



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH3121 / CPH3221 — PNP / NPN Epitaxial Planar Silicon Transistors DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash.

Features

- Adoption of MBIT processes.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm).
- High allowable power dissipation.

Specifications () : CPH3121

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | (-)15 | V |
| Collector-to-Emitter Voltage | V _{CE0} | | (-12)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 +150 | °C |

Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|------------------|--|---------|----------|--------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I _{CB0} | 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 =(-)500mA | 200 | | 560 | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)2V, I _C =(-)500mA | | (380)350 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-)10V, f=1MHz | | (40)23 | | pF |

Marking : CPH3121 : AS, CPH3221 : CS

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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

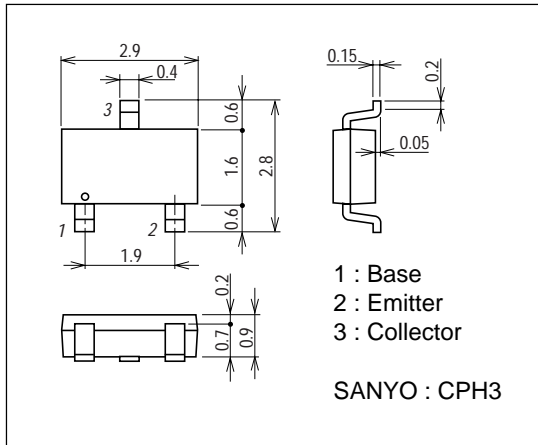
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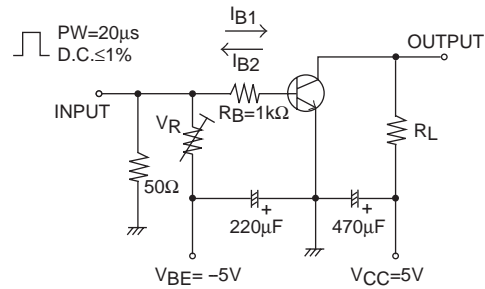
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|-----------|-----------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)1.5A, I_B=(-)30mA$ | | (-110)115 | (-165)175 | mV |
| Base-to-Emitter 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 | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-12)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)30 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | (90)210 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | (14)11 | | ns |

