Ordering number:ENN6007A

PNP Epitaxial Planar Silicon Transistor
Schottky Barrier Diode

CPH6701

DC/DC Converter Applications

Features

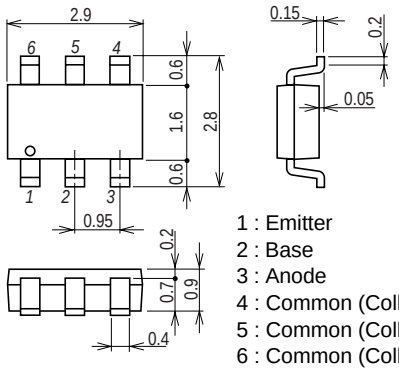
- Composite type with a PNP transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- The CPH6701 is formed with two chips, one being equivalent to the CPH3106 and the other the SBS001, encapsulated in one package.
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm).

Package Dimensions

unit:mm

2153

[CPH6701]



1 : Emitter
2 : Base
3 : Anode
4 : Common (Collector, Cathode)
5 : Common (Collector, Cathode)
6 : Common (Collector, Cathode)
SANYO : CPH6

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V_{CBO}		–15	V
Collector-to-Emitter Voltage	V_{CEO}		–12	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–3	A
Collector Current (Pulse)	I_{CP}		–5	A
Base Current	I_B		–600	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +125	˚C
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		11	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		15	V
Average Output Current	I_O		500	mA
Surge Current	I_{FSM}	50Hz sine wave, 1 cycle	5	A
Junction Temperature	Tj		–55 to +125	˚C
Storage Temperature	Tstg		–55 to +125	˚C

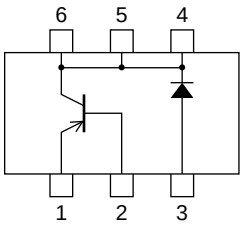
Marking : PA

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	V_{CB}=–12V, I_E=0			–0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0			–0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–0.5A	200		560	
	$h_{FE}2$	V_{CE}=–2V, I_C=–3A	70			
Gain-Bandwidth Product	f_T	V_{CE}=–2V, I_C=–0.5A		280		MHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		36		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=–1.5A, I_B=–30mA		–110	–165	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–1.5A, I_B=–30mA		–0.85	–1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–12			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_C=–10μA, I_C=0	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		90		ns
Turn-OFF Time	t_f	See specified Test Circuit.		10		ns
[Di]						
Reverse Voltage	V_R	I_R=400μA	11			V
Forward Voltage	V_F	I_F=500mA		0.4	0.45	V
Reverse Current	I_R	V_R=6V			200	μA
Interterminal Capacitance	C	V_R=10V, f=1MHz		50		pF
Reverse Recovery Time	t_{rr}	I_F=I_R=100mA, See specified Test Circuit.			10	ns
Thermal Resistance	Rthj-a	Mounted on a ceramic board (600mm²×0.8mm)		96		˚C/W

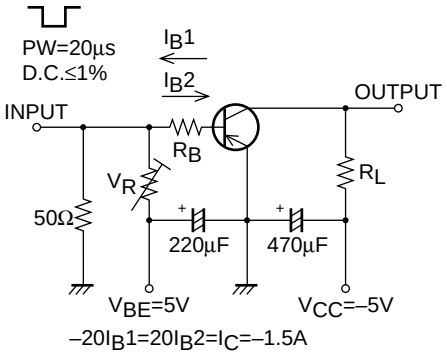
Electrical Connection



A11501

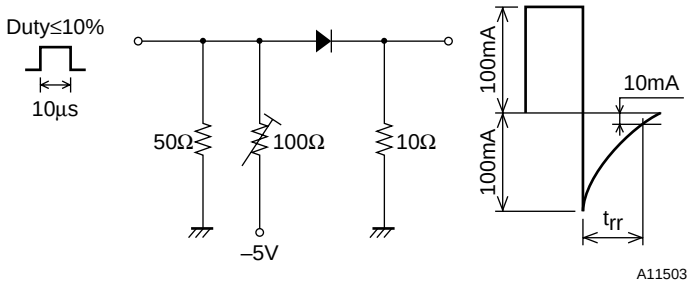
Switching Time Test Circuit

(TR)

