Ordering number : ENN7025

TR : PNP Epitaxial Planar Silicon Transistor
SBD : Schottky Barrier Diode

CPH5706

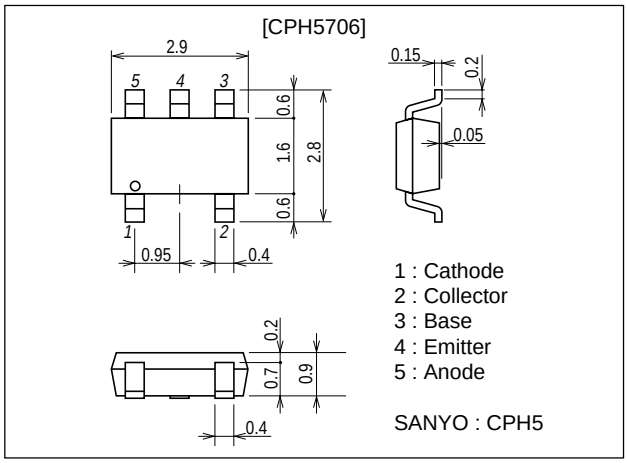
DC / DC Converter Applications

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)

Package Dimensions

unit : mm
2156



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V_{CBO}		−30	V
Collector-to-Emitter Voltage	V_{CEO}		−30	V
Emitter-to-Base Voltage	V_{EBO}		−5	V
Collector Current	I_C		−1.5	A
Collector Current (Pulse)	I_{CP}		−3	A
Base Current	I_B		−300	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8mm)	0.9	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		30	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		30	V
Average Recified Current	I_O		0.7	A
Surge Current	I_{FSM}	50Hz sine wave, 1cycle	10	A
Junction Temperature	Tj		−55 to +125	°C
Storage Temperature	Tstg		−55 to +125	°C

Marking : PF

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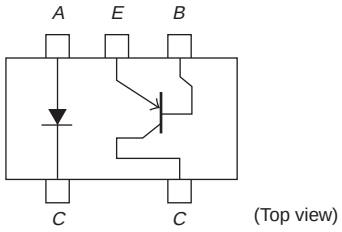
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	V_{CB}=−30V, 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}	V_{CE}=−2V, I_C=−100mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=−10V, I_C=−300mA		450		MHz
Output Capacitance	Cob	V_{CB}=−10V, f=1MHz		9		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=−750mA, I_B=−15mA		−250	−375	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=−750mA, I_B=−15mA		−0.85	−1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=−10μA, I_E=0	−30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=−1mA, R_{BE}=∞	−30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=−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		115		ns
Fall Time	t_f	See specified Test Circuit		30		ns
[SBD]						
Reverse Voltage	V_R	I_R=0.5mA	30			V
Forward Voltage	V_F1	I_F=0.3A		0.35	0.40	V
	V_F2	I_F=0.5A		0.42	0.47	V
	V_F3	I_F=0.7A		0.5	0.55	V
Reverse Current	I_R	V_R=10V			200	μA
Interterminal Capacitance	C	V_R=10V, f=1MHz		20		pF
Reverse Recovery Time	t_{rr}	I_F=I_R=100mA, See specified Test Circuit			10	ns

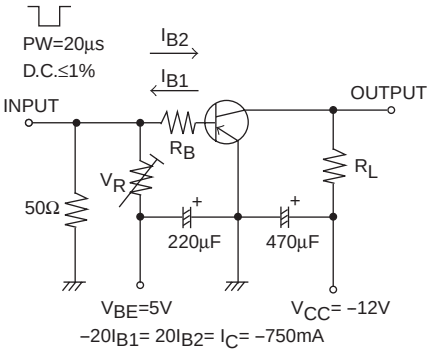
Electrical Connection



(Top view)

