

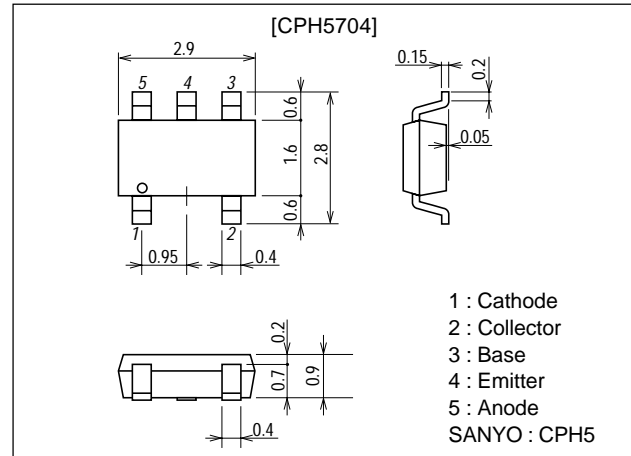
**CPH5704****DC/DC Converter Applications****Features**

- Composite type with an NPN transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- Each device incorporated in the CPH5704 is equivalent to the CPH3206 and to the SBS004, respectively.
- Ultrasmall package facilitates miniaturization in end products.

**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	$V_{CBO}$		15	V
Collector-to-Emitter Voltage	$V_{CEO}$		15	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 <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	$V_{RRM}$		15	V
Non-repetitive Peak Reverse Surge Voltage	$V_{RSM}$		15	V
Average Output Current	$I_O$		1	A
Surge Current	$I_{FSM}$	50Hz sine wave, 1 cycle	10	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**

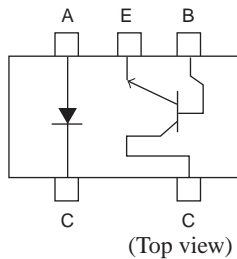
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# CPH5704

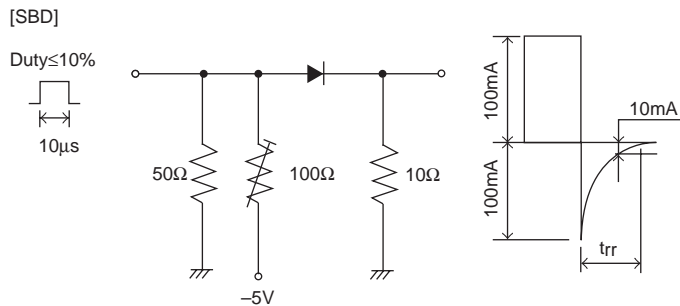
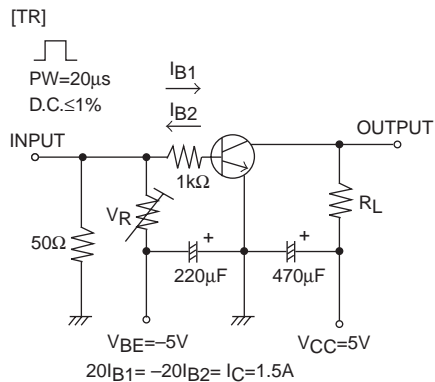
## Electrical Characteristics at Ta = 25°C

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	$C_{ob}$	$V_{CB}=10V, f=1MHz$		23		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=30mA$		100	150	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	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	15			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.		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		210		ns
Fall Time	$t_f$	See specified Test Circuit.		11		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	$R_{thj-a}$	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)		110		°C/W

