

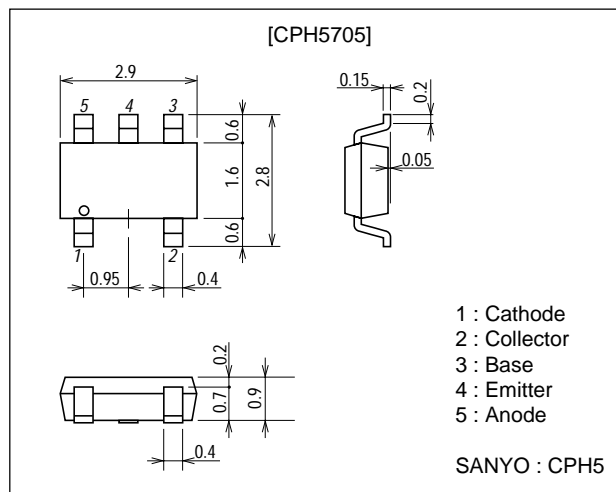
**CPH5705****DC / DC Converter Applications****Features**

- Composite type with a PNP transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- The CPH5705 consists of two chips which are equivalent to the CPH3109 and the SBS004, respectively.
- Ultrasmall package facilitates miniaturization in end products.

**Package Dimensions**

unit : mm

2156

**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>EB0</sub>		-5	V
Collector Current	I <sub>C</sub>		-3	A
Collector Current (Pulse)	I <sub>CP</sub>		-5	A
Base Current	I <sub>B</sub>		-600	mA
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)	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>		15	V
Non-repetitive Peak Reverse Surge Voltage	V <sub>RSM</sub>		15	V
Average Output Current	I <sub>O</sub>		1	A
Surge Forward 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

Marking : PE

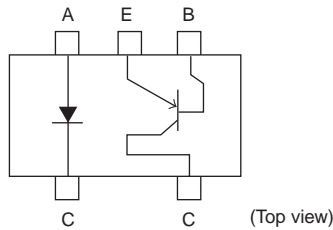
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# CPH5705

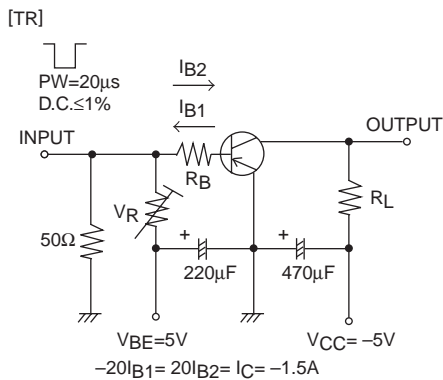
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-12V, I_E=0$			-0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4V, I_C=0$			-0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=-2V, I_C=-0.5A$	200		560	
Gain Bandwidth Product	$f_T$	$V_{CE}=-2V, I_C=-0.5A$		380		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10V, f=1MHz$		25		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-1.5A, I_B=-30mA$		-155	-230	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	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		50		ns
Storage Time	$t_{stg}$	See specified Test Circuit		270		ns
Fall Time	$t_f$	See specified Test Circuit		25		ns
[SBD]						
Reverse Voltage	$V_R$	$I_R=1mA$	15			V
Forward Voltage	$V_{F1}$	$I_F=0.5A$		0.30	0.35	V
	$V_{F2}$	$I_F=1A$		0.35	0.40	V
Reverse Current	$I_R$	$V_R=6V$			500	$\mu A$
Interterminal Capacitance	$C$	$V_R=10V, f=1MHz$		42		pF
Reverse Recovery Time	$t_{rr}$	$I_F=I_R=100mA$ , See specified Test Circuit			15	ns
Thermal Resistance	$R_{th j-a}$	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)		110		°C/W

