

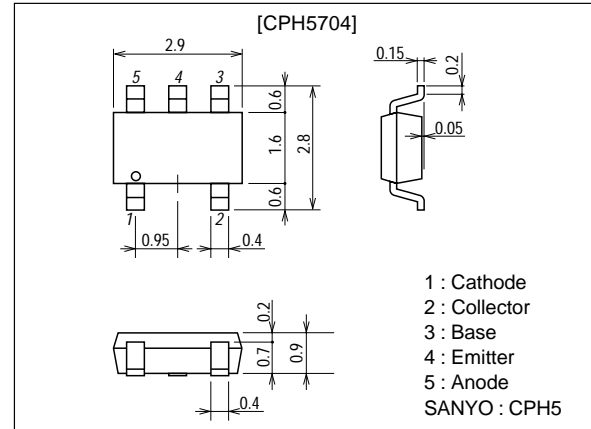
**CPH5704****DC/DC Converter Applications****Features**

- 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_{CB0} | | 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 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} | | 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 assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

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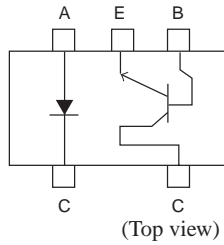
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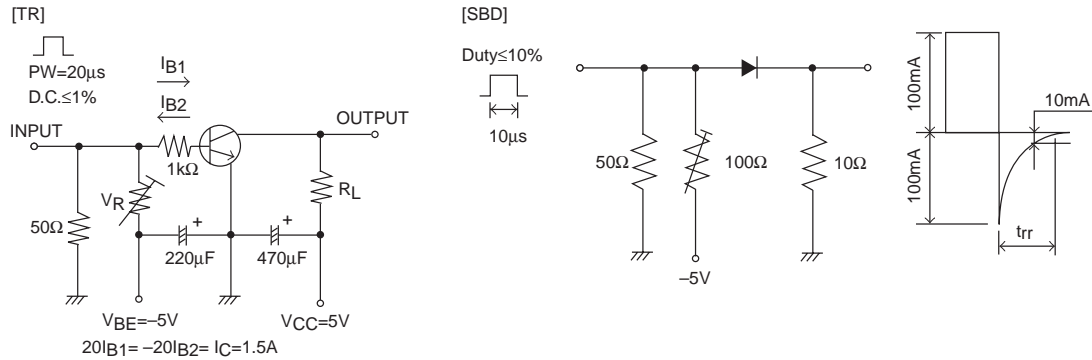
Electrical Characteristics at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|--|---------|------|------|---------|
| | | | min | typ | max | |
| [TR] | | | | | | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=12V, I_E=0$ | | | 0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=4V, I_C=0$ | | | 0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=2V, I_C=0.5A$ | 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 | μA |
| 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 | Rthj-a | Mounted on a ceramic board (600mm ² ×0.8mm) | | 110 | | °C/W |

