

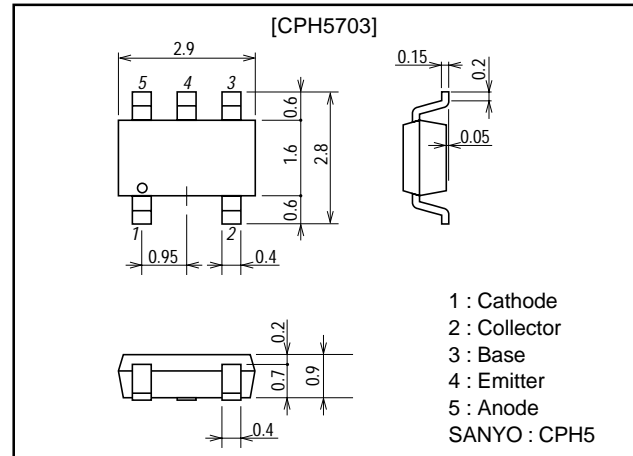
**CPH5703****DC/DC Converter Applications****Features**

- Composite type with a NPN transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- The CPH5703 consists of two chips encapsulated in a package which are equivalent to the CPH3205 and the SB05-05CP, respectively.
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.9mm).

**Package Dimensions**

unit:mm

2156

**Specifications****Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	$V_{CBO}$		60	V
Collector-to-Emitter Voltage	$V_{CEO}$		50	V
Emitter-to-Base Voltage	$V_{EBO}$		6	V
Collector Current	$I_C$		3	A
Collector Current (Pulse)	$I_{CP}$		6	A
Base Current	$I_B$		600	mA
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)	0.9	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	$V_{RRM}$		50	V
Non-repetitive Peak Reverse Surge Voltage	$V_{RSM}$		55	V
Average Output Current	$I_O$		500	mA
Surge Current	$I_{FSM}$	50Hz sine wave, 1 cycle	5	A
Junction Temperature	$T_J$		-55 to +125	°C
Storage Temperature	$T_{stg}$		-55 to +125	°C

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**SANYO Electric Co.,Ltd. Semiconductor Company**

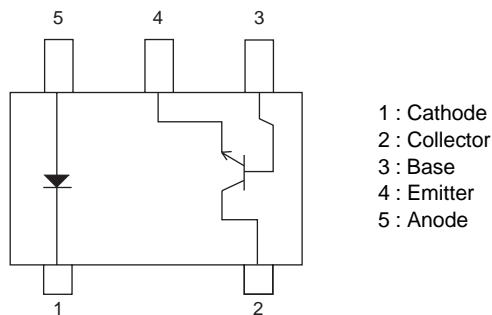
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# CPH5703

## Electrical Characteristics at Ta = 25°C

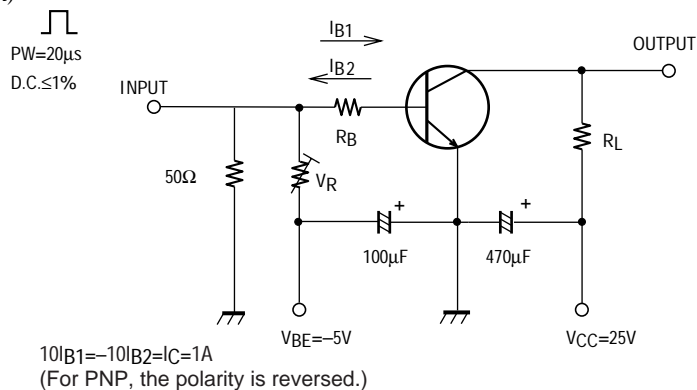
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40V, I_E=0$			1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4V, I_C=0$			1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=2V, I_C=100mA$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=500mA$		380		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1.0A, I_B=50mA$		80	120	mV
	$V_{CE(sat)2}$	$I_C=2.0A, I_B=100mA$		140	210	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.0A, I_B=50mA$		0.9	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		35		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		300		ns
Turn-OFF Time	$t_f$	See specified Test Circuit.		22		ns
[SBD]						
Reverse Voltage	$V_R$	$I_R=200\mu A$	50			V
Forward Voltage	$V_F$	$I_F=500mA$			0.55	V
Reverse Current	$I_R$	$V_R=25V$			50	$\mu A$
Interterminal Capacitance	$C$	$V_R=10V, f=1MHz$		22		pF
Reverse Recovery Time	$t_{rr}$	$I_F=I_R=100mA$ , See specified Test Circuit.			10	ns
Thermal Resistance	$R_{thj-a}$	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)		151		°C/W

