



CPH3109/CPH3209

DC/DC Converter Applications

Applications

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

Features

- Adoption of MBIT processes.
- Large 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

() : CPH3109

Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|--|-------------|------|
| Collector-to-Base Voltage | V_{CBO} | | (-30)40 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | (-30)40 | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-5)5 | V |
| Collector Current | I_C | | (-3)3 | A |
| Collector Current (Pulse) | I_{CP} | | (-5)5 | A |
| Base Current | I_B | | (-600)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_{CBO} | $V_{CB}=(-)30V, I_E=0$ | | | (-0.1)0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)4V, I_C=0$ | | | (-0.1)0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=(-)2V, I_C=(-)500mA$ | 200 | | 560 | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)10V, I_C=(-)500mA$ | | (380) | | MHz |
| | | | | 450 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10V, f=1MHz$ | | (25)20 | | pF |

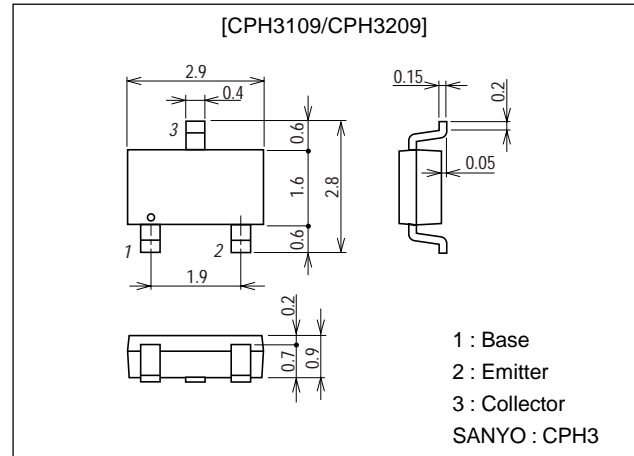
Marking : CPH3109 : AJ, CPH3209 : CJ

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Package Dimensions

