

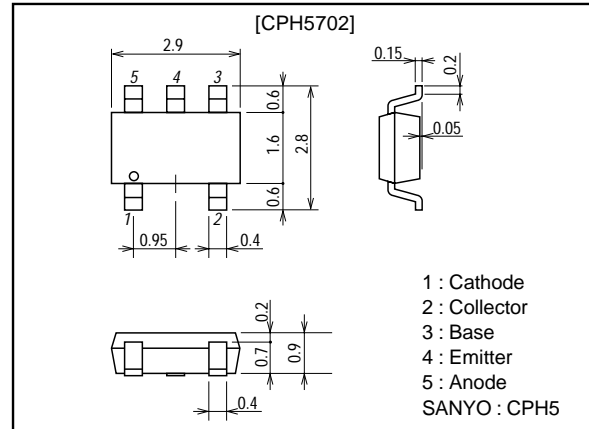
**CPH5702****DC/DC Converter Applications****Features**

- Composite type with a NPN transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- The CPH5702 consists of two chips encapsulated in a package which are equivalent to the CPH3209 and the SB07-03C, 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_{CB0}		40	V
Collector-to-Emitter Voltage	V_{CEO}		30	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 (600mm ² ×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}		30	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		35	V
Average Output Current	I_O		700	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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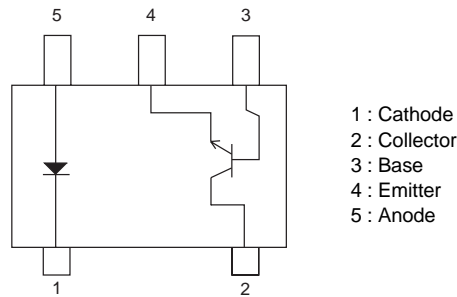
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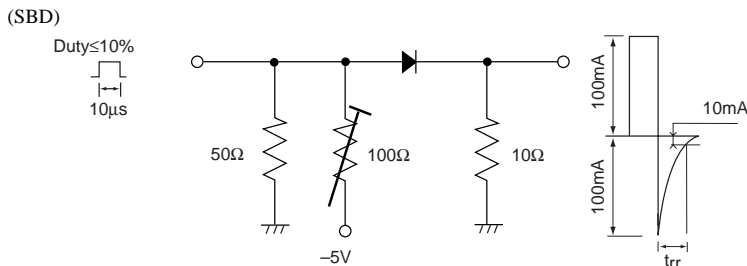
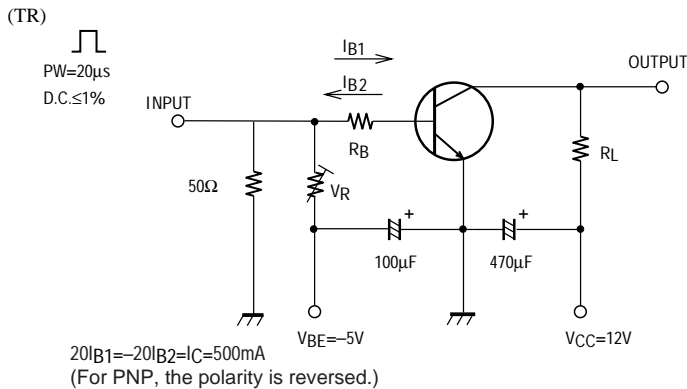
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	$V_{CB}=20V, I_E=0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=2V, I_C=500mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=500mA$		450		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		20		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1.5A, I_B=30mA$		120	185	mV