## Electrical Connection (Top view)

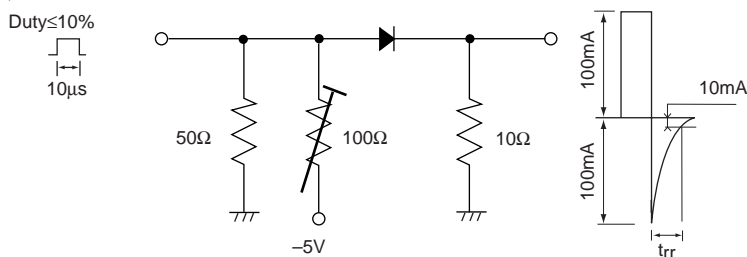


## Switching Time Test Circuit

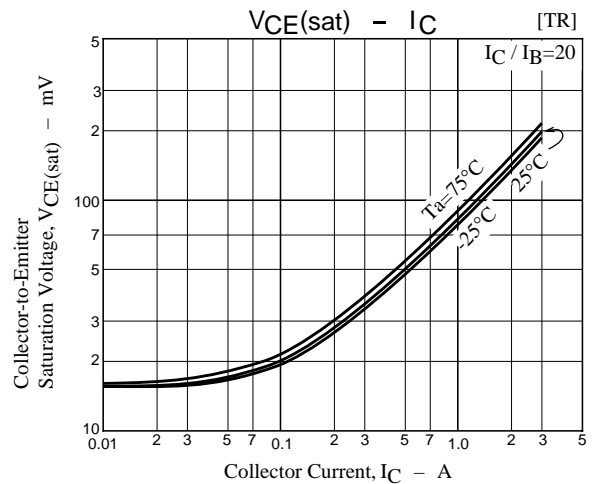
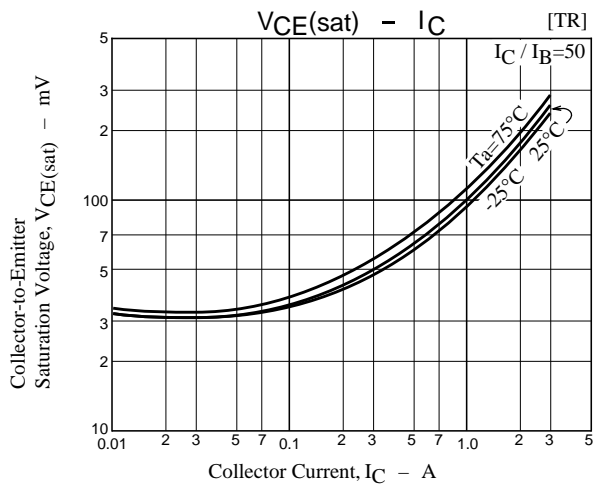