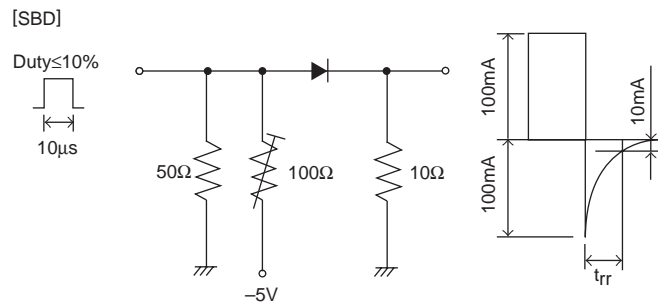
## Electrical Connection



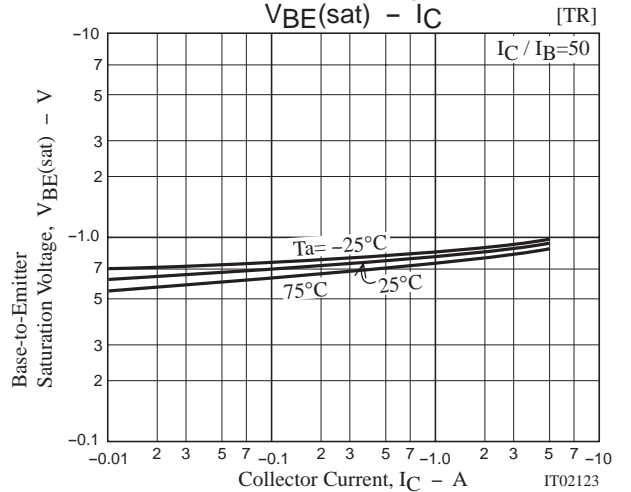
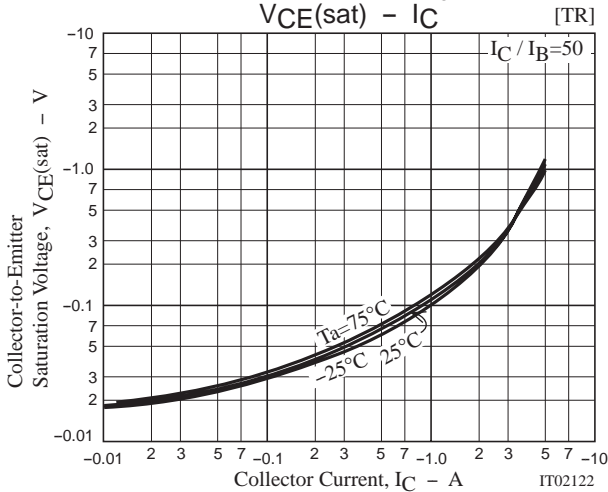
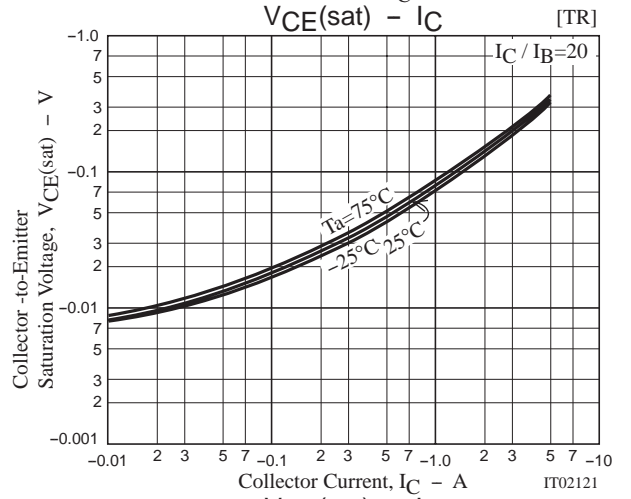
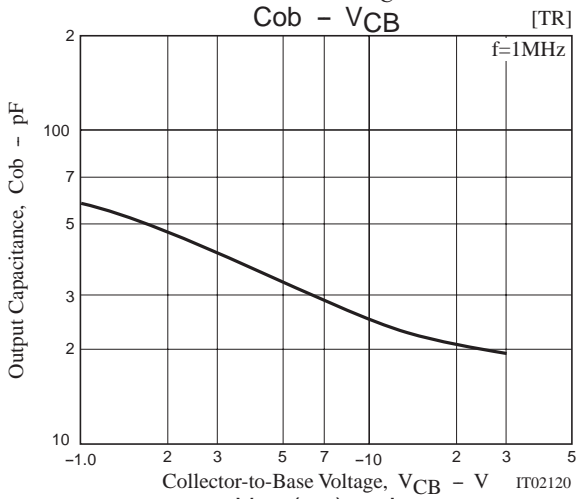