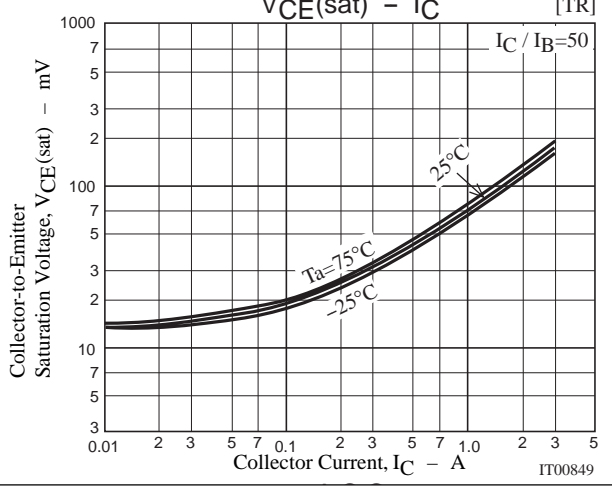
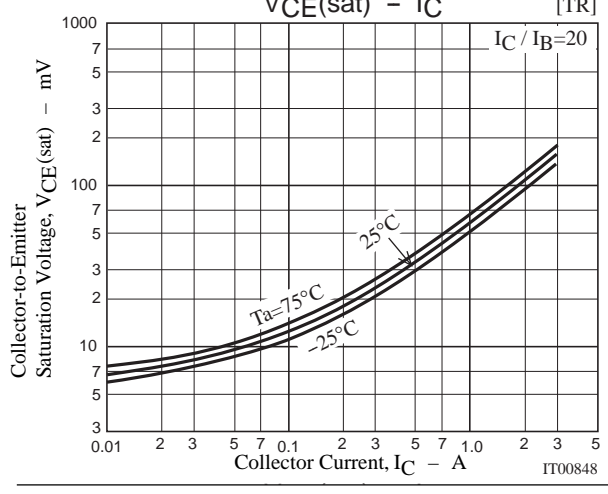
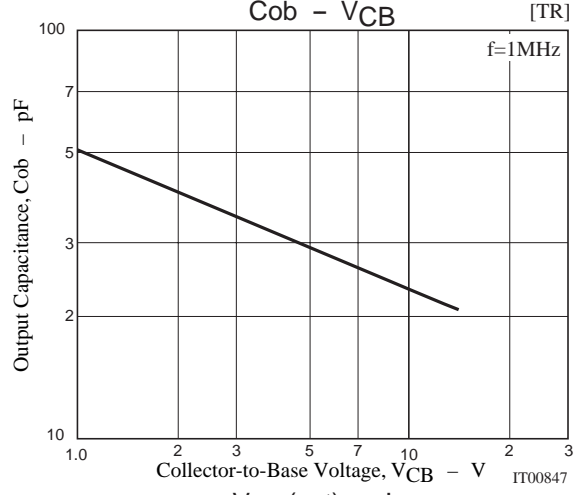
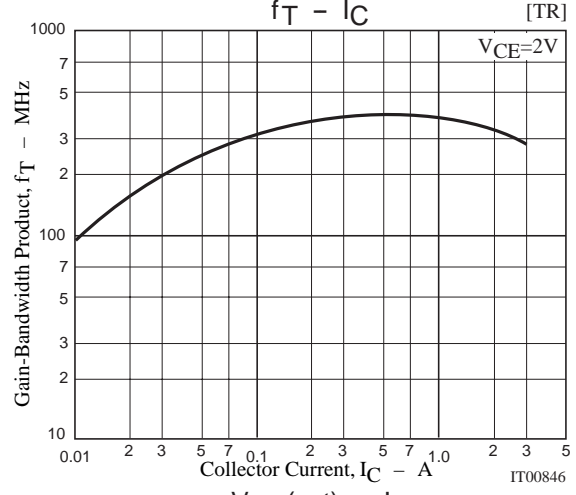
