

**CPH5505****DC/DC Converter Applications****Applications**

- Relay drivers, lamp drivers, motor drivers, strobes.

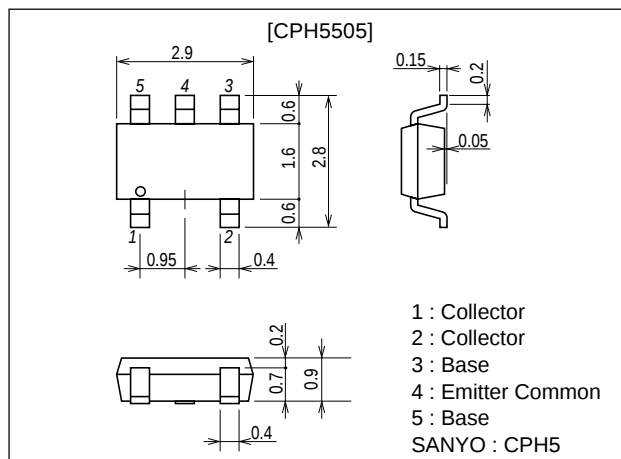
**Features**

- Composite type with two PNP transistors contained in a single package facilitating high-density mounting.
- The CPH5505 consists of two chips which are equivalent to the CPH3109 encapsulated in a package.
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm).

**Package Dimensions**

unit:mm

2182

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

| Parameter                    | Symbol    | Conditions                                             | Ratings     | Unit |
|------------------------------|-----------|--------------------------------------------------------|-------------|------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                                                        | -30         | 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 <sup>2</sup> ×0.8mm) | 0.9         | W    |
| Total Dissipation            | $P_T$     | Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) | 1.2         | W    |
| Junction Temperature         | $T_j$     |                                                        | 150         | °C   |
| Storage Temperature          | $T_{stg}$ |                                                        | -55 to +150 | °C   |

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ 

| Parameter                | Symbol    | Conditions                                  | Ratings |     |      | Unit |
|--------------------------|-----------|---------------------------------------------|---------|-----|------|------|
|                          |           |                                             | min     | typ | max  |      |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB} = -30\text{V}, I_E = 0$             |         |     | -0.1 | μA   |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB} = -4\text{V}, I_C = 0$              |         |     | -0.1 | μA   |
| DC Current Gain          | $h_{FE}$  | $V_{CE} = -2\text{V}, I_C = -500\text{mA}$  | 200     |     | 560  |      |
| Gain-Bandwidth Product   | $f_T$     | $V_{CE} = -10\text{V}, I_C = -500\text{mA}$ |         | 380 |      | MHz  |
| Output Capacitance       | $C_{ob}$  | $V_{CB} = -10\text{V}, f = 1\text{MHz}$     |         | 25  |      | pF   |

Marking CPH5505 : EE

Continued on next page.