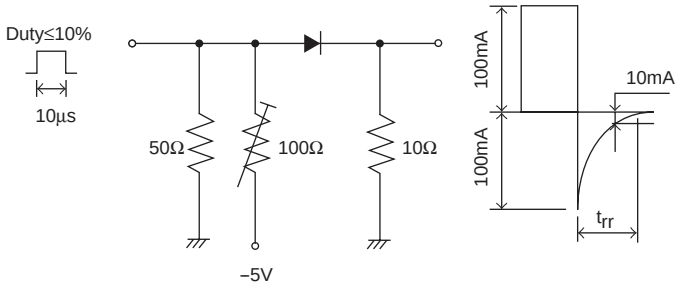
Switching Time Test Circuit

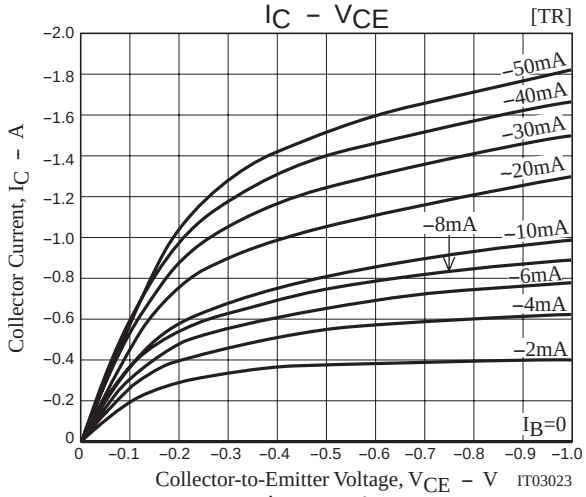
[TR]

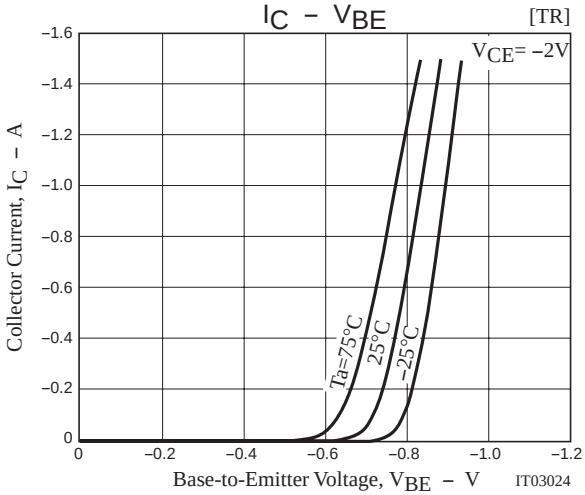


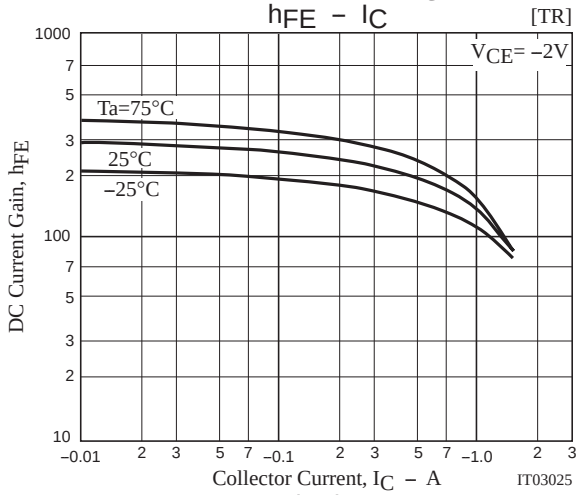
trr Test Circuit

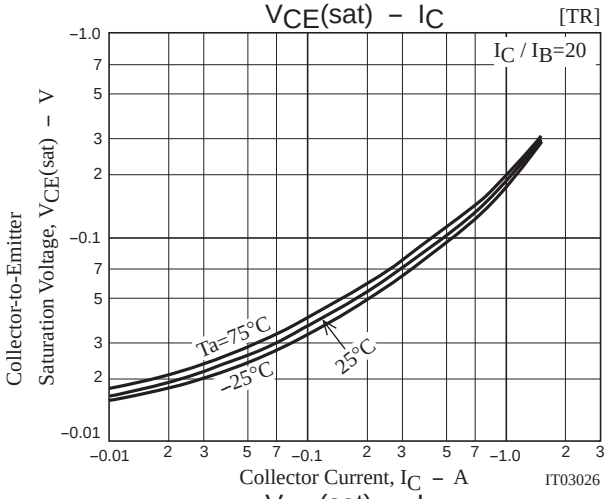
[SBD]

