



SANYO Semiconductors

## DATA SHEET

# 2SA2186

 — PNP Epitaxial Planar Silicon Transistor  
**High-Current Switching Applications**

## Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment.

## Features

- Adoption of MBIT processes.
- High current capacity.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		-50	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		-50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-6	V
Collector Current	I <sub>C</sub>		-2	A
Collector Current (Pulse)	I <sub>CP</sub>		-4	A
Base Current	I <sub>B</sub>		-400	mA
Collector Dissipation	P <sub>C</sub>		0.9	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> =-40V, I <sub>E</sub> =0A			-1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0A			-1	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-100mA	200		560	
	h <sub>FE2</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-1.5A	40			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-300mA		420		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, f=1MHz		16		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =-1A, I <sub>B</sub> =-50mA	-0.22		-0.43	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =-1A, I <sub>B</sub> =-50mA	-0.9		-1.2	V

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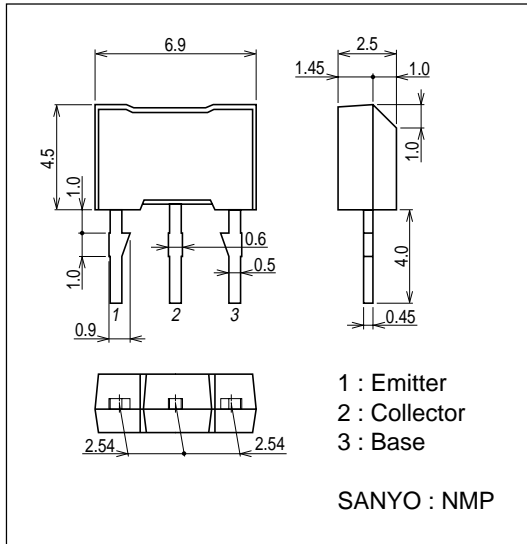
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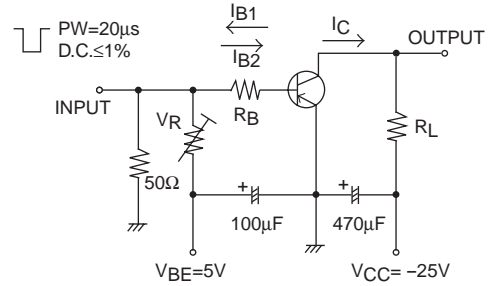
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0A$	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0A$	-6			V
Turn-On Time	$t_{on}$	See specified Test Circuit.		35		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		200		ns
Fall Time	$t_f$	See specified Test Circuit.		24		ns