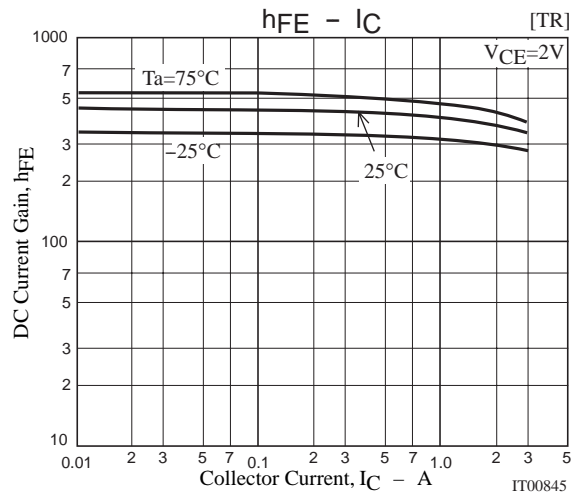
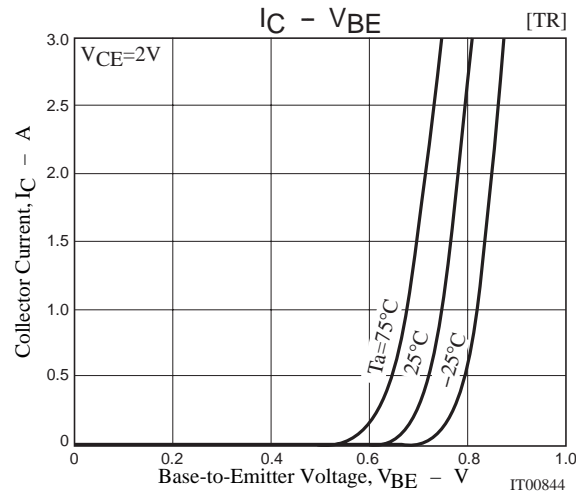
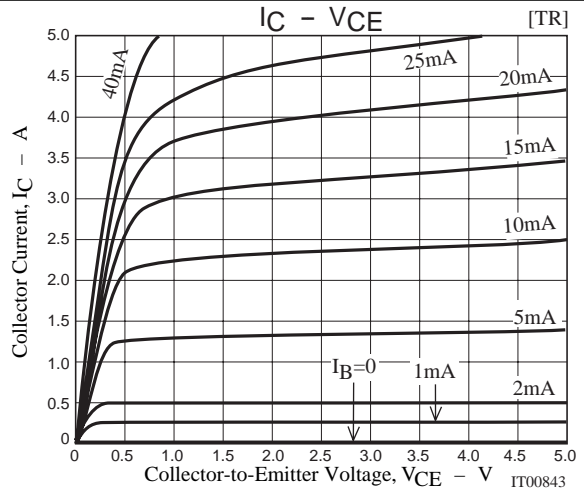
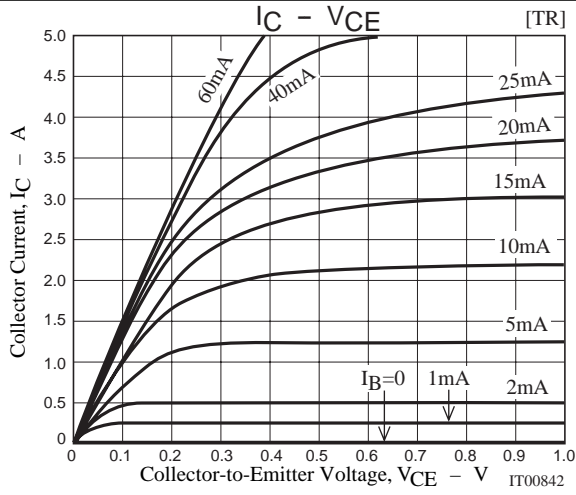
## Electrical Connection