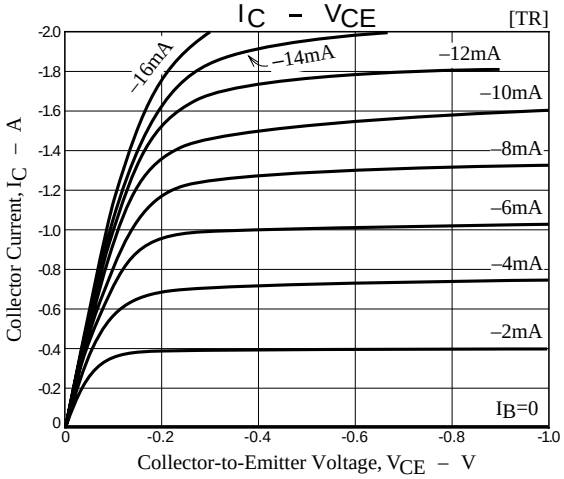


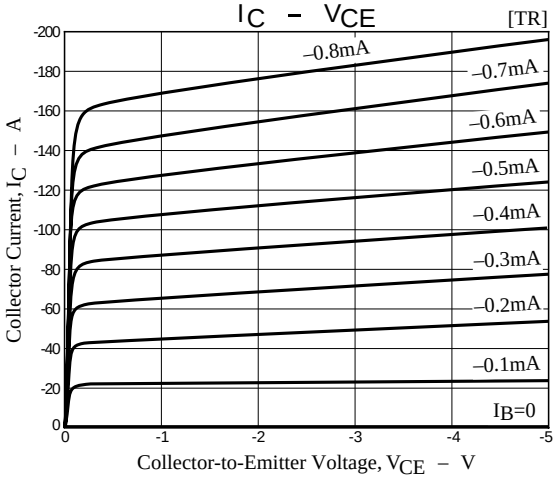
A11502

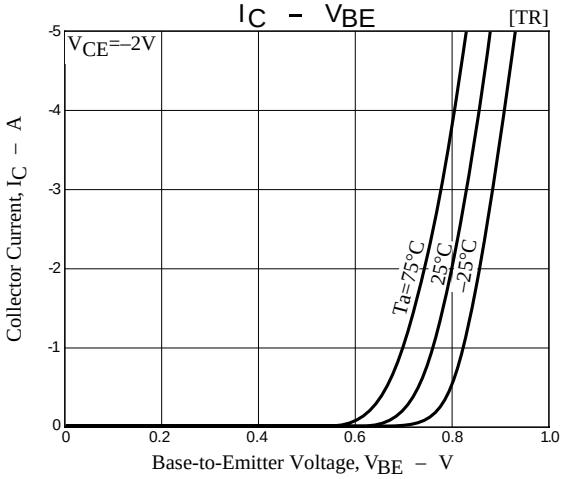
(Di)