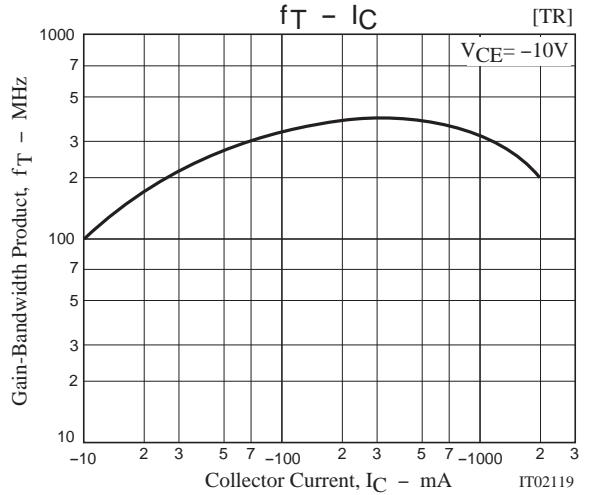
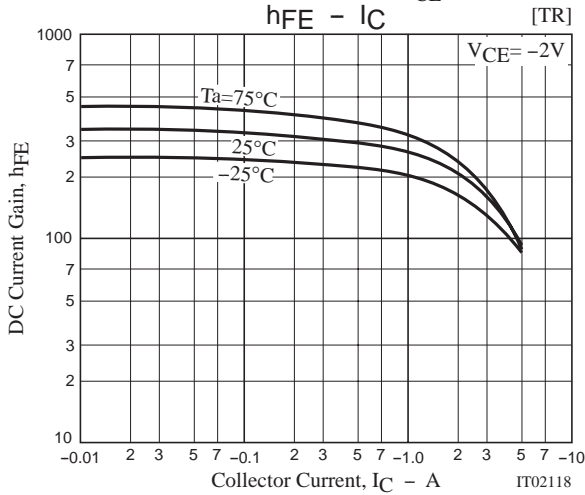
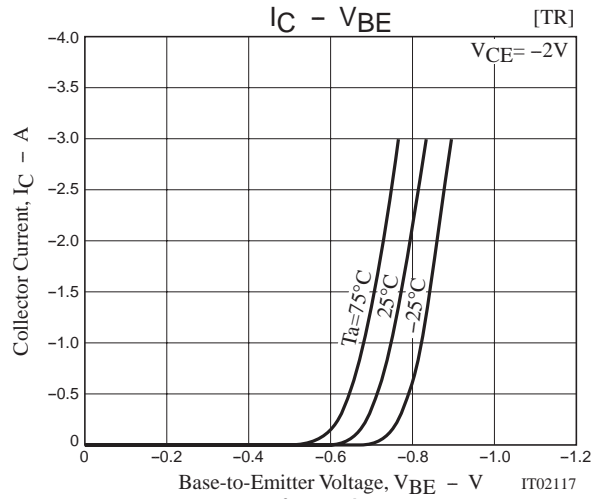
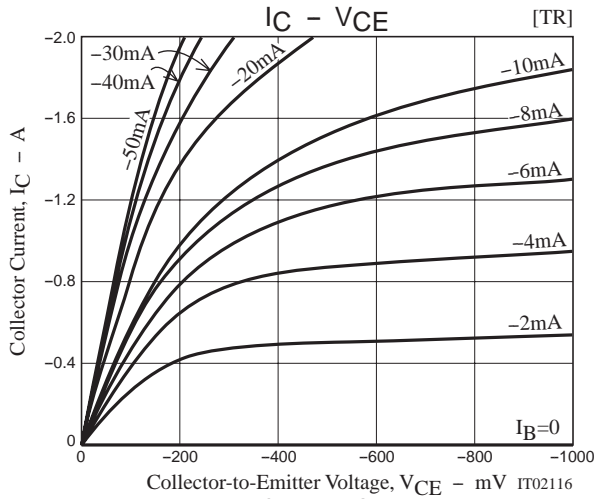
## Switching Time Test Circuit

