



SANYO Semiconductors

## DATA SHEET

CPH5706

TR : PNP Epitaxial Planar Silicon Transistor

SBD : Schottky Barrier Diode

## DC / DC Converter Applications

## Features

- Composite type with a PNP transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- The CPH5706 consists of two chips which are equivalent to the CPH3115 and the SBS006, respectively.
- Ultraminiature package facilitates miniaturization in end products.(0.9mm)

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V <sub>CB0</sub>		-30	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		-30	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-5	V
Collector Current	I <sub>C</sub>		-1.5	A
Collector Current (Pulse)	I <sub>CP</sub>		-3	A
Base Current	I <sub>B</sub>		-300	mA
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	0.9	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>		30	V
Non-repetitive Peak Reverse Surge Voltage	V <sub>RSM</sub>		30	V
Average Rectified Current	I <sub>O</sub>		0.7	A
Surge Current	I <sub>FSM</sub>	50Hz sine wave, 1cycle	10	A
Junction Temperature	T <sub>J</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

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SANYO Electric Co.,Ltd. Semiconductor Company

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# CPH5706

## Electrical Characteristics at Ta=25°C

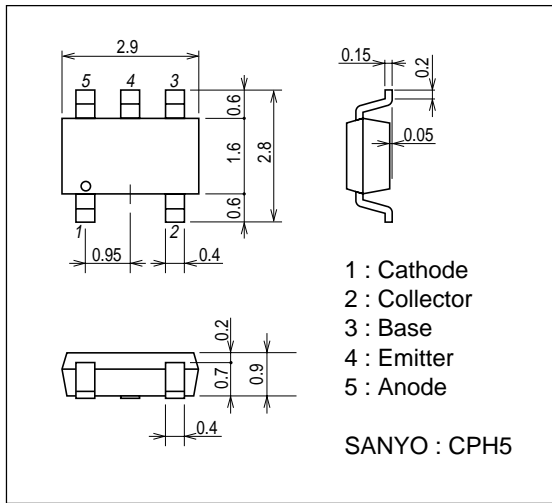
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	ICBO	V <sub>CB</sub> =-30V, I <sub>E</sub> =0			-0.1	μA
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =-4V, I <sub>C</sub> =0			-0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-100mA	200		560	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-300mA		450		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, f=1MHz		9		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =-750mA, I <sub>B</sub> =-15mA		-250	-375	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =-750mA, I <sub>B</sub> =-15mA		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-10μA, I <sub>E</sub> =0		-30		V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =-1mA, R <sub>BE</sub> =∞		-30		V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-10μA, I <sub>C</sub> =0		-5		V
Turn-ON Time	t <sub>on</sub>	See specified Test Circuit		30		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit		115		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		30		ns
[SBD]						
Reverse Voltage	V <sub>R</sub>	I <sub>R</sub> =0.5mA	30			V
Forward Voltage	V <sub>F1</sub>	I <sub>F</sub> =0.3A		0.35	0.40	V
	V <sub>F2</sub>	I <sub>F</sub> =0.5A		0.42	0.47	V
	V <sub>F3</sub>	I <sub>F</sub> =0.7A		0.5	0.55	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =10V			200	μA
Interterminal Capacitance	C	V <sub>R</sub> =10V, f=1MHz		20		pF
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =I <sub>R</sub> =100mA, See specified Test Circuit			10	ns

Marking : PF

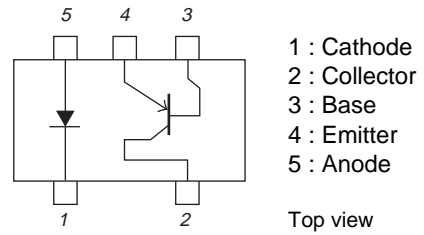
## Package Dimensions

unit : mmm

2156

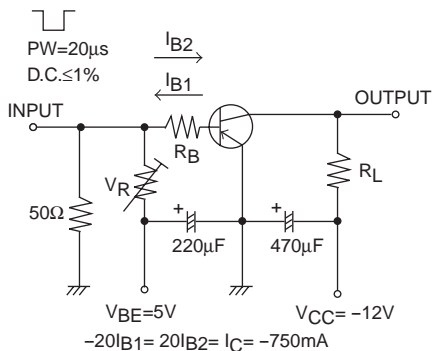


## Electrical Connection



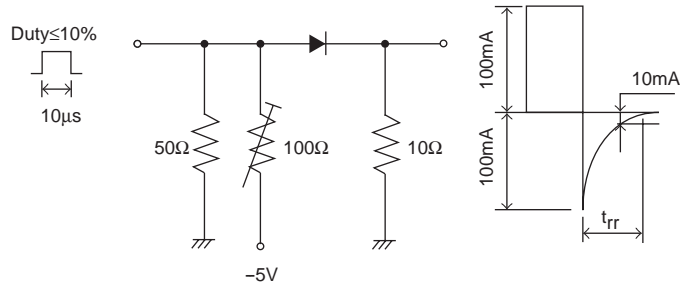
## Switching Time Test Circuit

[TR]