unit:mm

2150A



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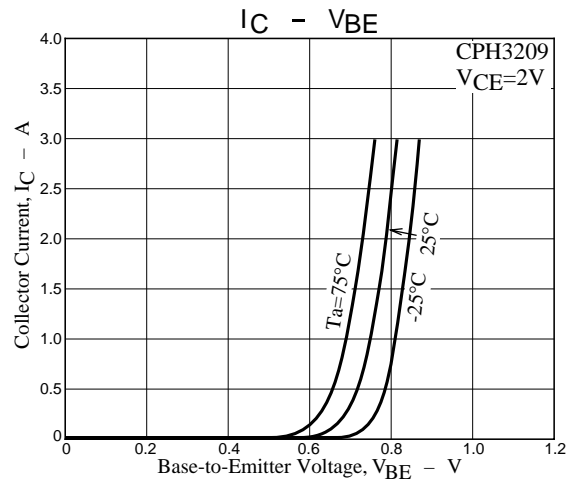
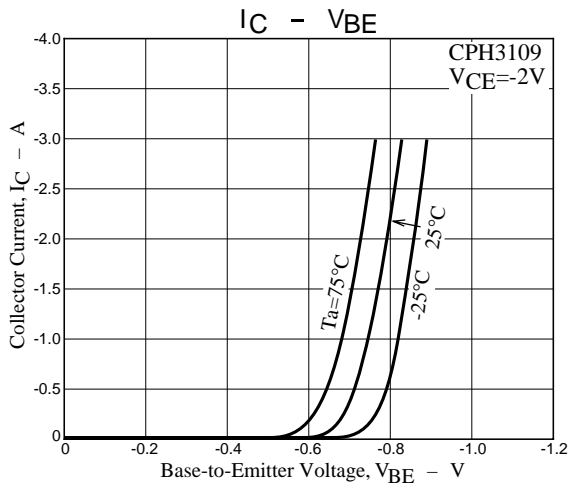
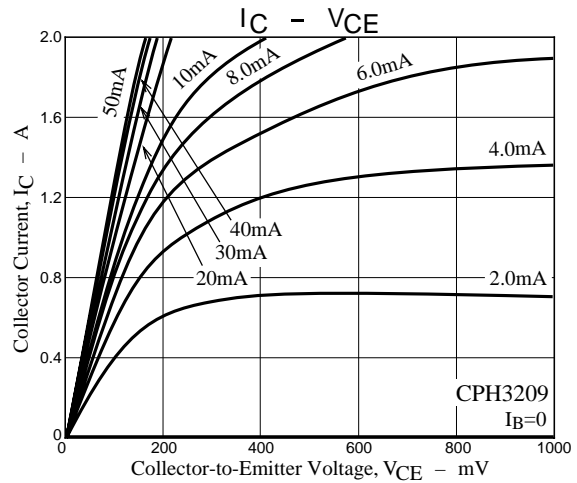
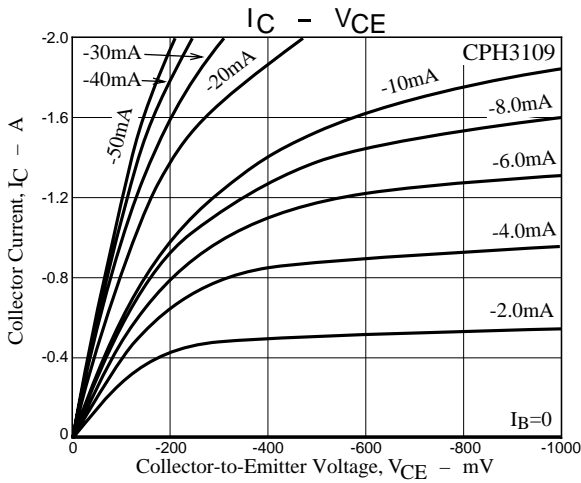
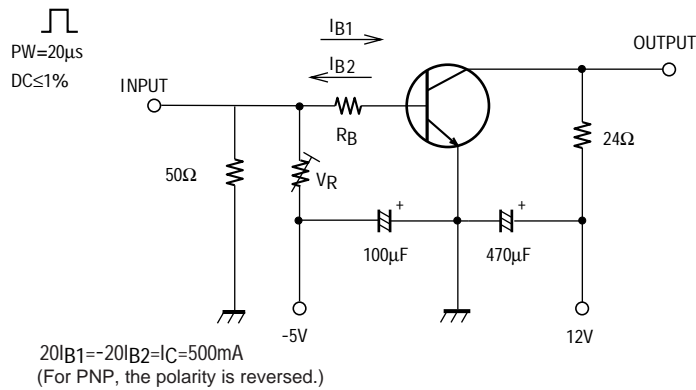
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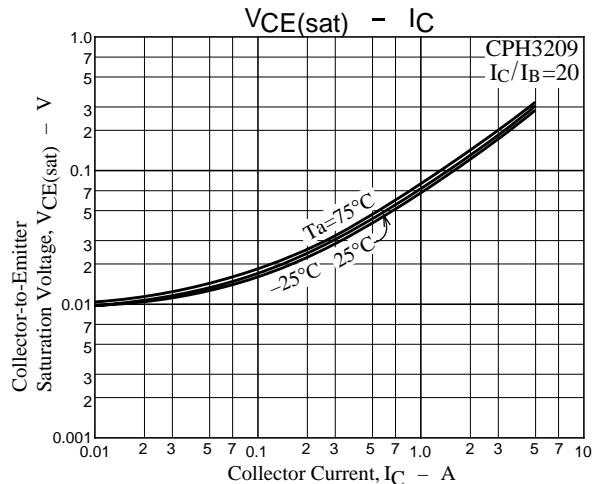
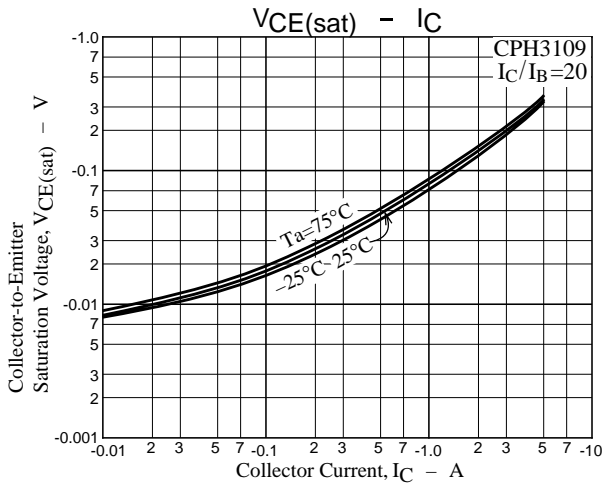
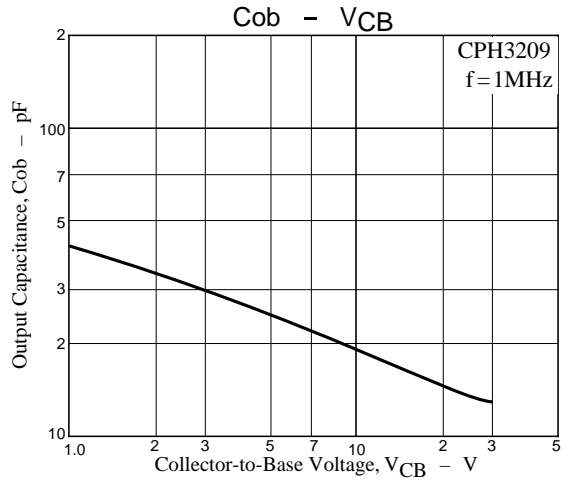
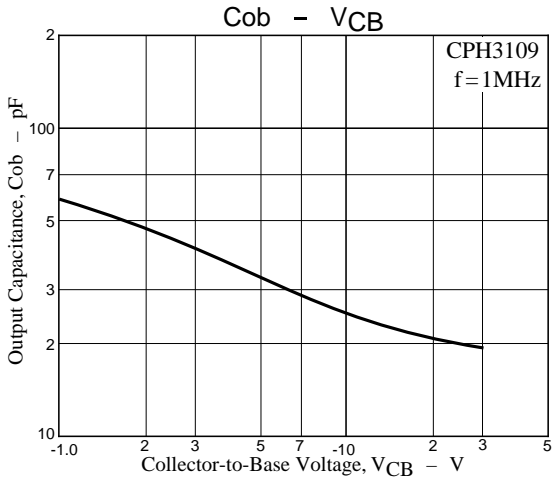
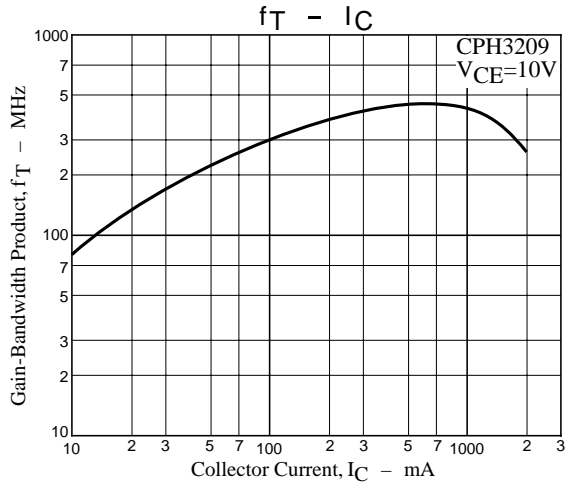
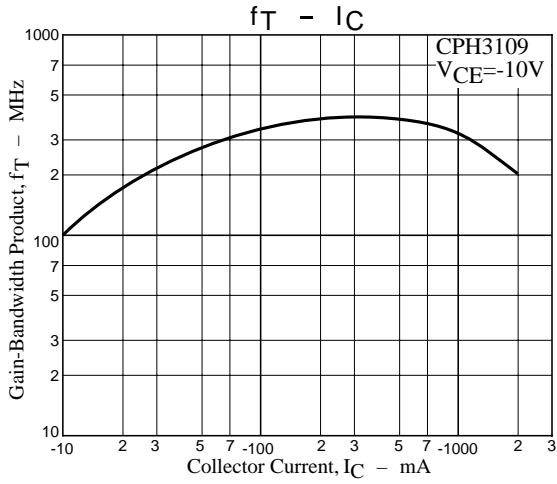