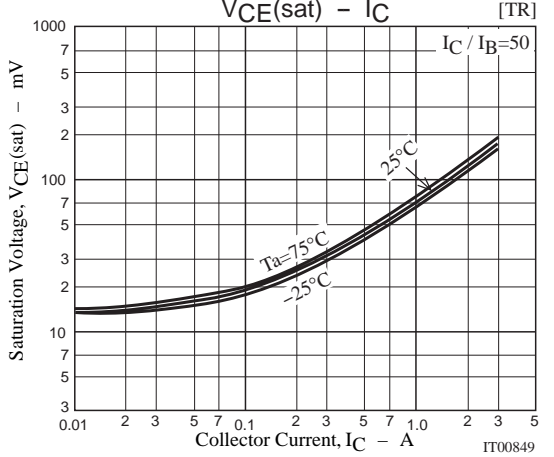
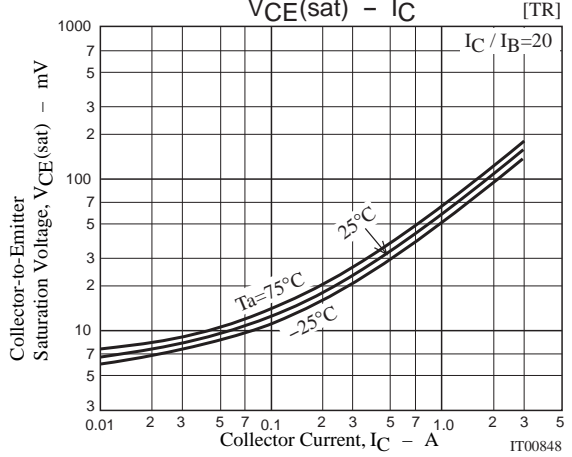
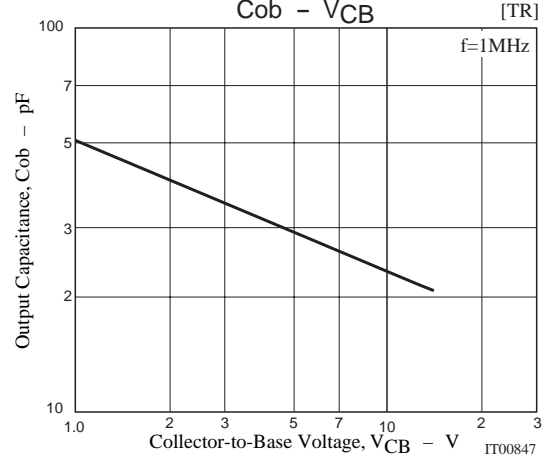
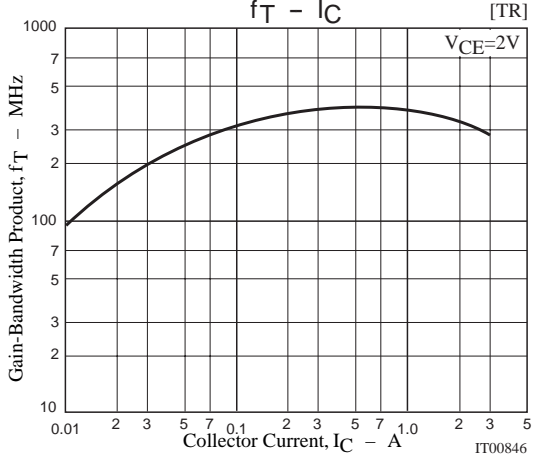
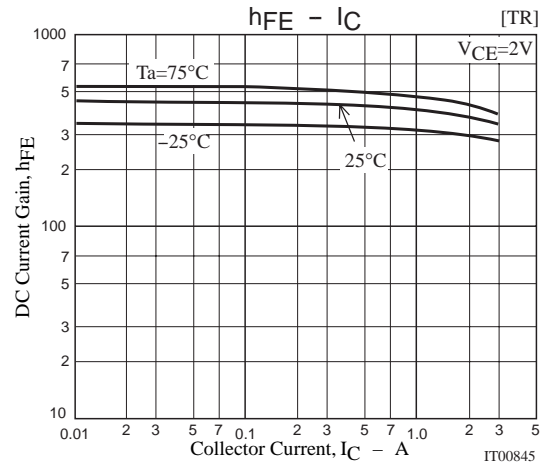
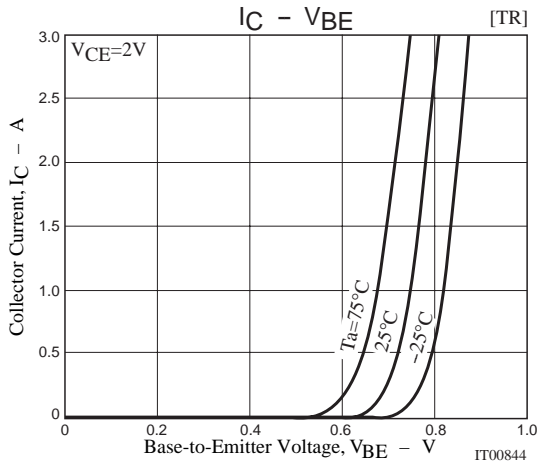
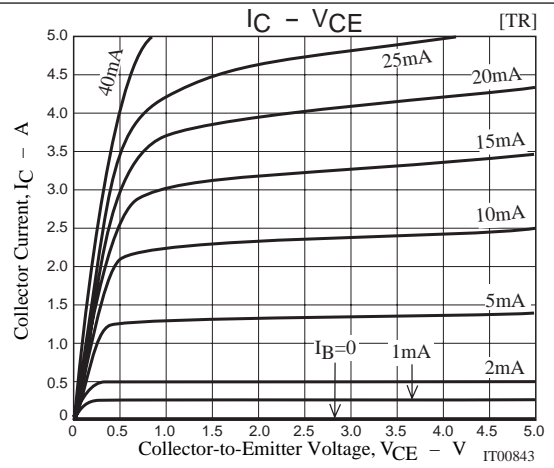
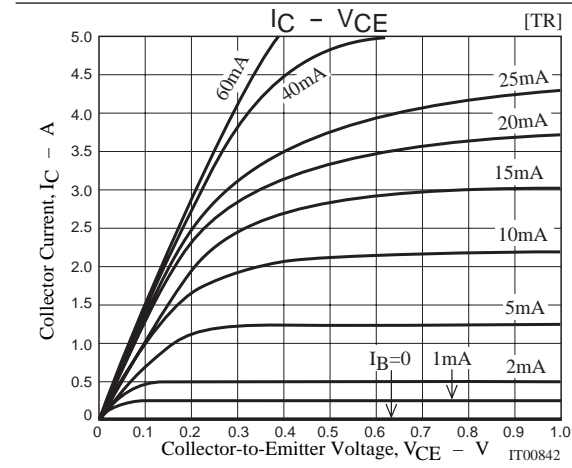
Electrical Connection