Package Dimensions

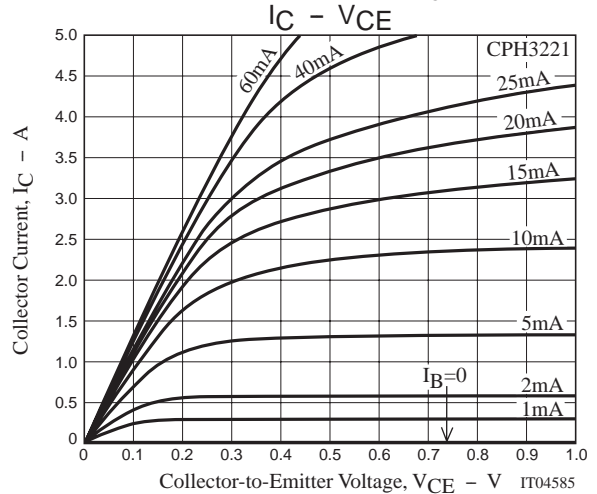
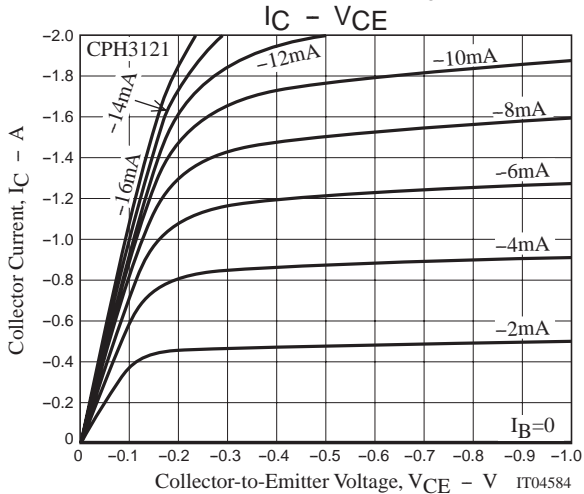
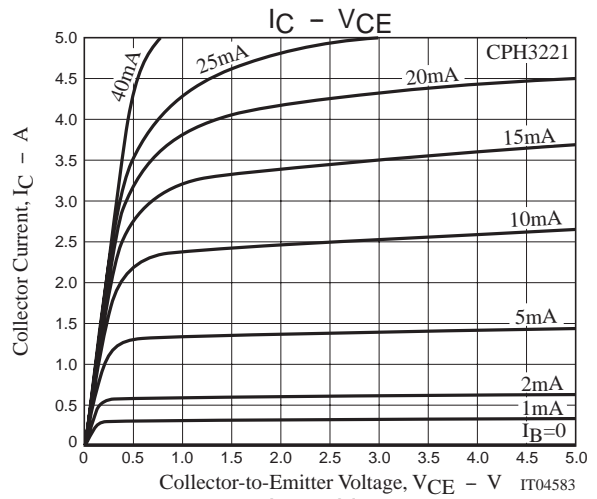
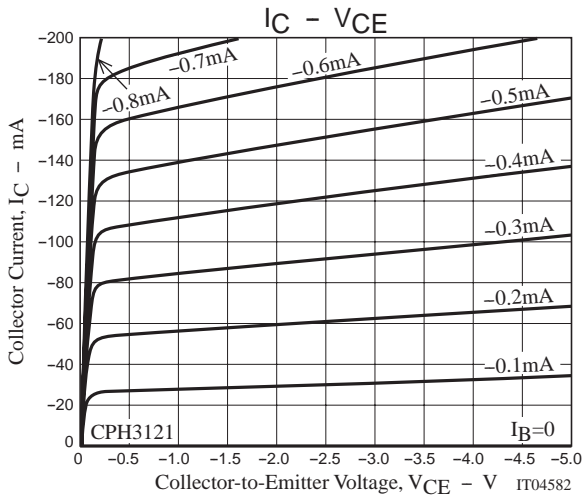
unit : mm
2150A