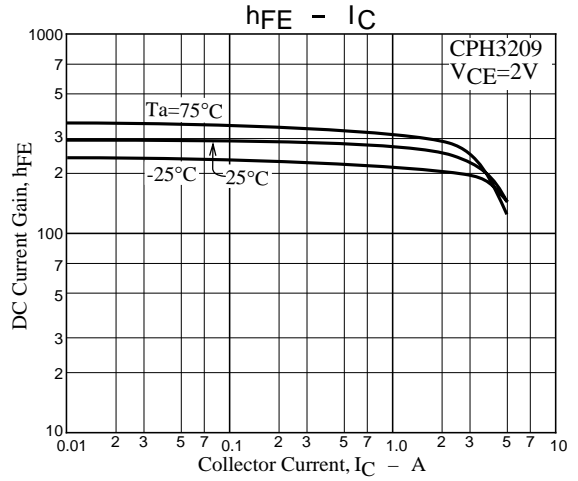
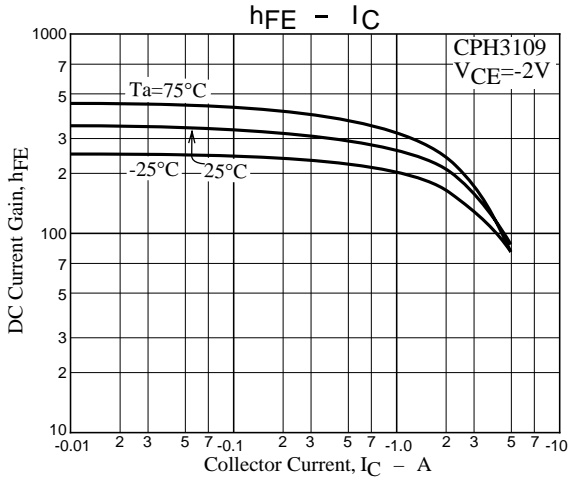
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------|-----------------------------|---------|---------|--------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)1}$ | $I_C=(-)1.5A, I_B=(-)30mA$ | | (-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 |
| | | | | 40 | | 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)30 | | ns |
| Storage Time | t_{stg} | See specified test circuit. | | (270) | | ns |
| | | | | 300 | | ns |
| Fall Time | t_f | See specified test circuit. | | (25)15 | | ns |