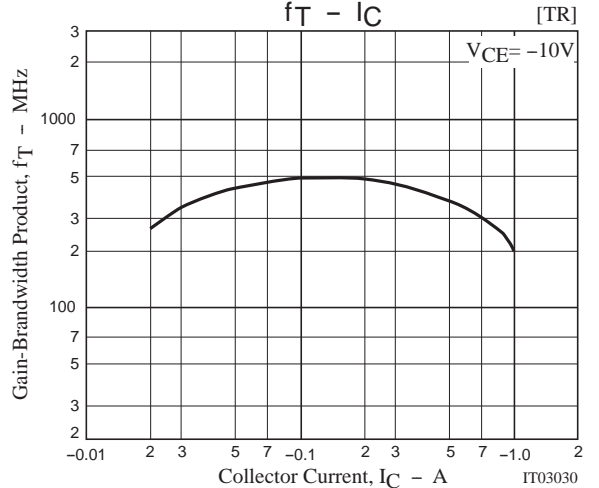
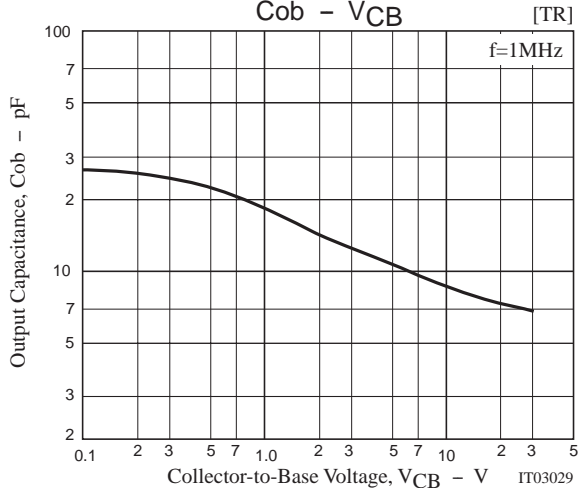
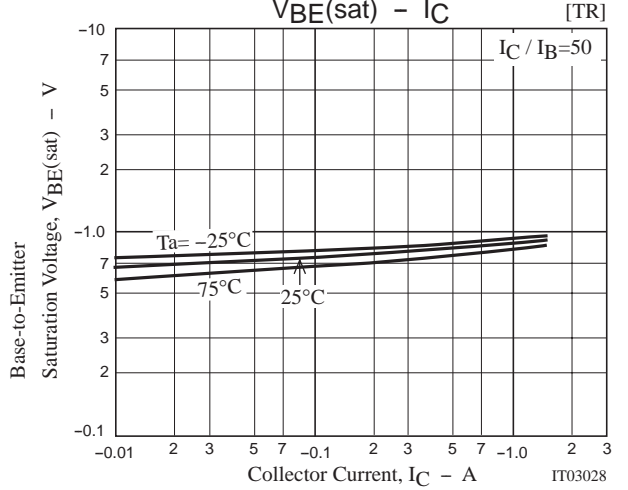
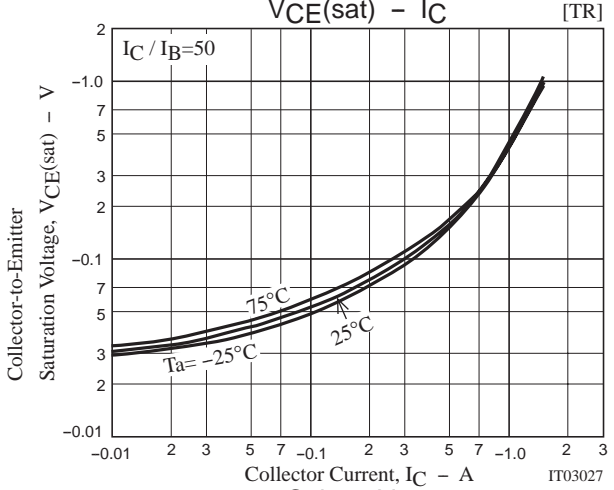