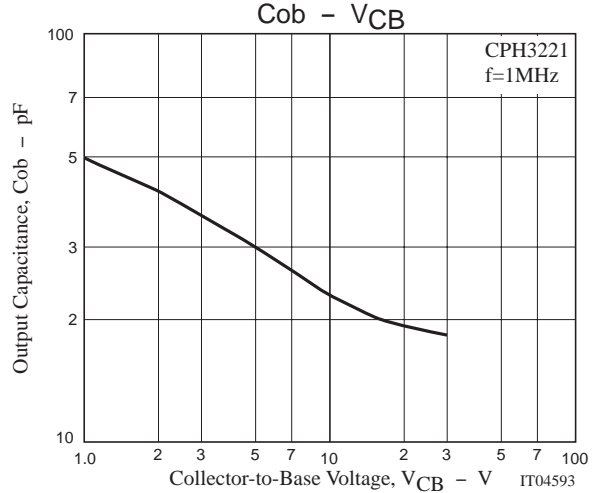
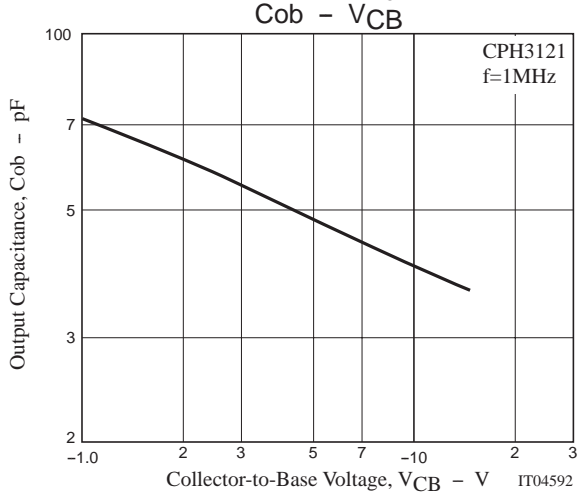
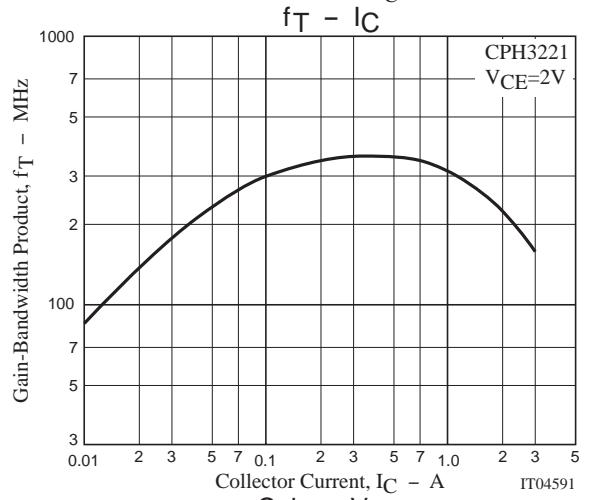
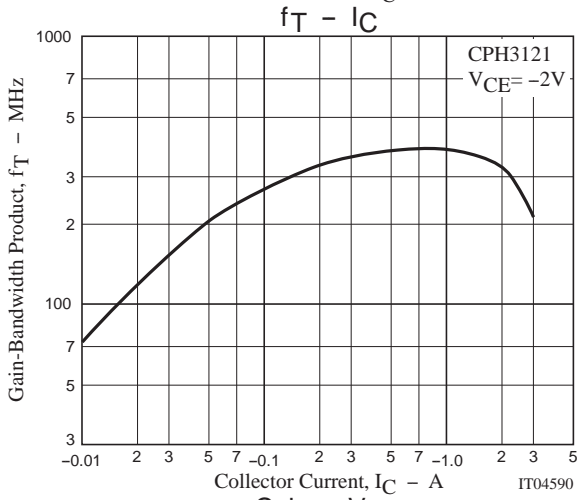