	$V_{CE(sat)2}$	$I_C=1.5A, I_B=75mA$		105	155	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=30mA$		0.83	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		300		ns
Turn-OFF Time	t_f	See specified Test Circuit.		15		ns
[SBD]						
Reverse Voltage	V_R	$I_R=300\mu A$	30			V
Forward Voltage	V_F	$I_F=700mA$			0.55	V
Reverse Current	I_R	$V_R=15V$			80	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$ cycle		28		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 (600mm ² ×0.8mm)		151		°C/W

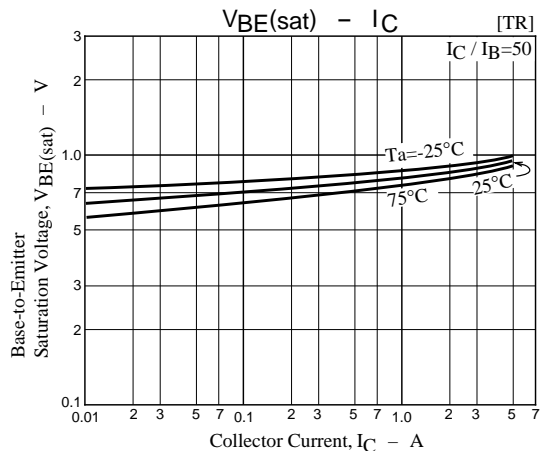
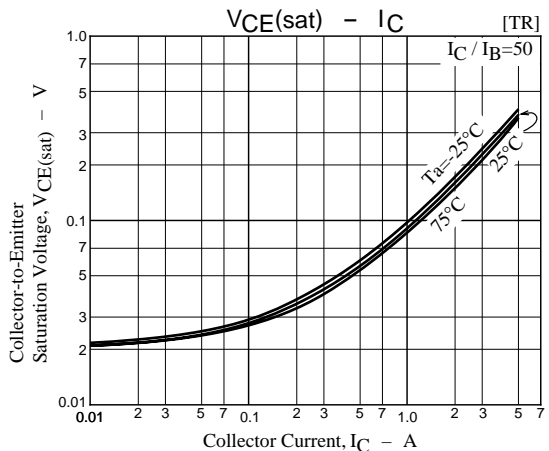