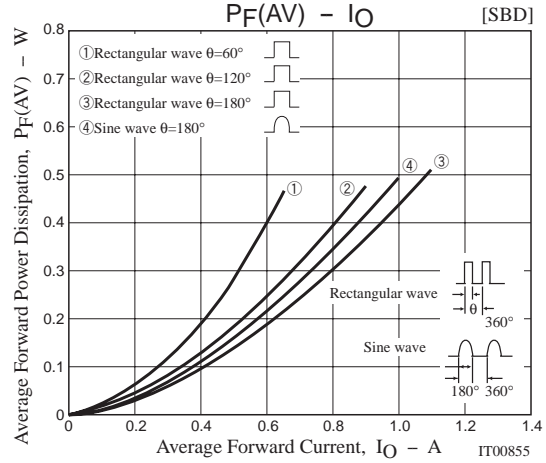
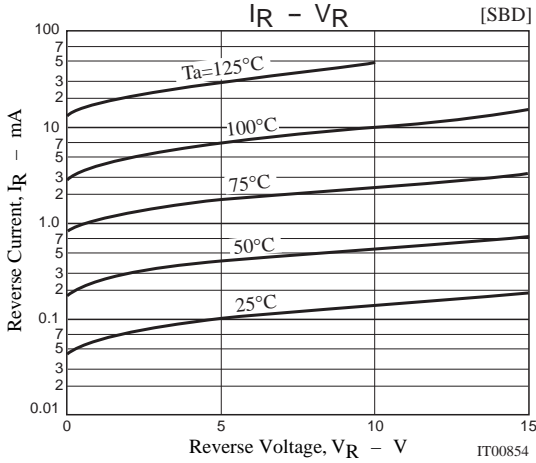
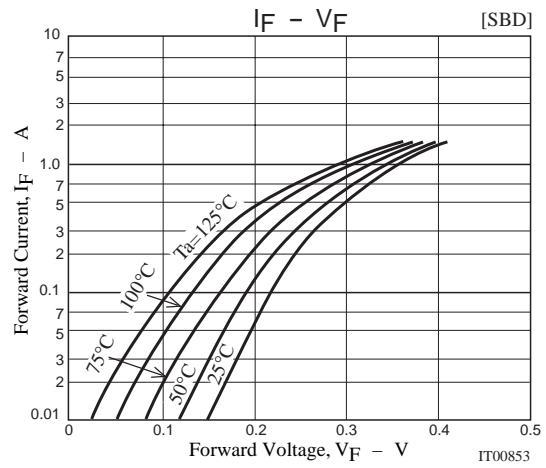
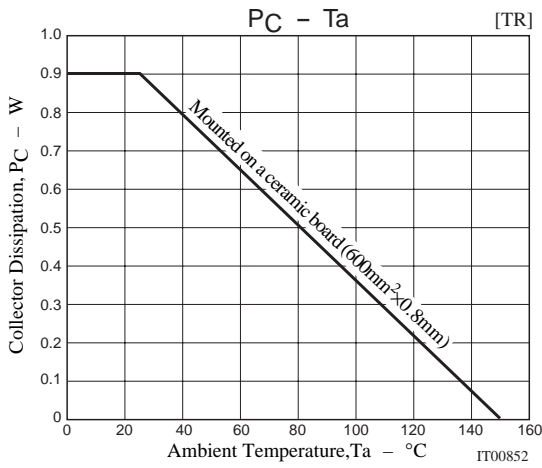
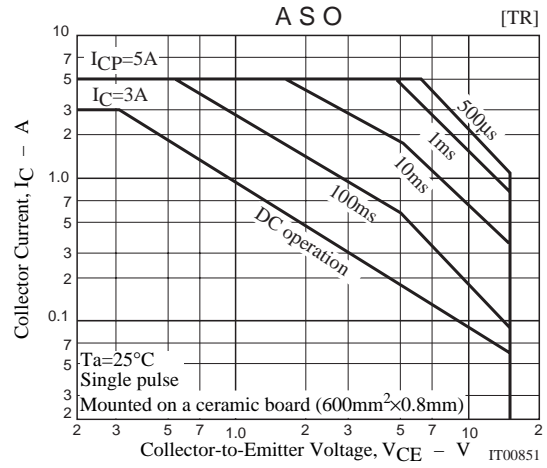
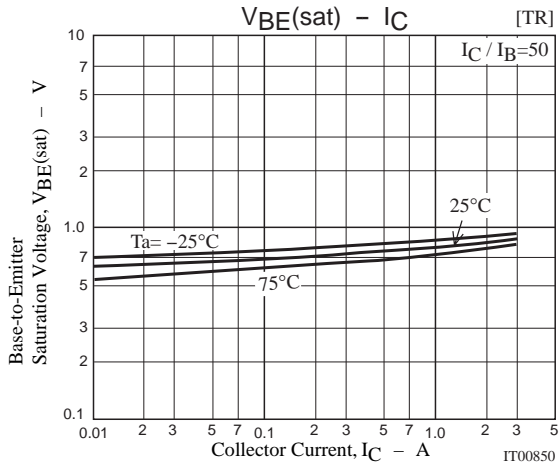
Switching Time Test Circuit



CPH5704



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