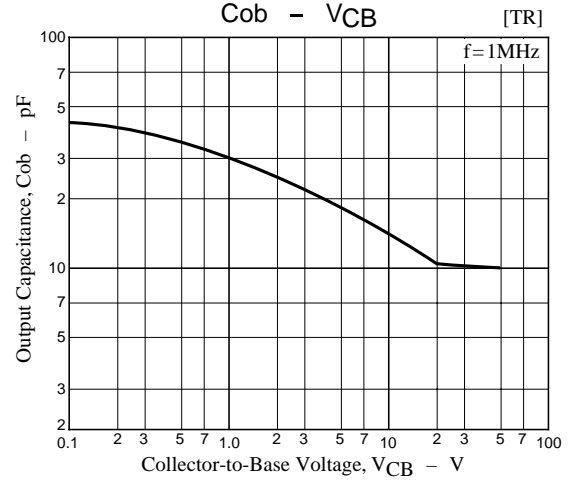
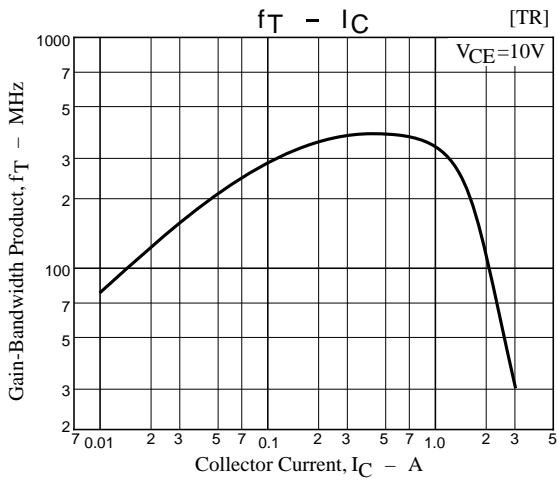
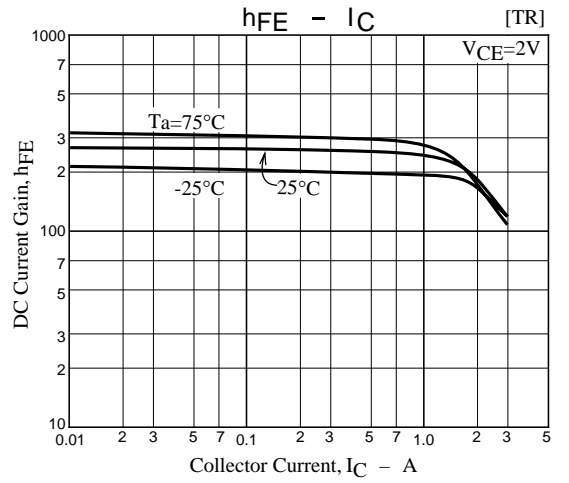
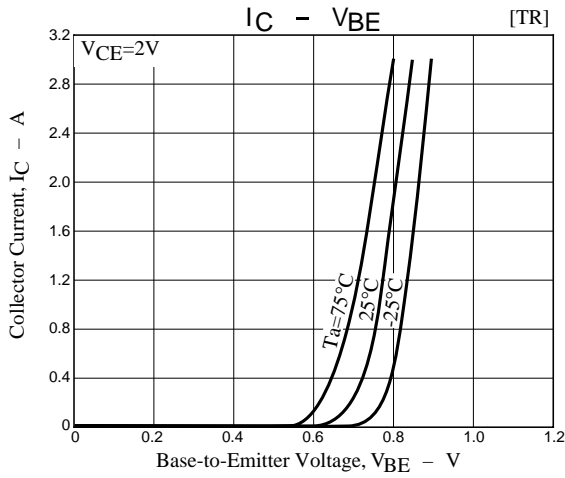
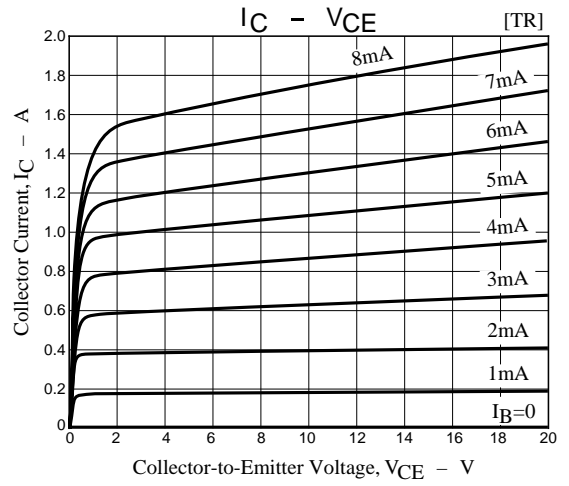
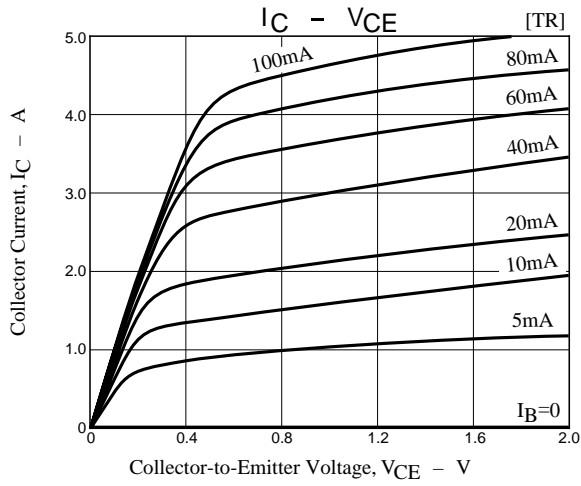