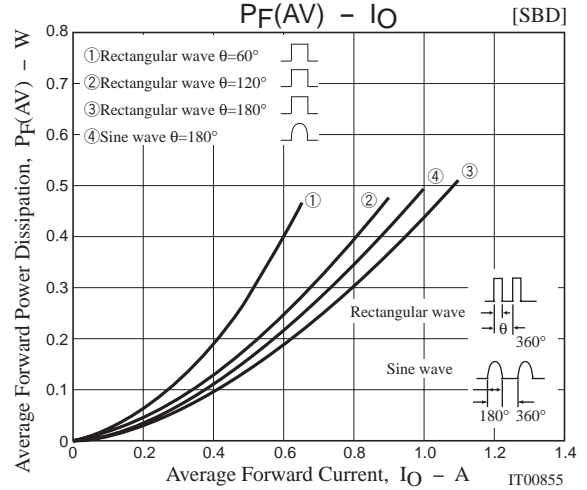
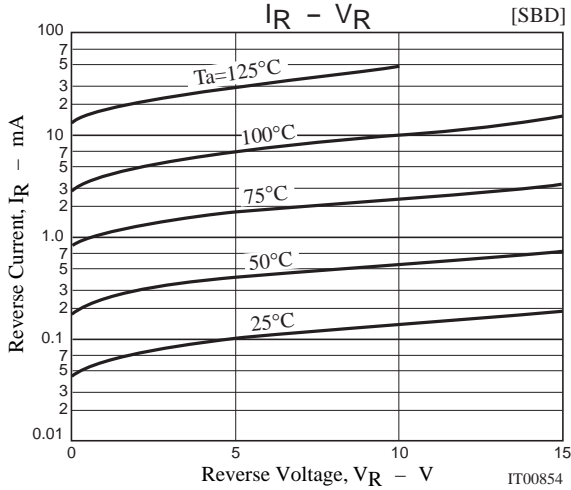
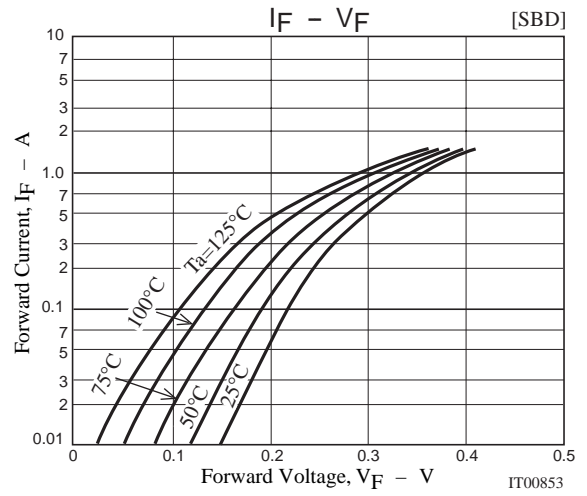
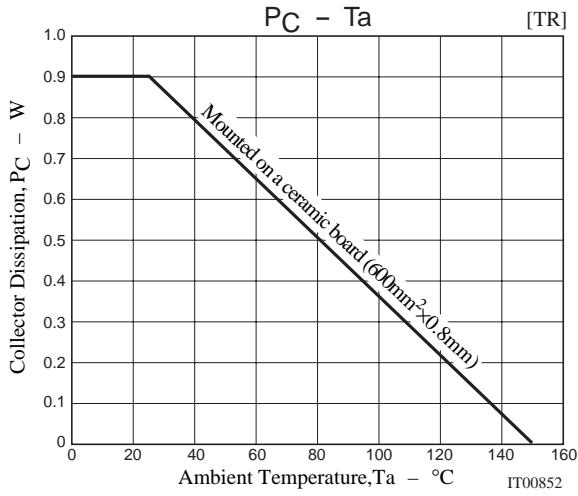
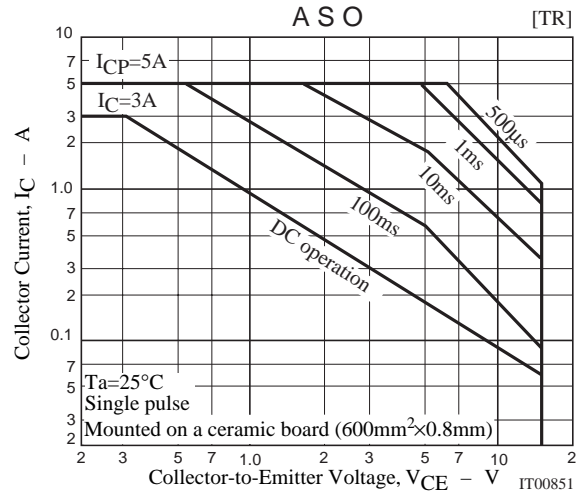
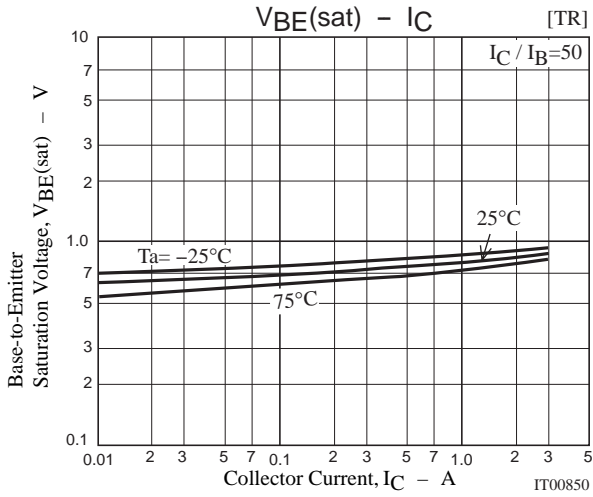
## Switching Time Test Circuit



# CPH5704



# CPH5704



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