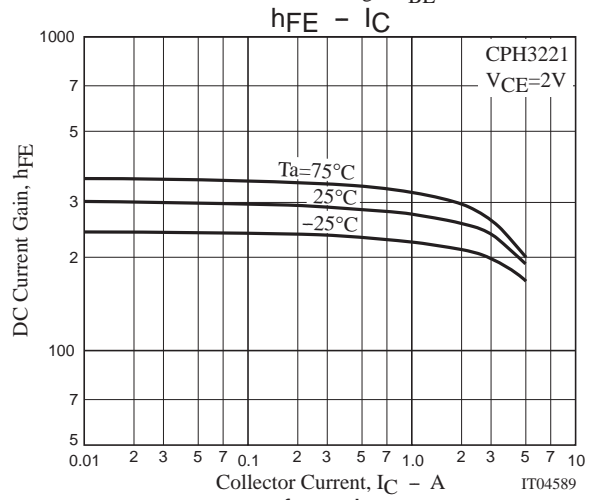
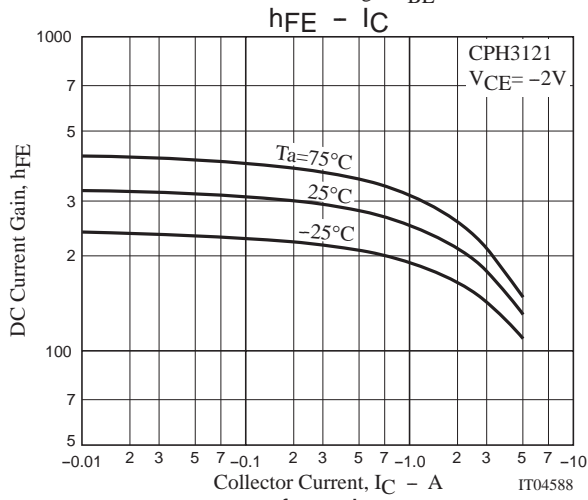
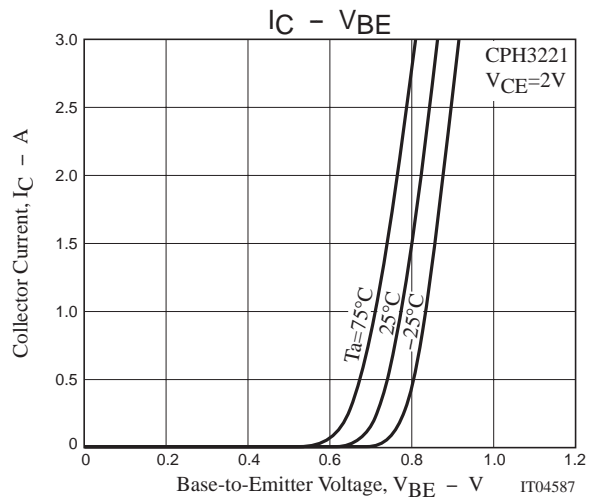
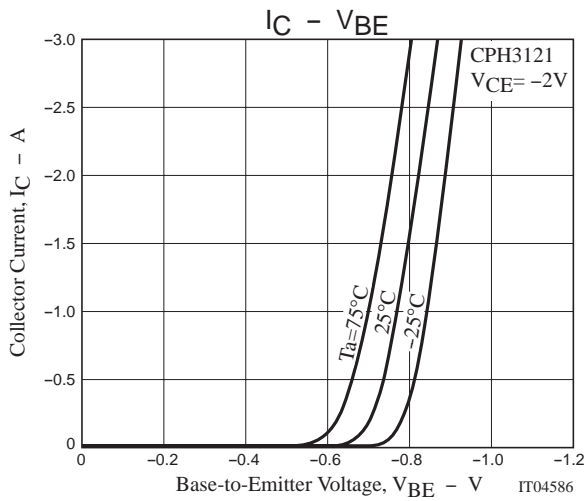
Switching Time Test Circuit



