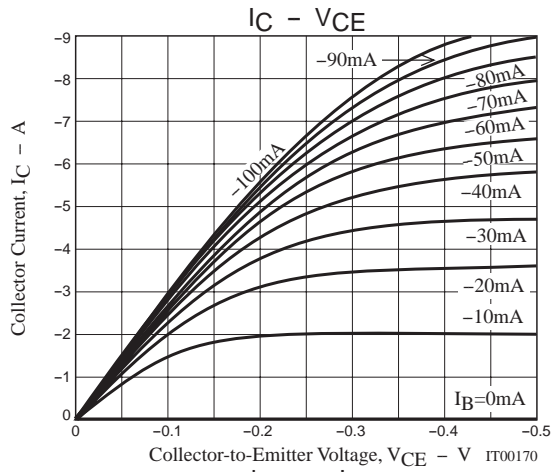
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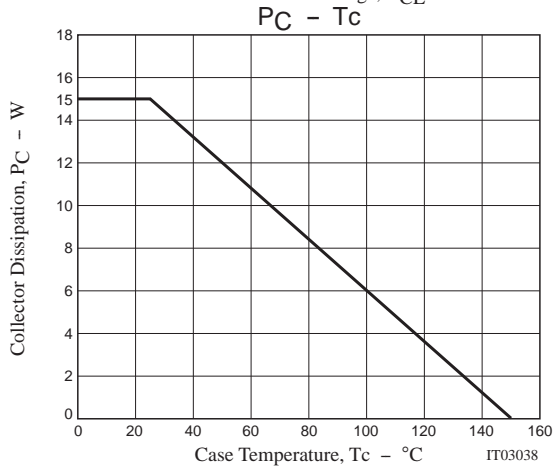
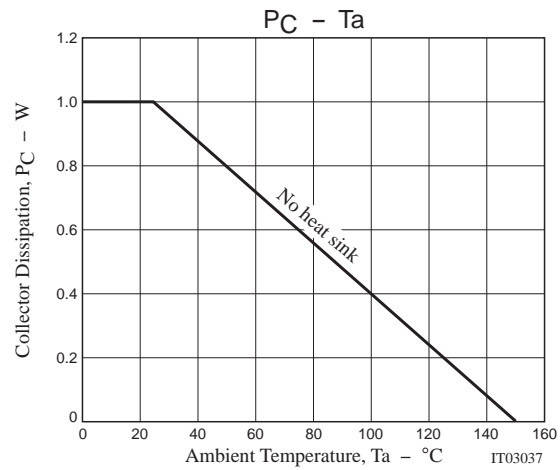
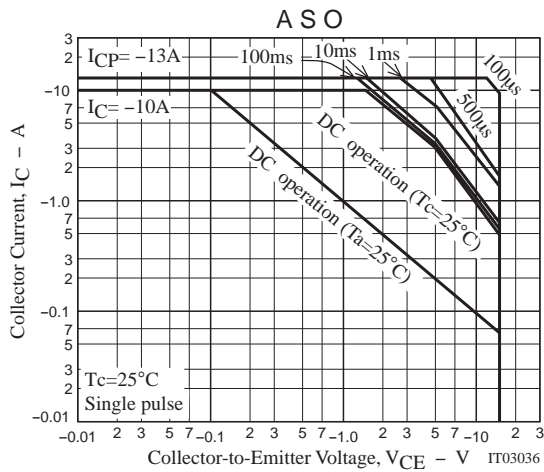


## Switching Time Test Circuit



$$I_C = -20I_{B1} = 20I_{B2} = -3A$$





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