## Package Dimensions

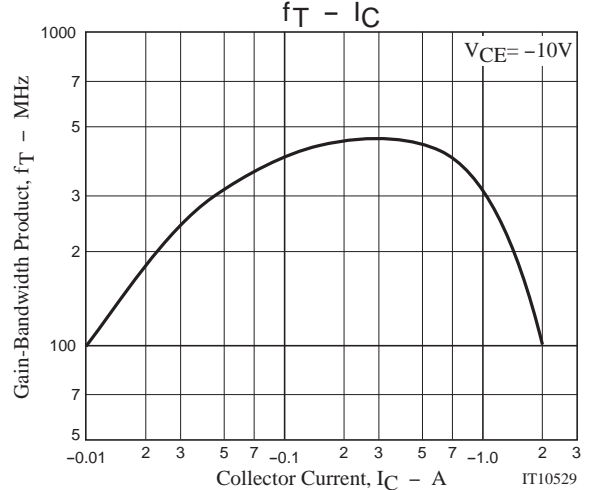
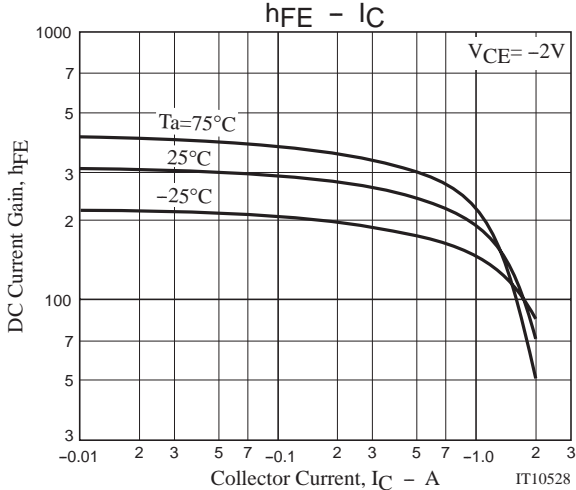
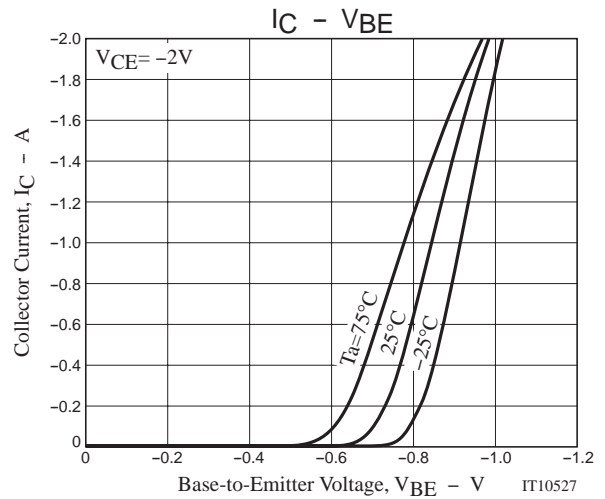
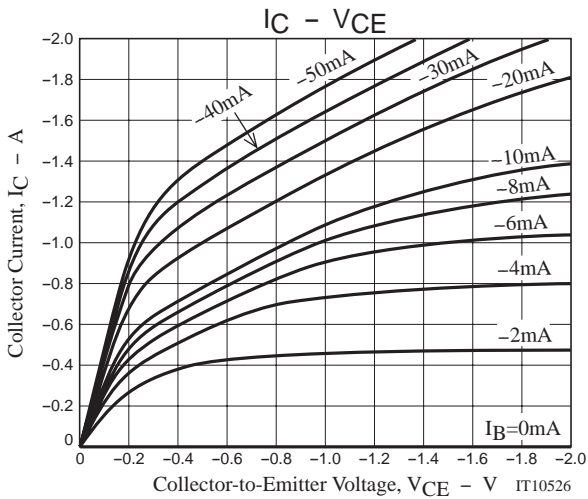
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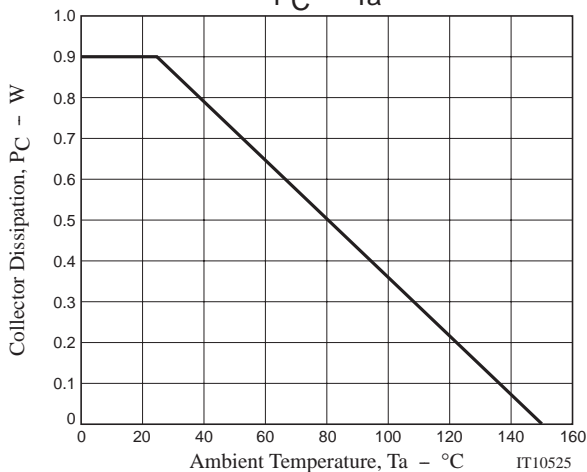
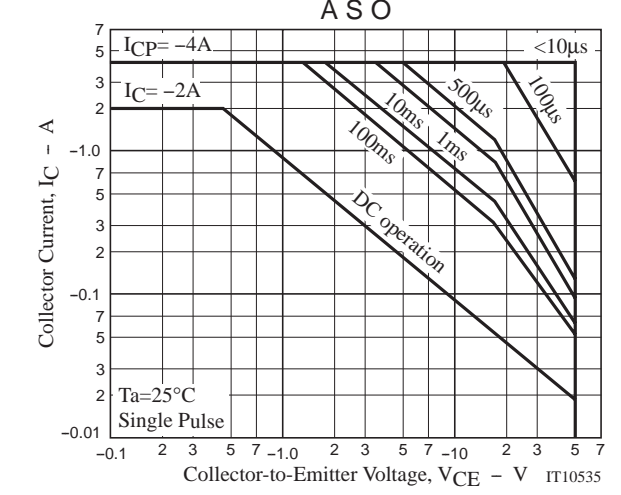