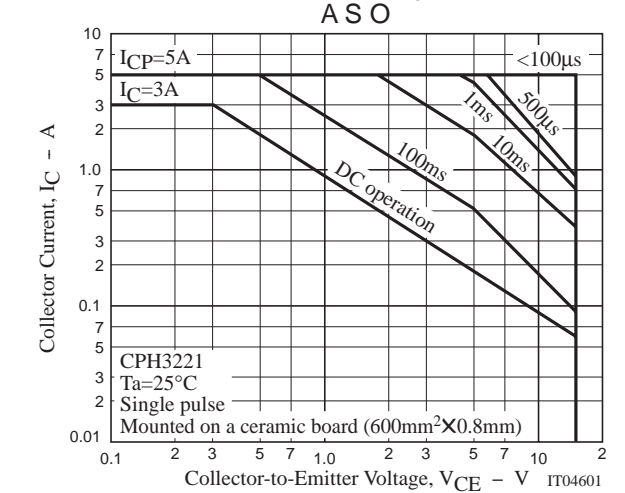
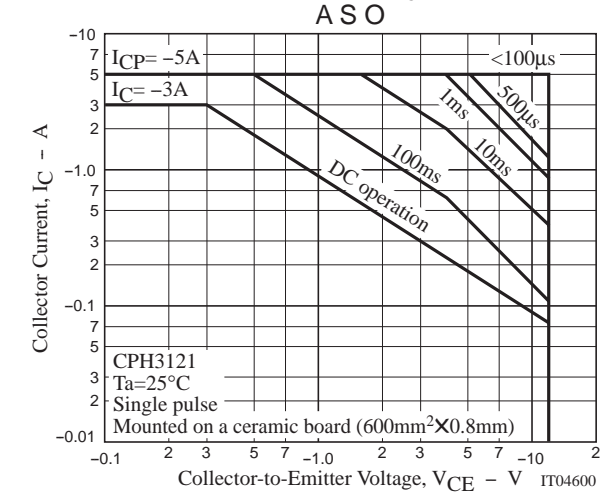
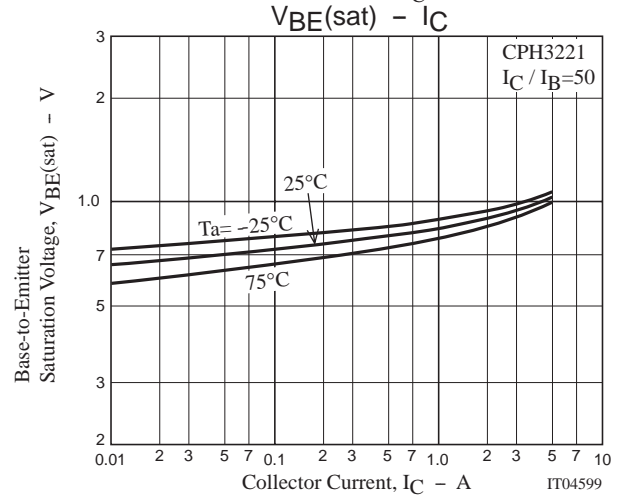
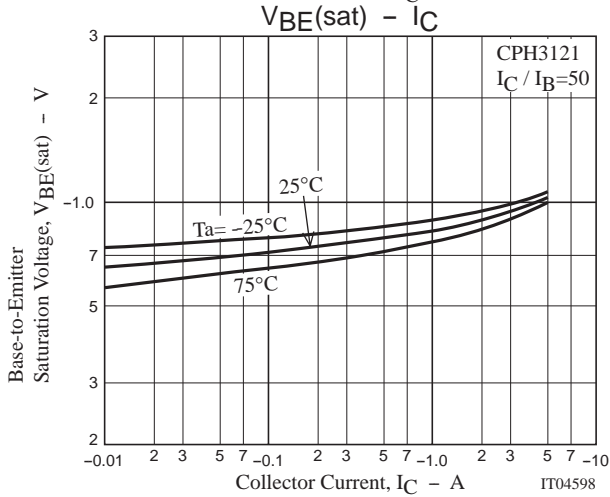
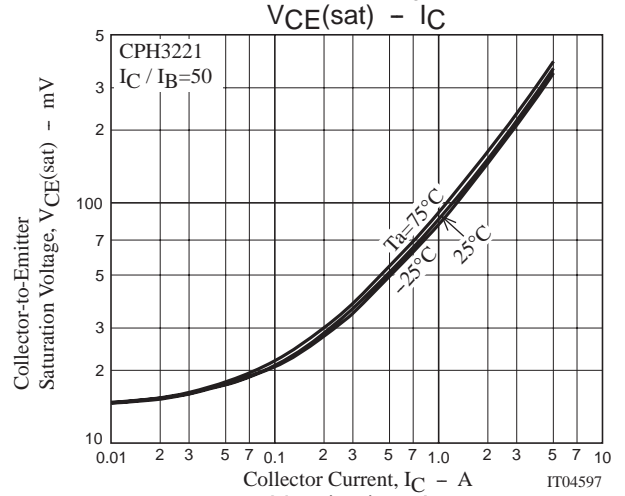
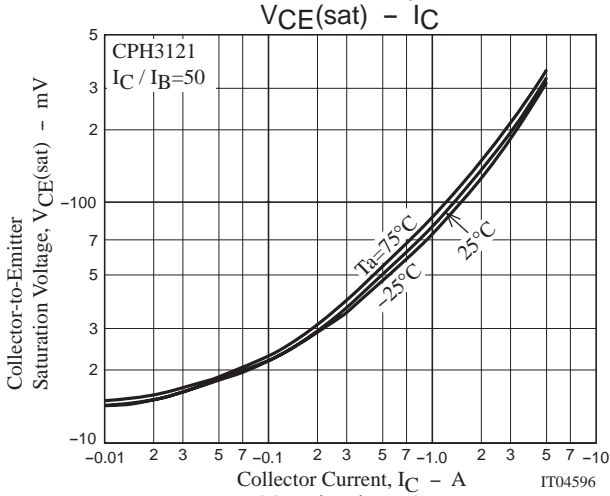
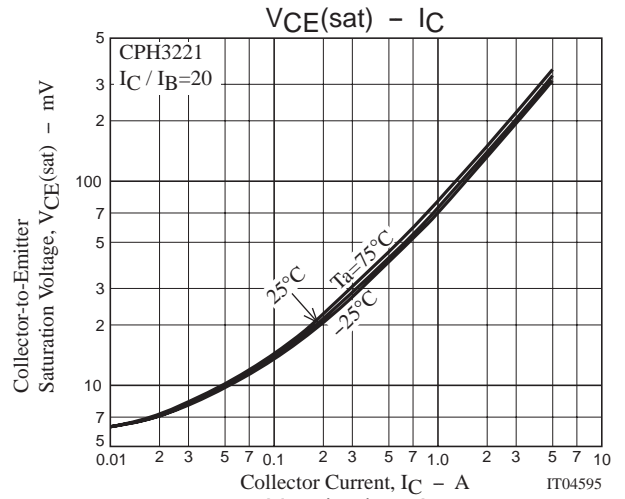