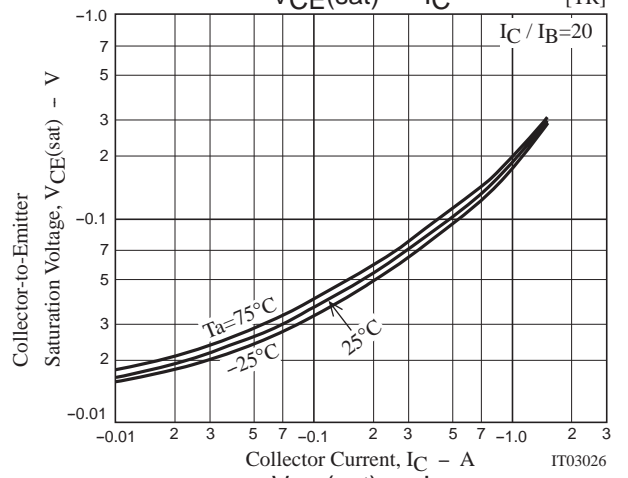
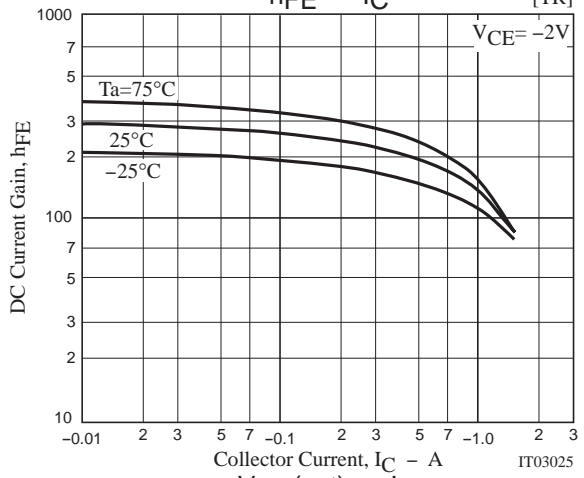
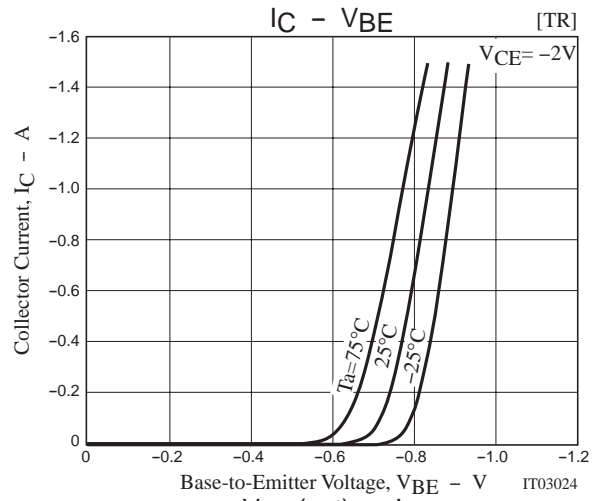
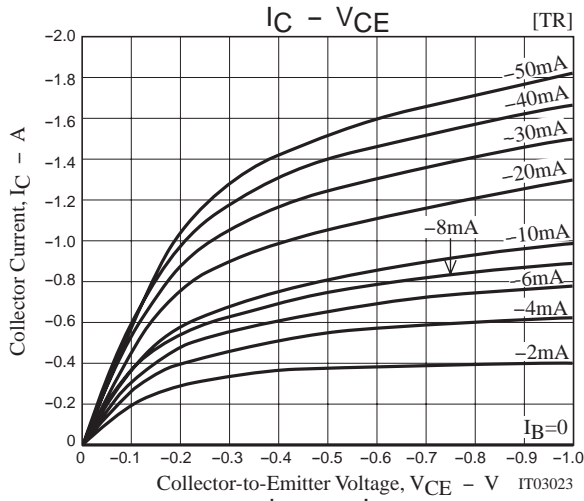