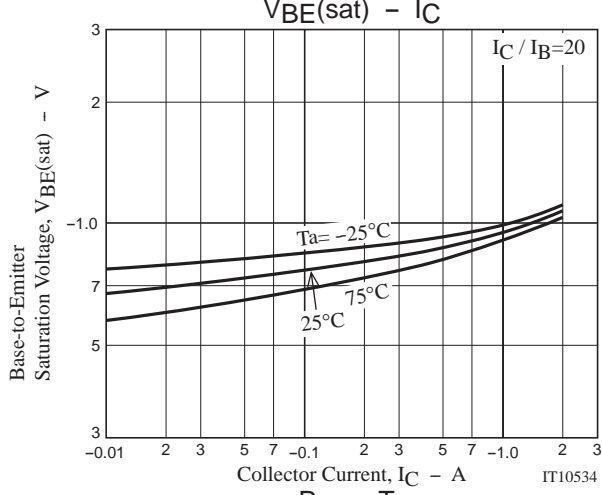
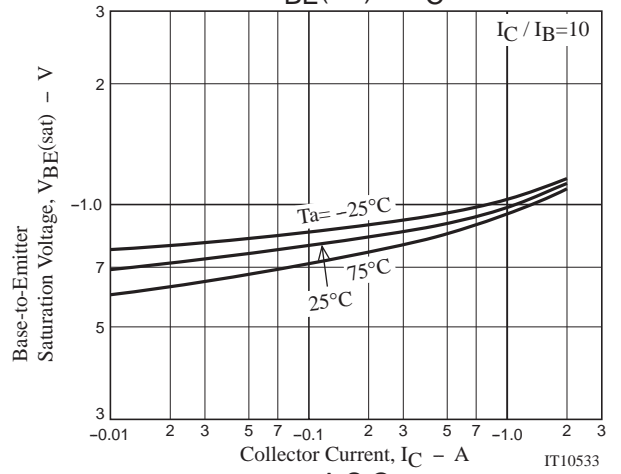
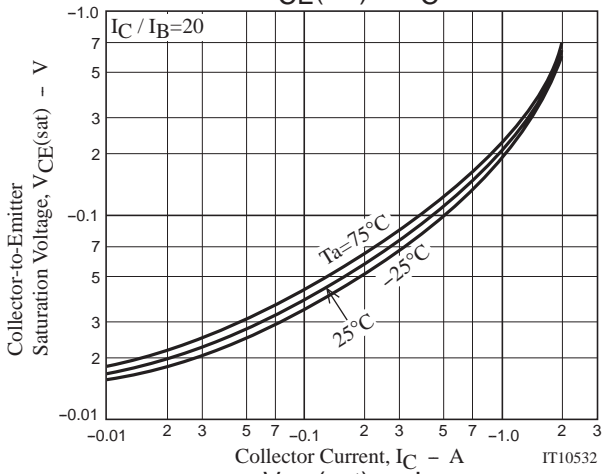
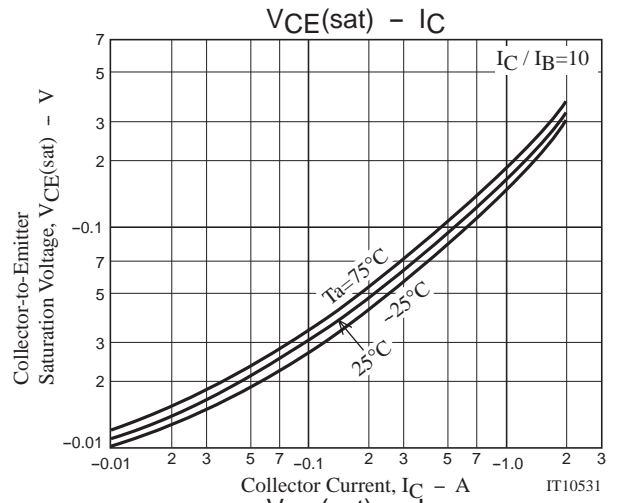
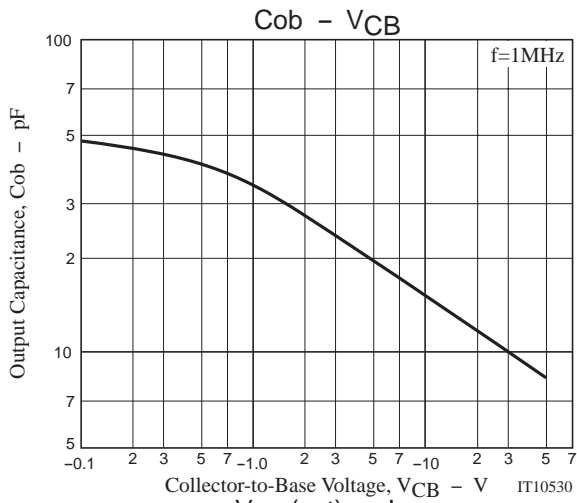
## Switching Time Test Circuit



$$I_C = 10I_{B1} = -10I_{B2} = -0.7A$$



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