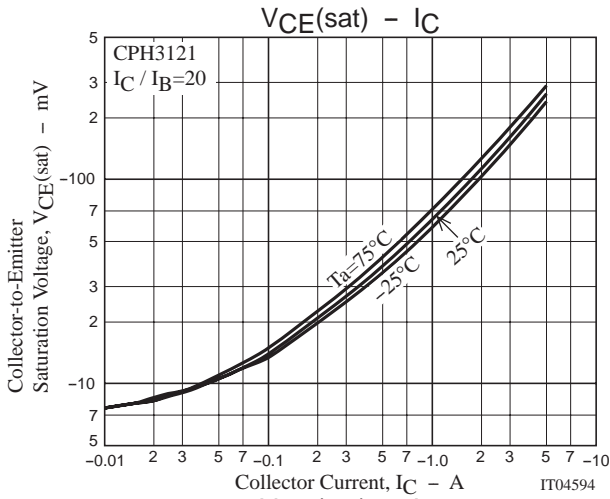
$I_C=20I_{B1}=-20I_{B2}=1.5A$
For PNP, the polarity is reversed.

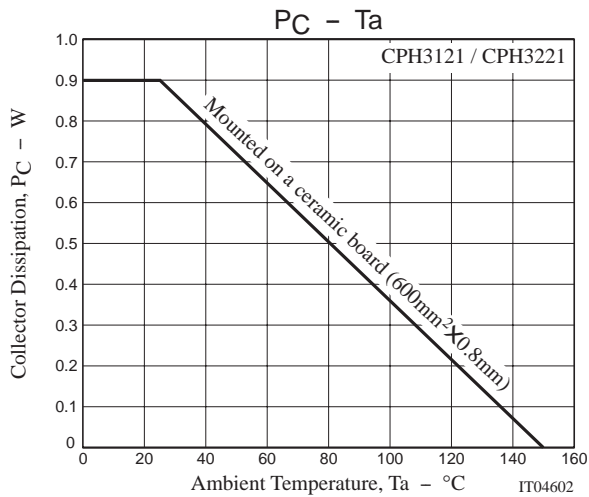


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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.