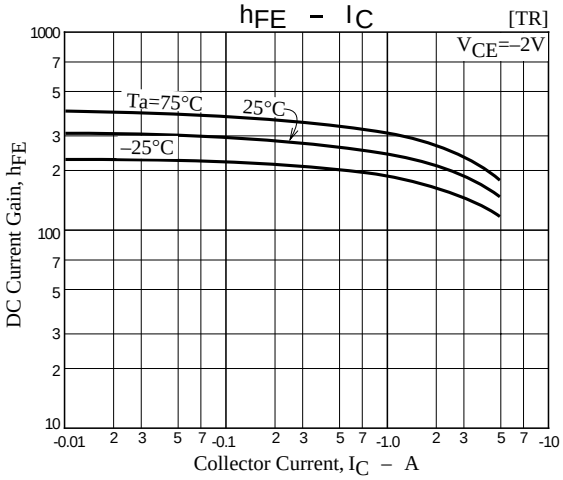


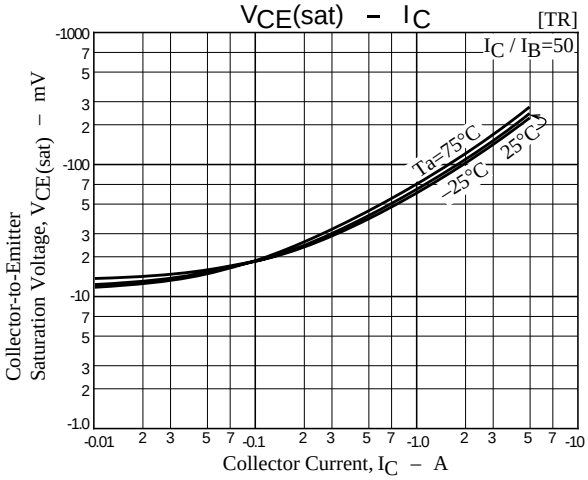
A11503

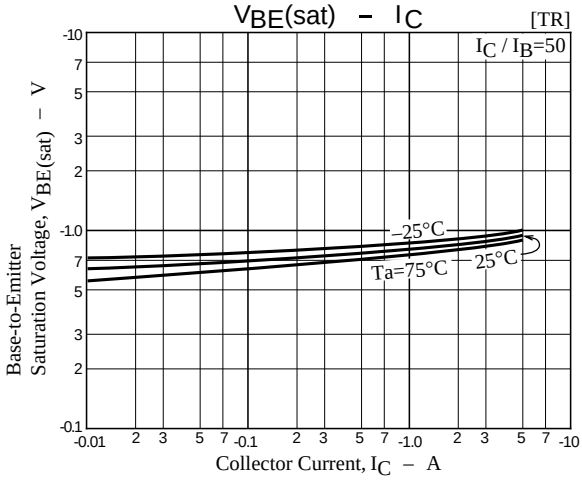

IC – VCE
[TR]
–16mA
–14mA
–12mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V

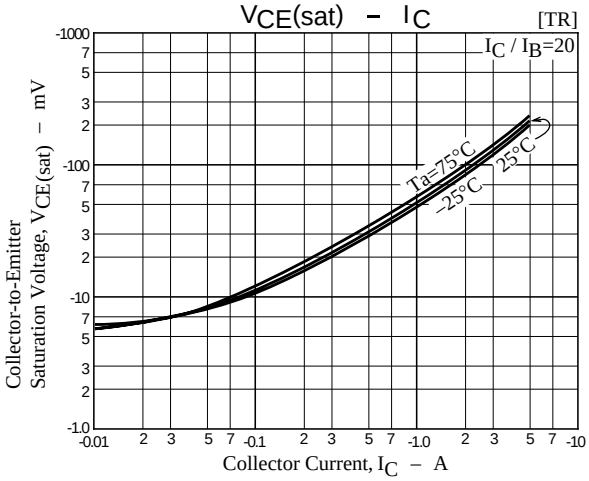

IC – VCE
[TR]
–0.8mA
–0.7mA
–0.6mA
–0.5mA
–0.4mA
–0.3mA
–0.2mA
–0.1mA
IB=0
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V