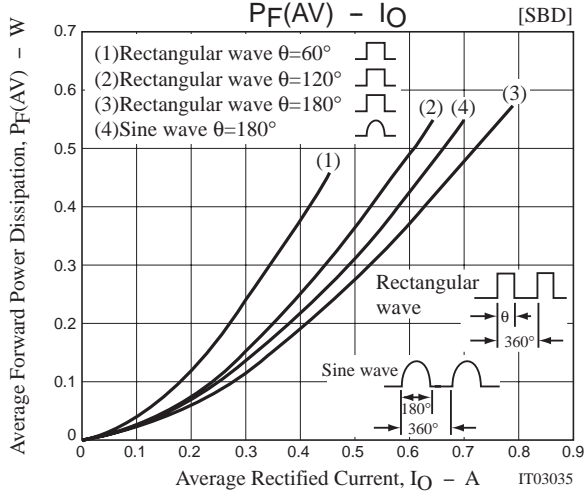
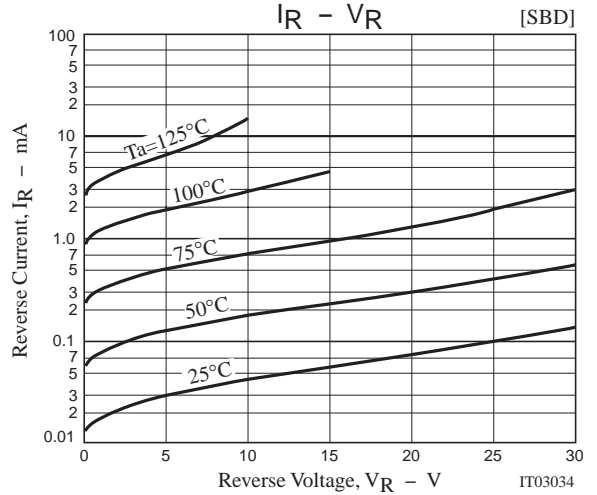
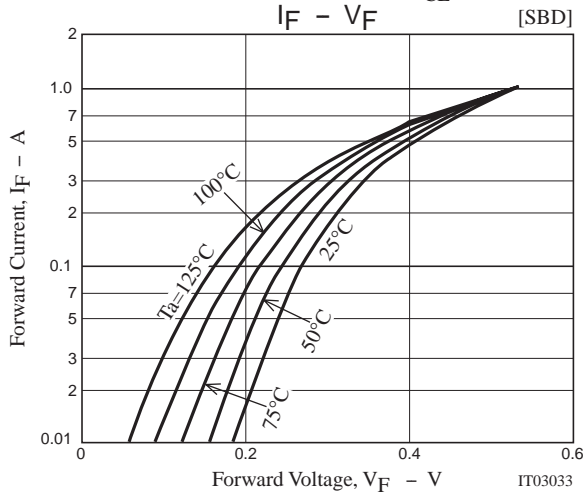
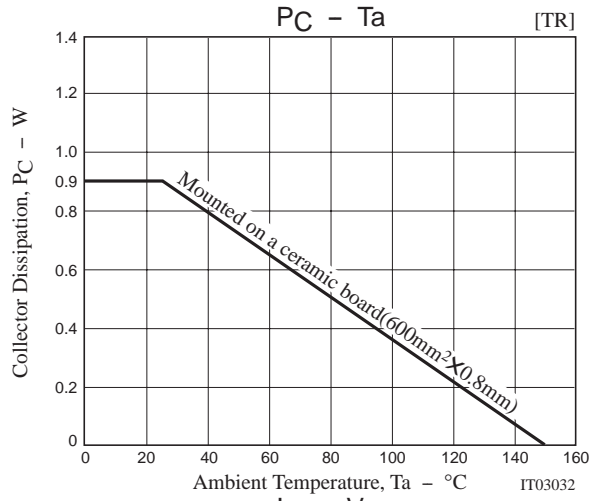
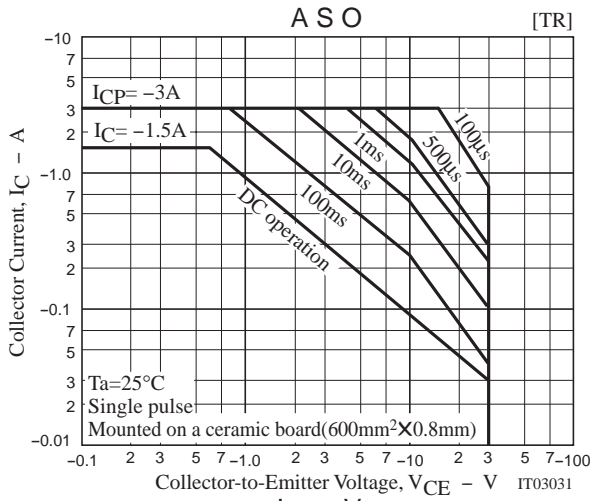
## t<sub>rr</sub> Test Circuit

[SBD]



# CPH5706





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