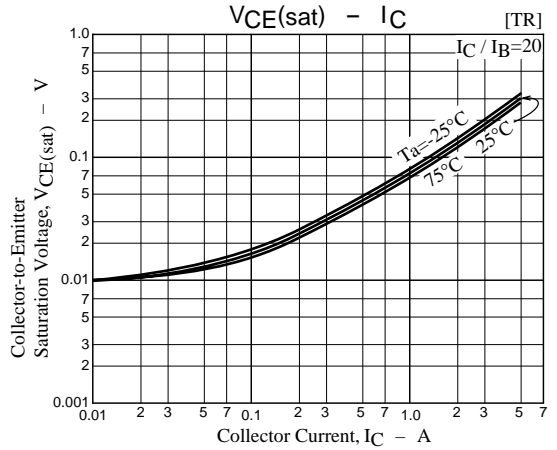
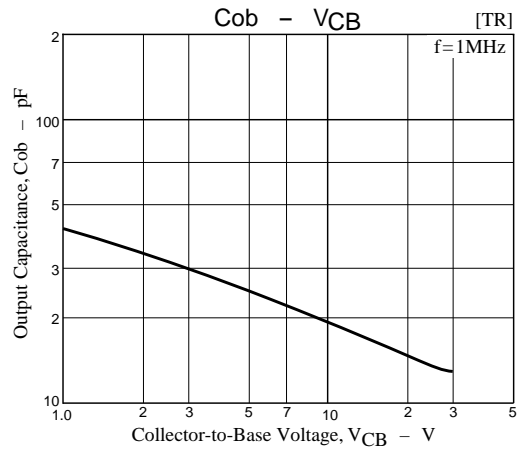
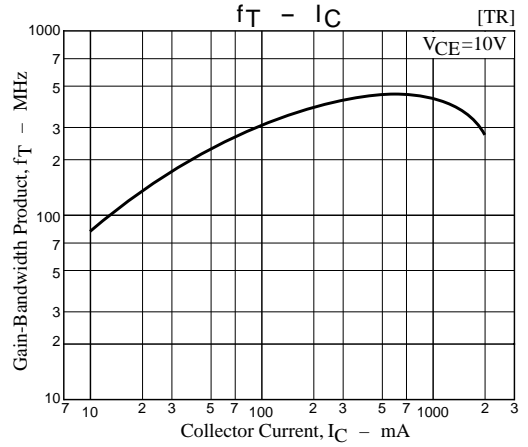
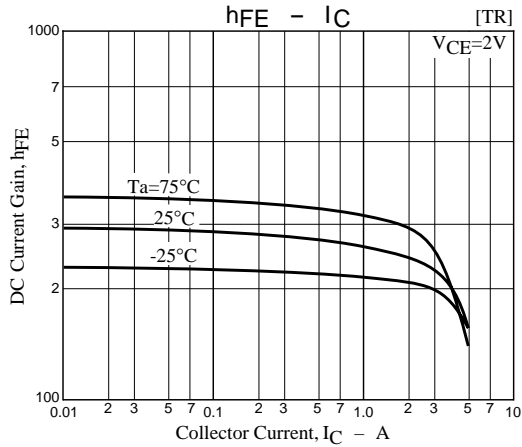
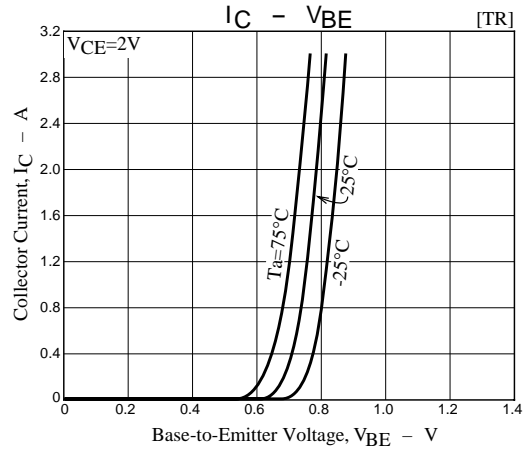
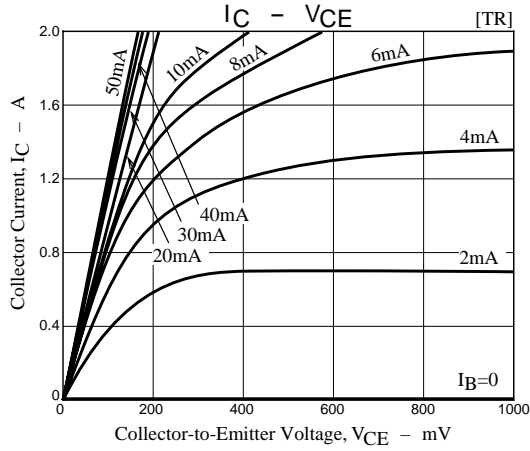
Electrical Connection (Top view)



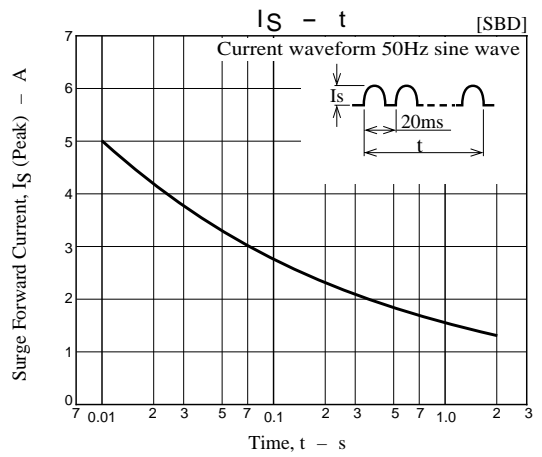
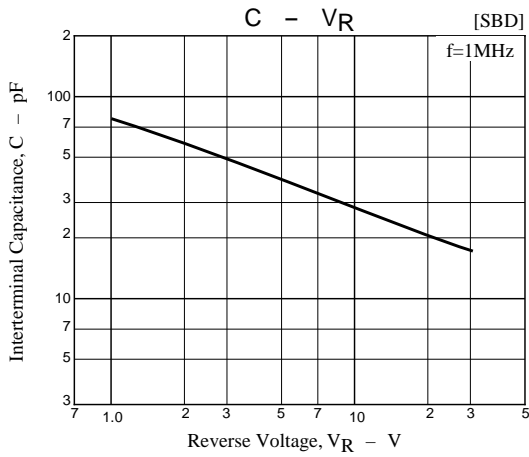
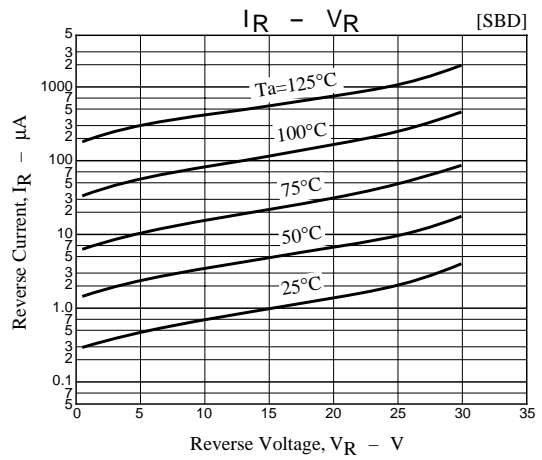
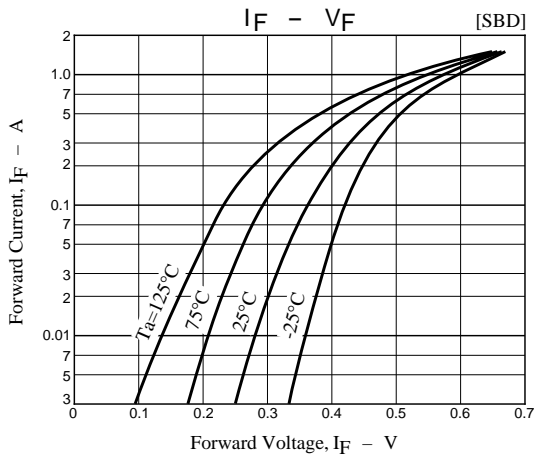
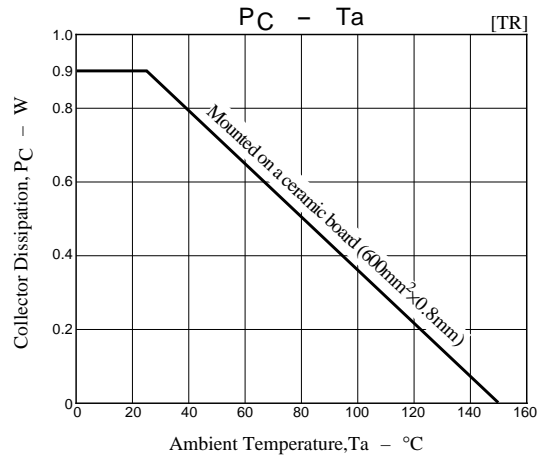
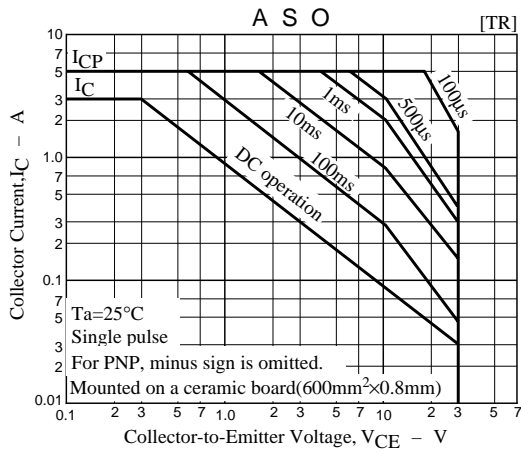
Switching Time Test Circuit



CPH5702



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