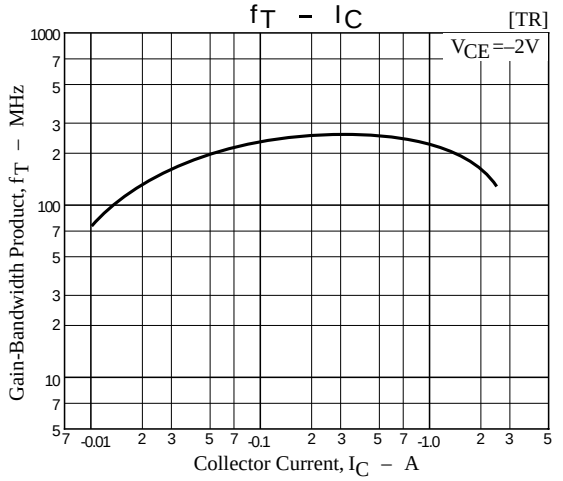

IC – VBE
[TR]
VCE=–2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V

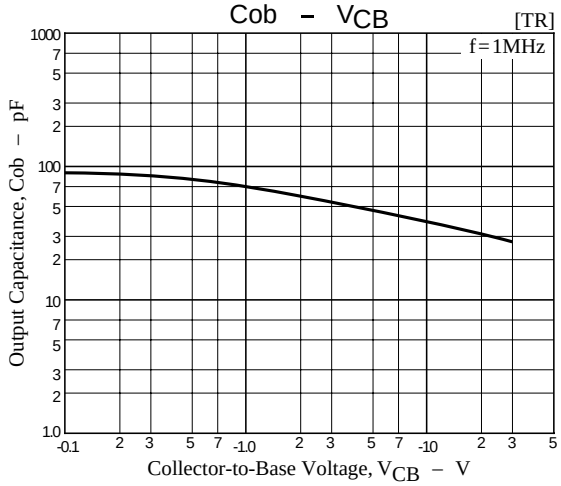

hFE – IC
[TR]
VCE=–2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A

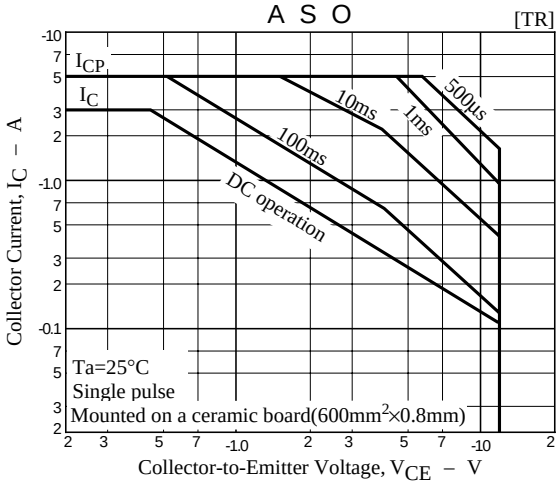

VCE(sat) – IC
[TR]
IC / IB=50
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A

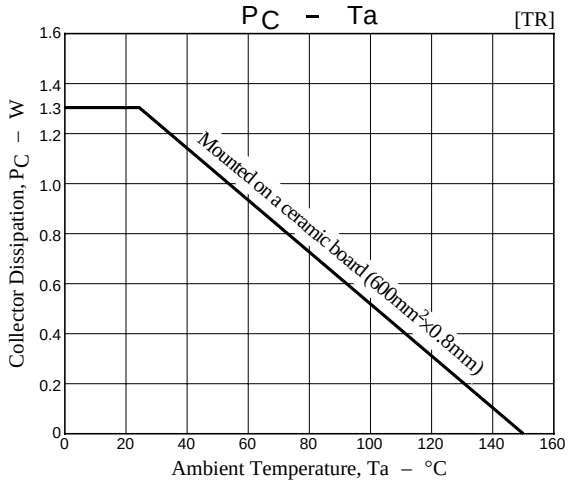

VBE(sat) – IC
[TR]
IC / IB=50
–25°C
Ta=75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A

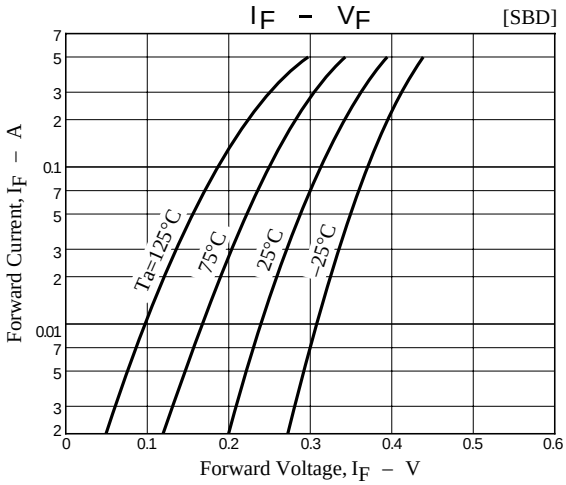

VCE(sat) – IC
[TR]
IC / IB=20
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A