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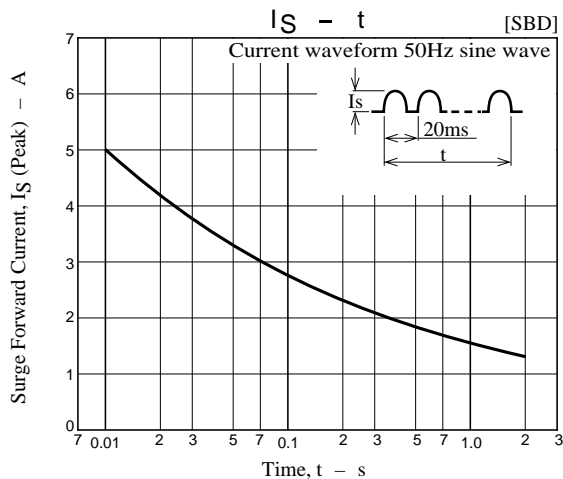
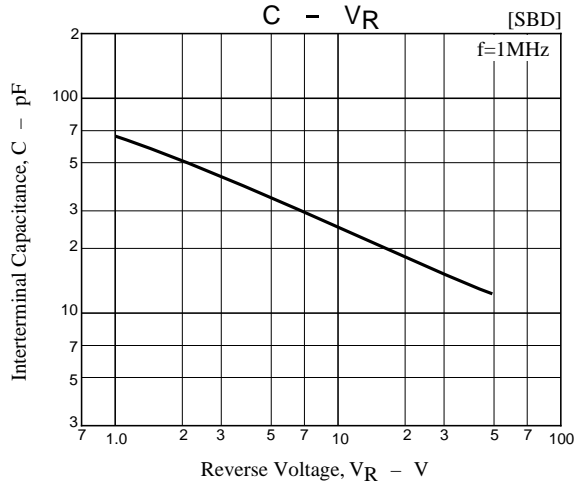
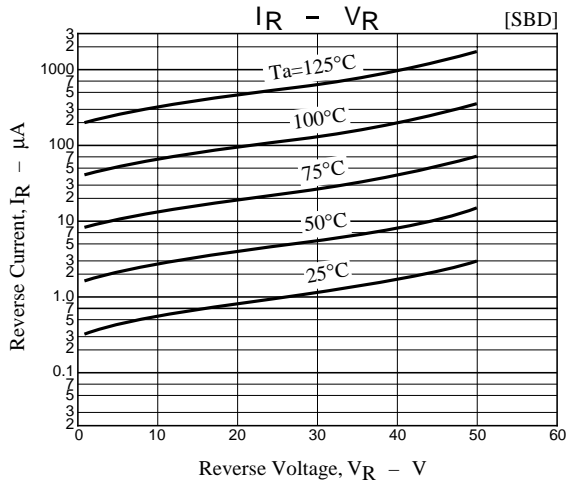
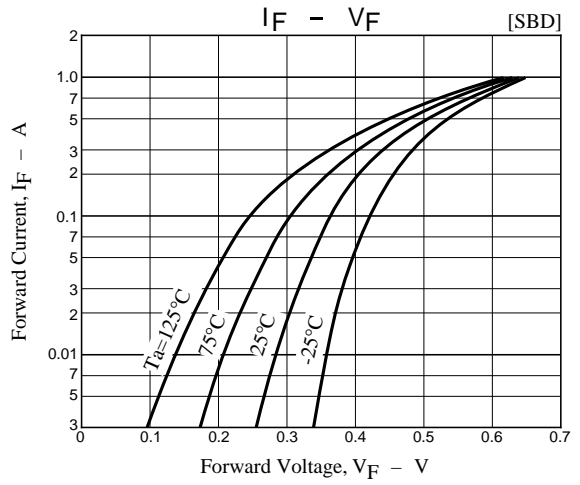