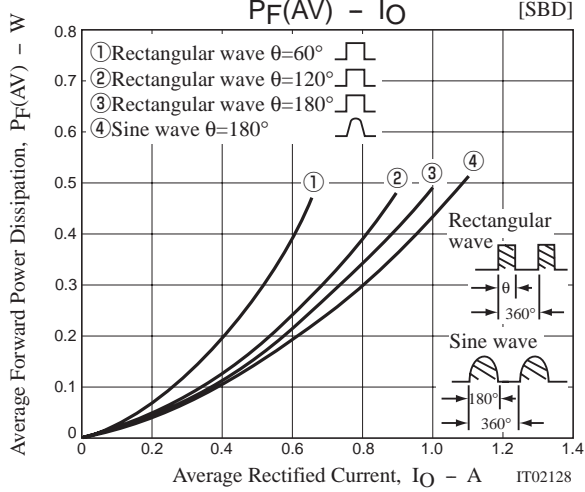
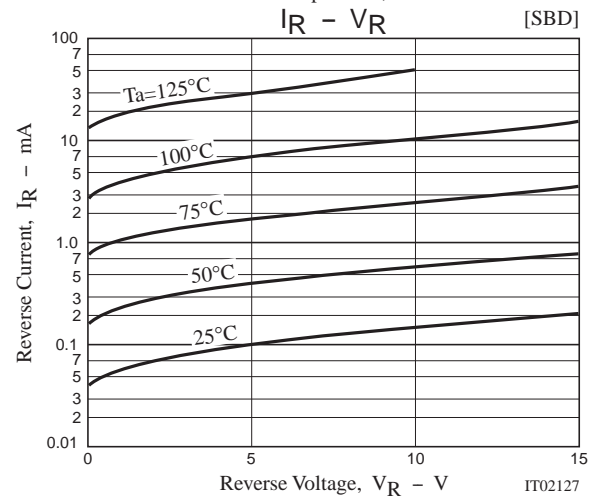
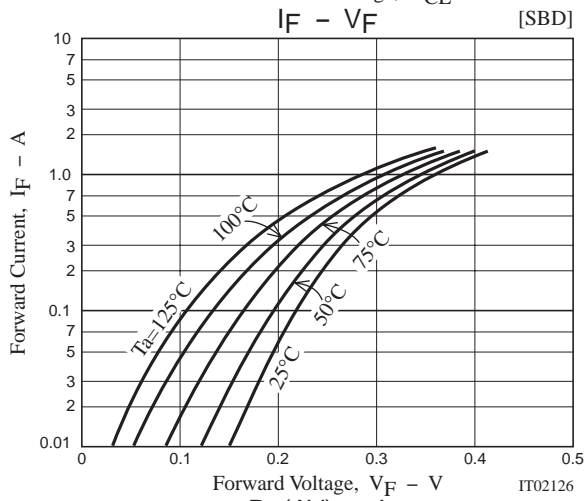
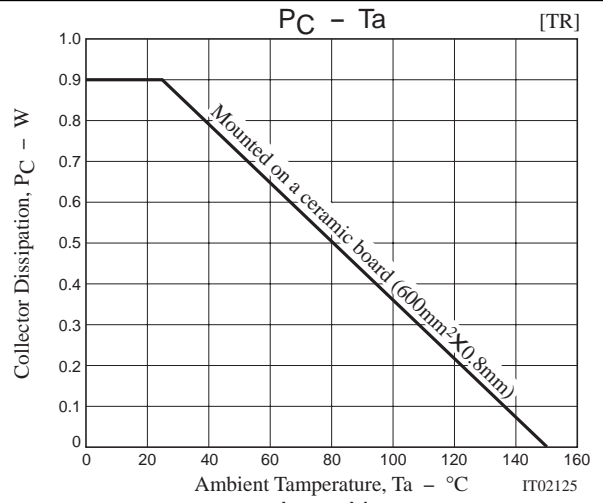
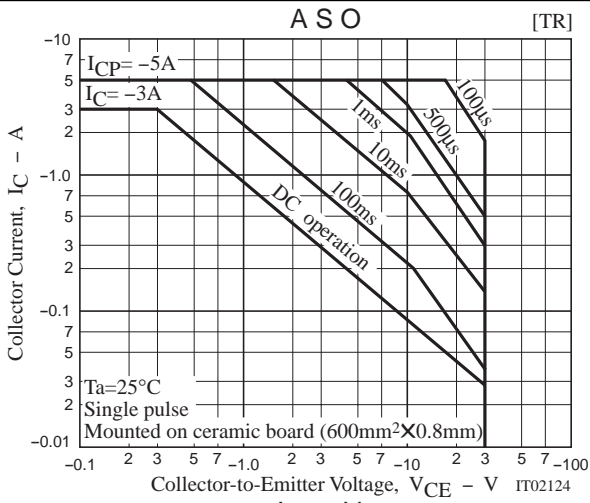


## t<sub>rr</sub> Test Circuit



# CPH5705





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