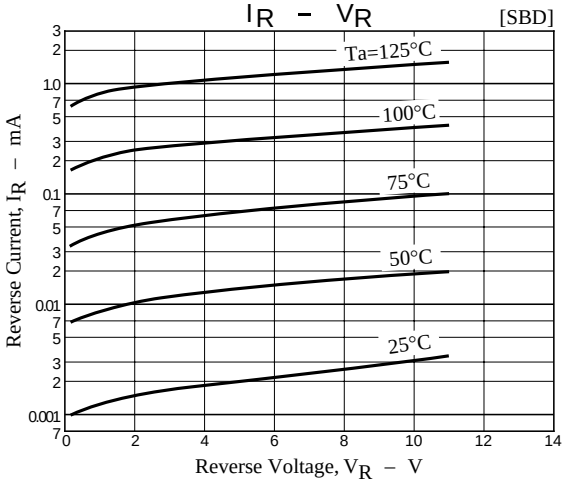

fT – IC
[TR]
VCE=–2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A

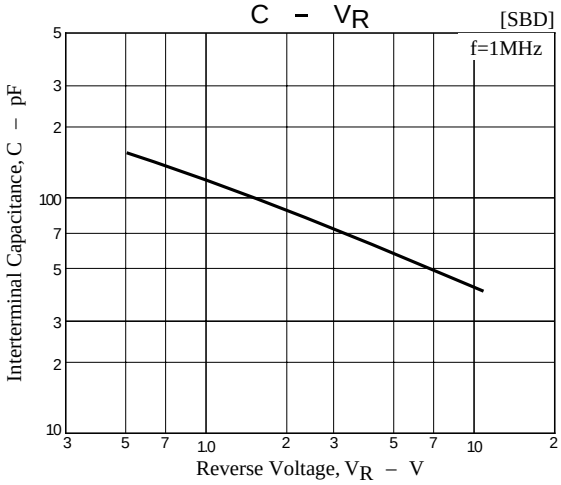

Cob – VCB
[TR]
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V

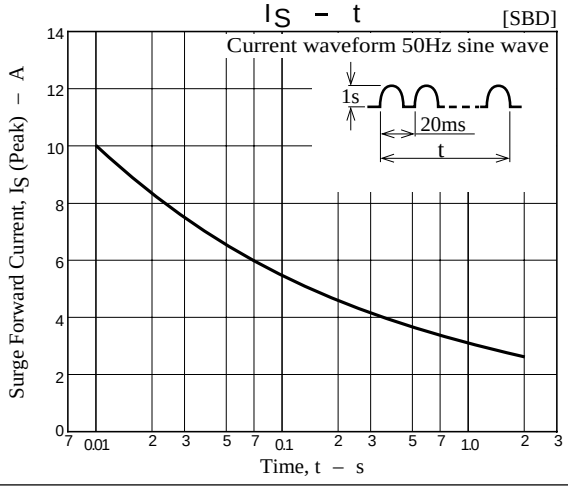

A S O
[TR]
ICP
IC
10ms
1ms
500μs
100ms
DC operation
Ta=25°C
Single pulse
Mounted on a ceramic board(600mm2×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V


PC – Ta
[TR]
Mounted on a ceramic board (600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C


IF – VF
[SBD]
Ta=125°C
75°C
25°C
–25°C
Forward Current, IF – A
Forward Voltage, IF – V


IR – VR
[SBD]
Ta=125°C
100°C
75°C
50°C
25°C
Reverse Current, IR – mA
Reverse Voltage, VR – V


C – VR
[SBD]
f=1MHz
Interterminal Capacitance, C – pF
Reverse Voltage, VR – V


IS – t
[SBD]
Current waveform 50Hz sine wave
1s
20ms
t
Surge Forward Current, IS (Peak) – A
Time, t – s