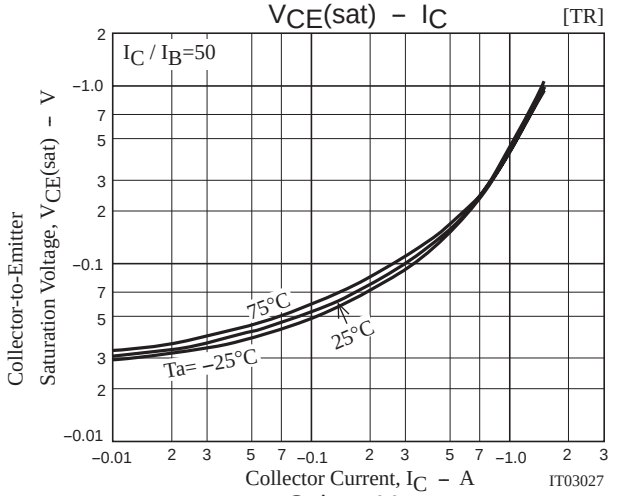


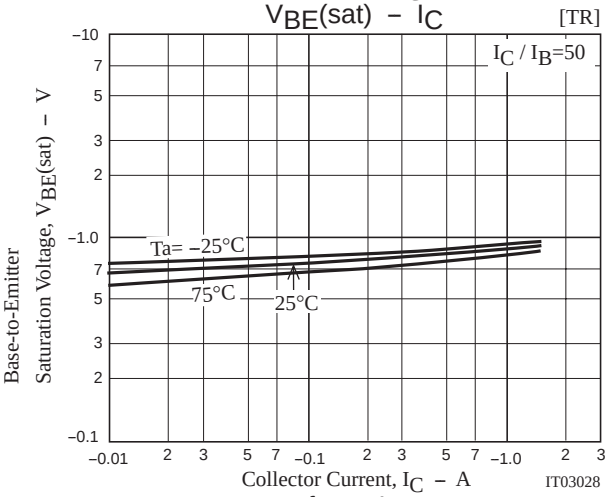

IC – VCE
[TR]
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT03023
–50mA
–40mA
–30mA
–20mA
–8mA
–10mA
–6mA
–4mA
–2mA
IB=0

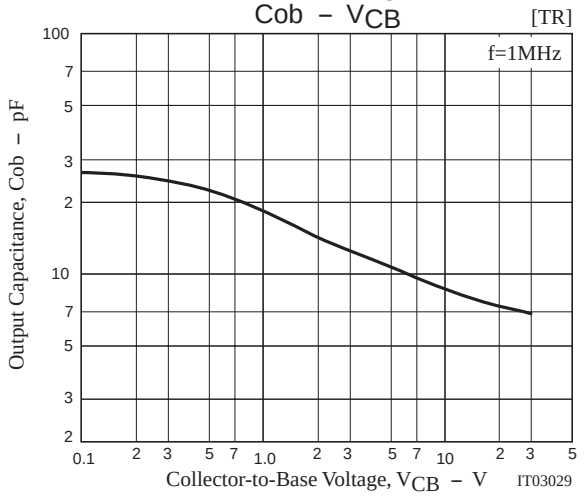

IC – VBE
[TR]
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT03024
VCE= –2V
Ta=75°C
25°C
–25°C

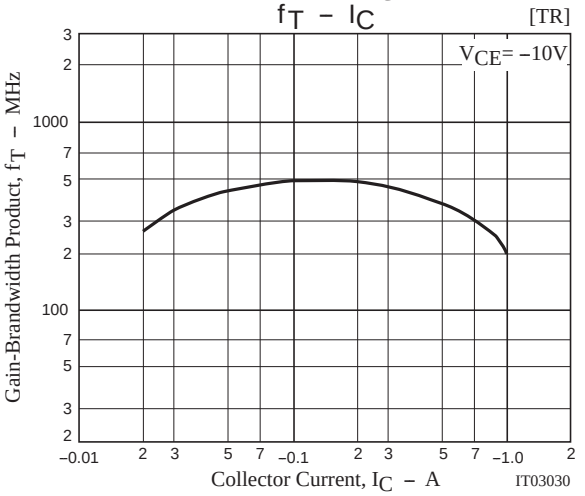

hFE – IC
[TR]
DC Current Gain, hFE
Collector Current, IC – A
IT03025
VCE= –2V
Ta=75°C
25°C
–25°C


VCE(sat) – IC
[TR]
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT03026
IC / IB=20
Ta=75°C
25°C
–25°C

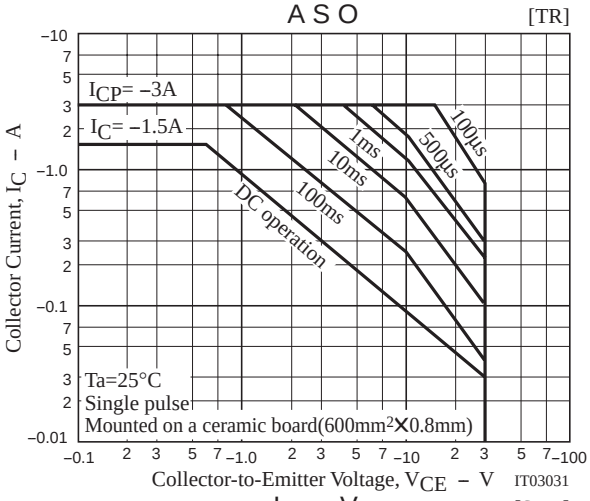

VCE(sat) – IC
[TR]
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT03027
IC / IB=50
75°C
25°C
Ta= –25°C