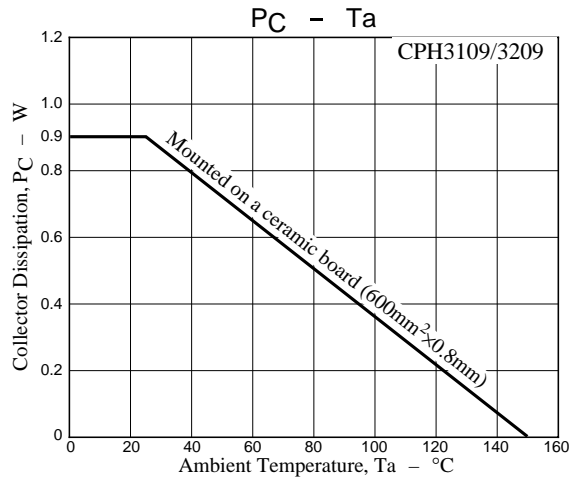
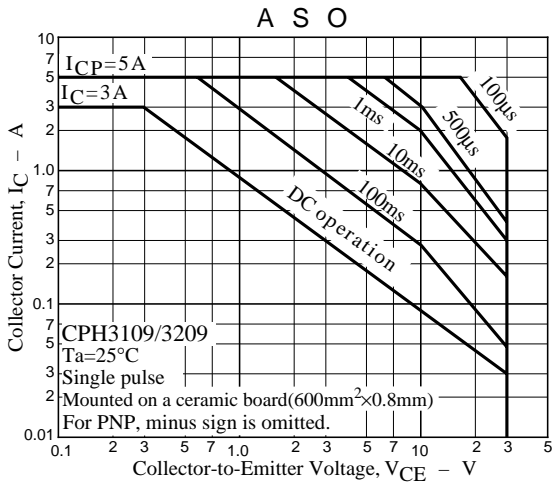
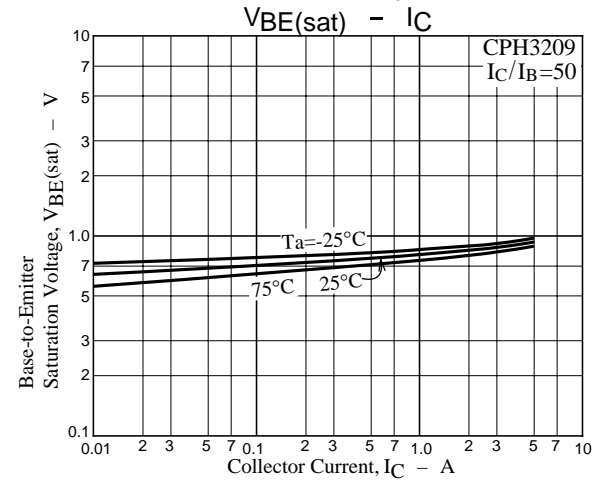
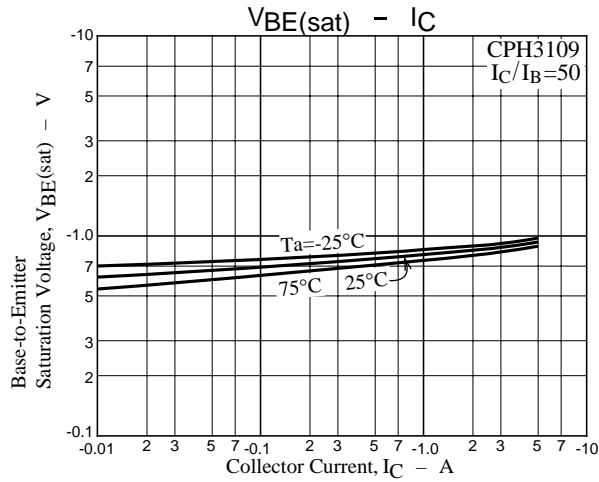
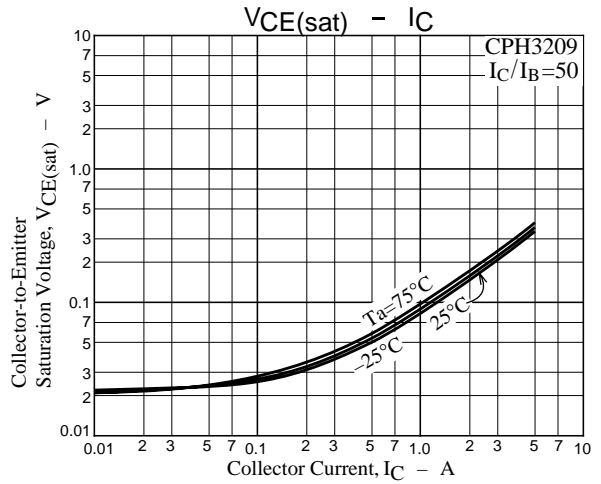
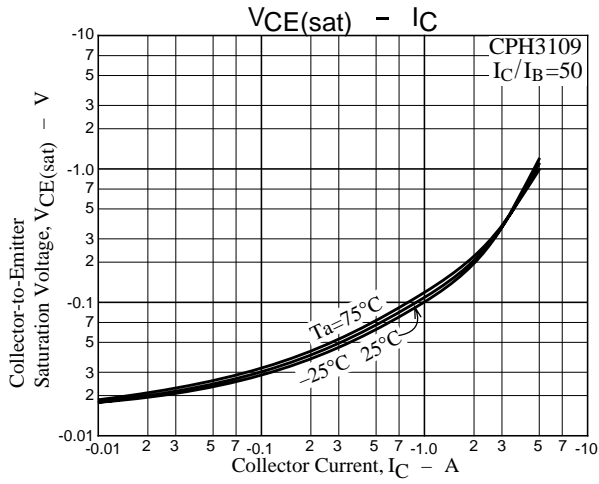
Switching Time Test Circuit



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