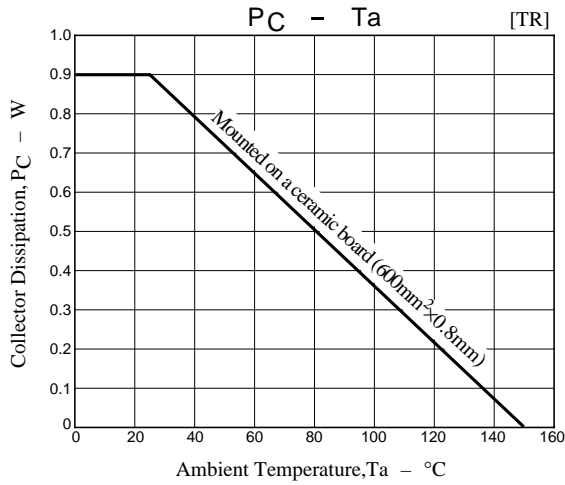
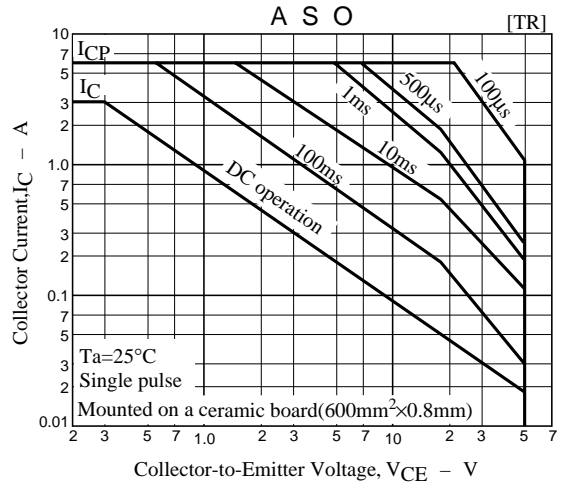
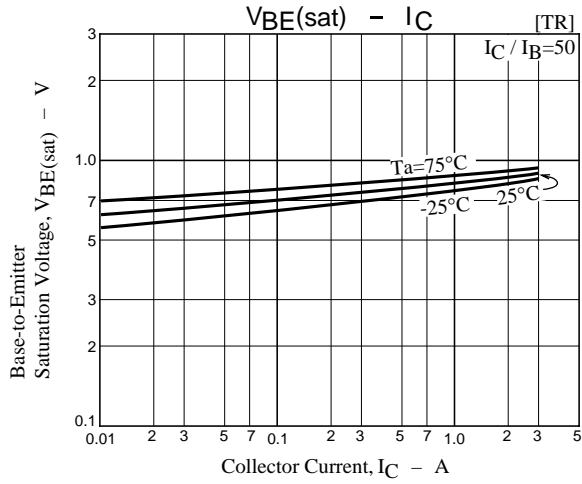
(SBD)



# CPH5703



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