VBE(sat) – IC
[TR]
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT03028
IC / IB=50
Ta= –25°C
75°C
25°C

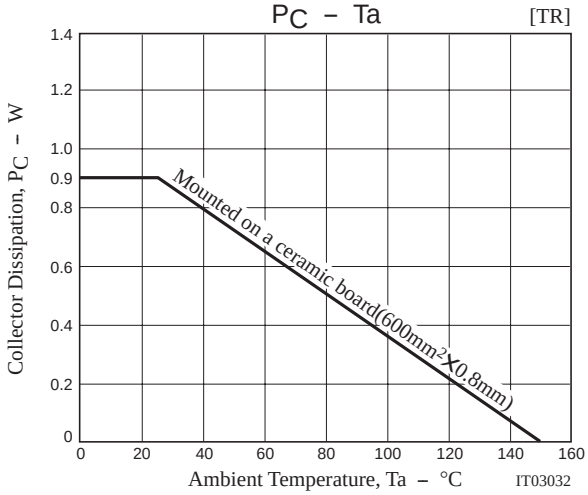

Cob – VCB
[TR]
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT03029
f=1MHz


fT – IC
[TR]
Gain-Brandwidth Product, fT – MHz
Collector Current, IC – A
IT03030
VCE= –10V

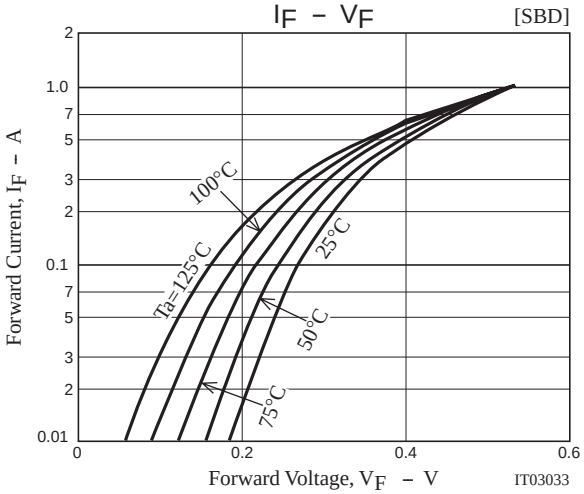
ASO [TR]



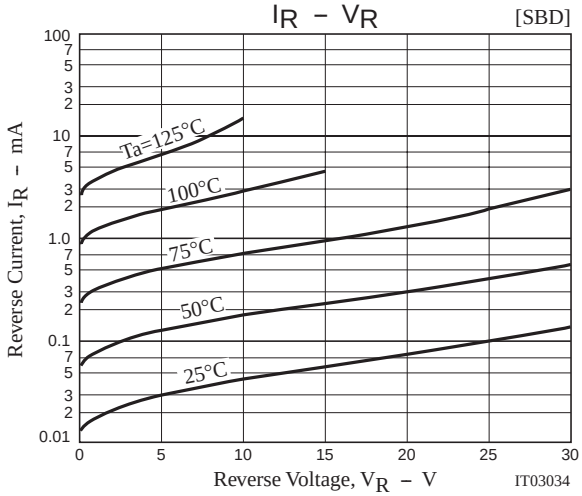
PC − Ta [TR]



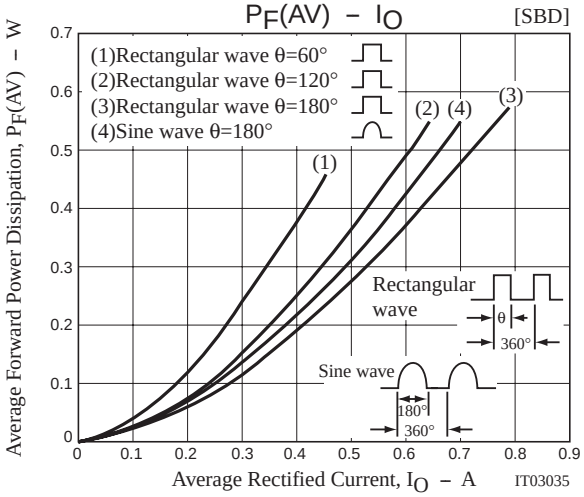
IF − VF [SBD]



IR − VR [SBD]



PF(AV) − IO [SBD]



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