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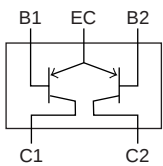
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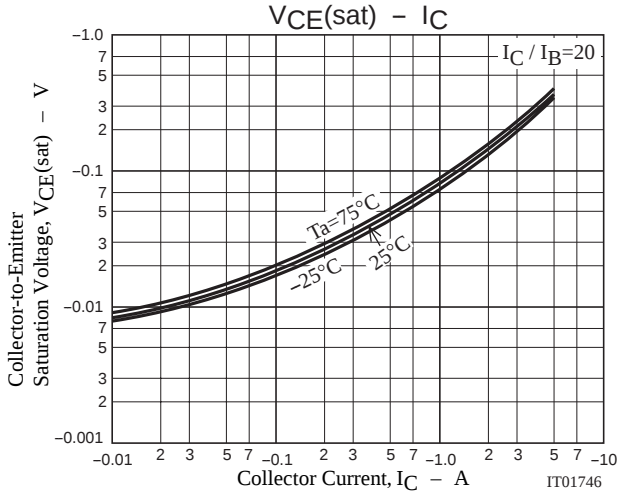
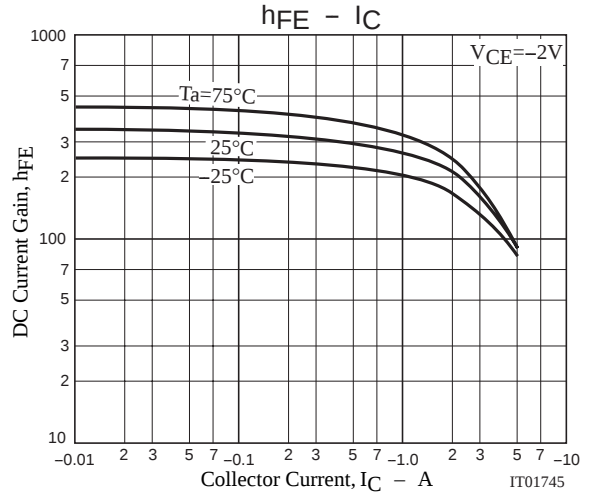
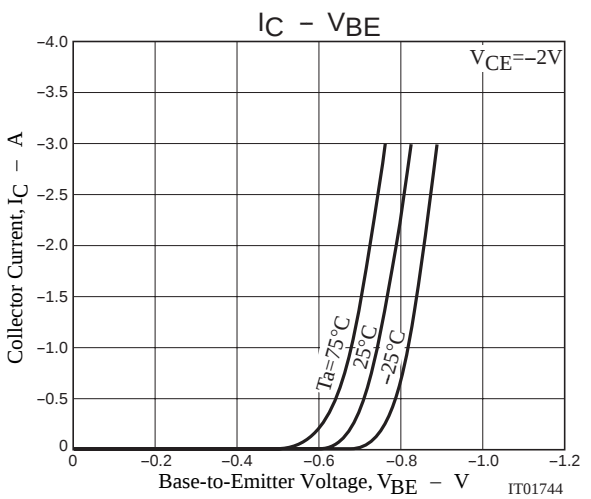
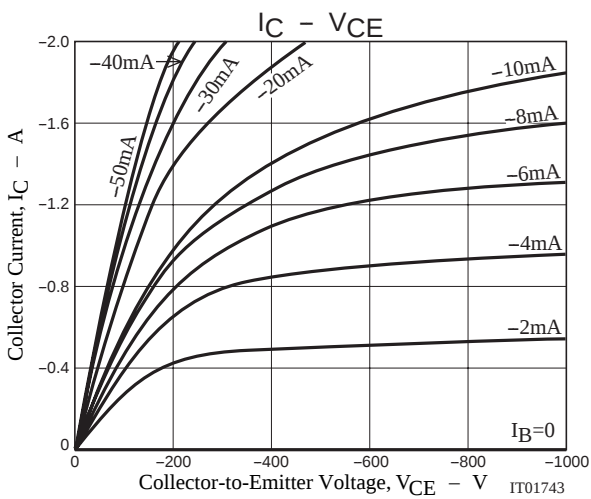
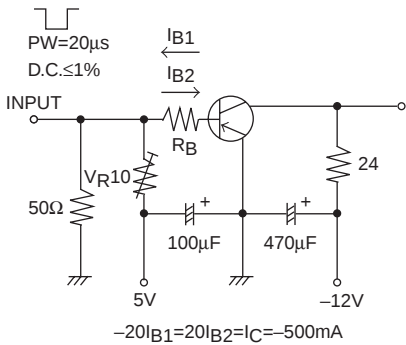
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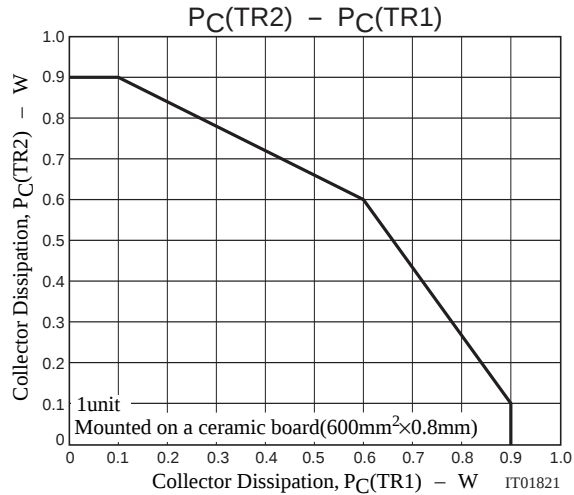
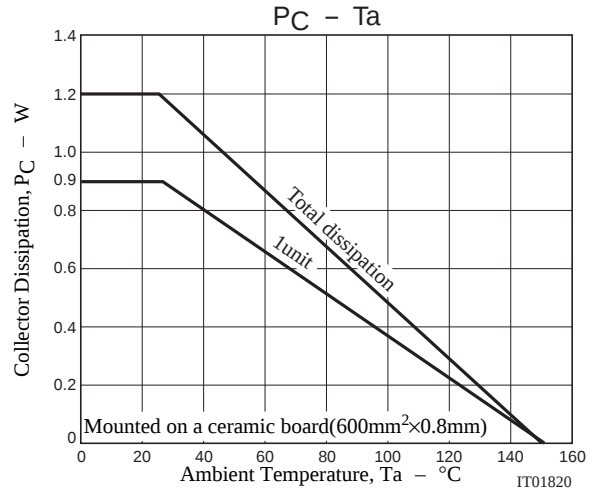
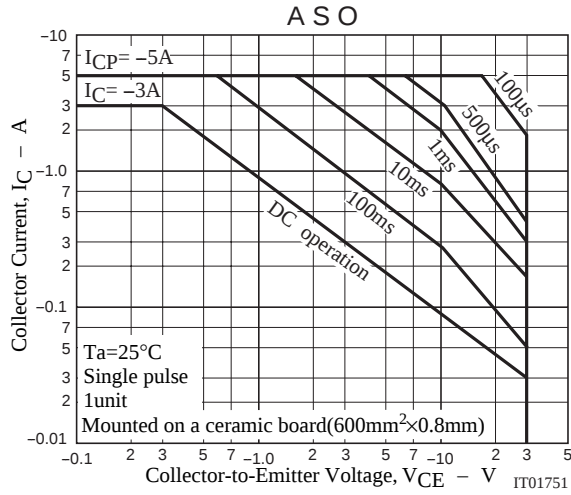
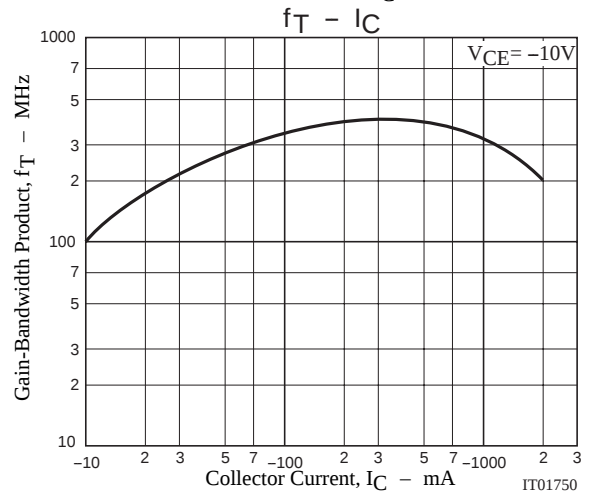
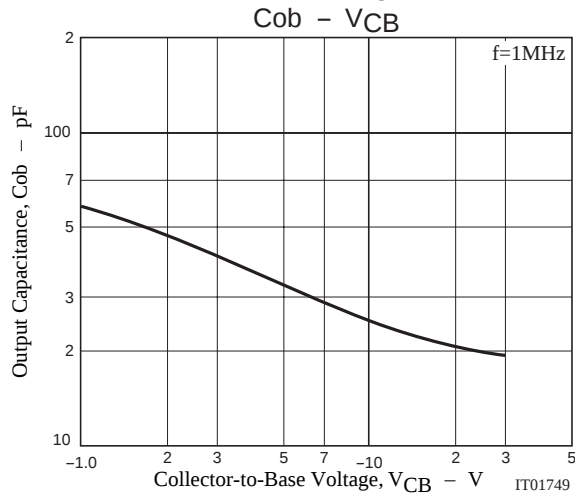
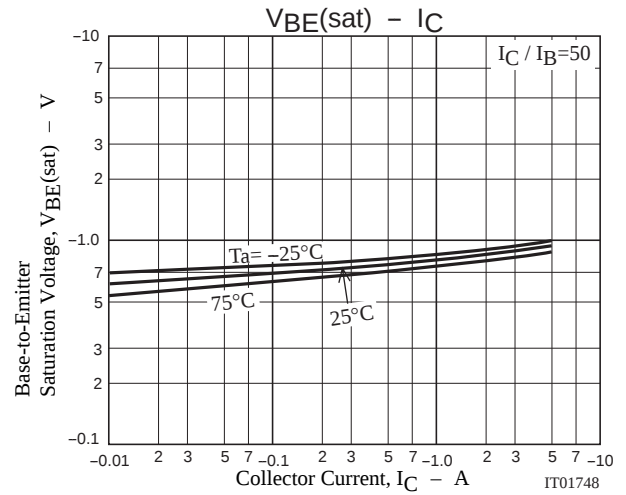
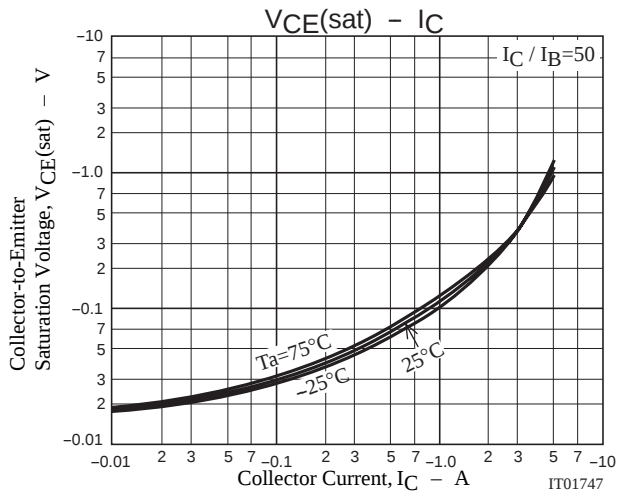
| Parameter                               | Symbol         | Conditions                    | Ratings |       |      | Unit |
|-----------------------------------------|----------------|-------------------------------|---------|-------|------|------|
|                                         |                |                               | min     | typ   | max  |      |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)1}$ | $I_C = -1.5A, I_B = -30mA$    |         | -155  | -230 | 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     | $V_{(BR)CBO}$  | $I_C = -10\mu A, I_E = 0$     | -30     |       |      | V    |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$  | $I_C = -1mA, R_{BE} = \infty$ | -30     |       |      | V    |
| Emitter-to-Base Breakdown Voltage       | $V_{(BR)EBO}$  | $I_C = -10\mu A, I_C = 0$     | -5      |       |      | V    |
| Turn-ON Time                            | $t_{on}$       | See specified Test Circuit.   |         | 50    |      | ns   |
| Storage Time                            | $t_{stg}$      | See specified Test Circuit.   |         | 270   |      | ns   |
| Turn-OFF Time                           | $t_f$          | See specified Test Circuit.   |         | 25    |      | ns   |

Electrical Connection



Switching Time Test Circuit





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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

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