



SANYO Semiconductors

DATA SHEET

CPH3144 / CPH3244

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

Applications

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

Features

- Adoption of MBIT process.
- 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 () : CPH3144

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--------------------------------------------------------|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | (-30)40 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-30) | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-5) | V |
| Collector Current | I _C | | (-2) | A |
| Collector Current (Pulse) | I _{CP} | | (-5) | A |
| Base Current | I _B | | (-400) | mA |
| Collector Dissipation | P _C | Mounted on a ceramic board (600mm ² X0.8mm) | 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} =(-)30V, 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 =(-)100mA | 200 | | 560 | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)10V, I _C =(-)300mA | | (440)400 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-)10V, f=1MHz | | (17)12 | | pF |

Marking : CPH3144 : BD, CPH3244 : DP

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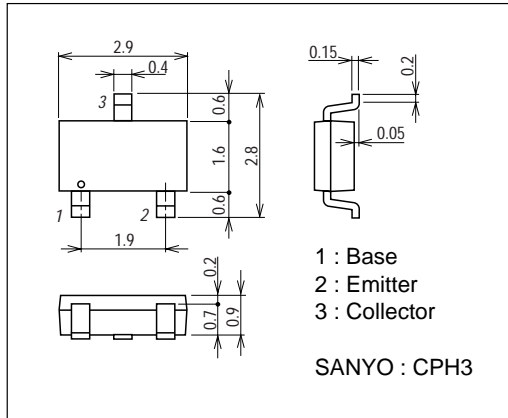
CPH3144 / CPH3244

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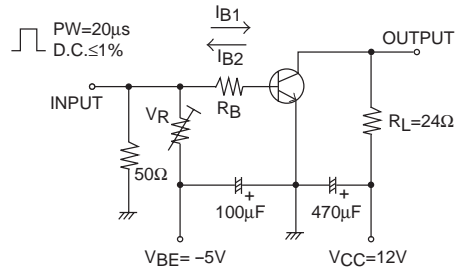
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-----------------------------------------|---------------|-----------------------------|---------|-----------|-----------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)1.5A, I_B=(-)75mA$ | | (-170)160 | (-260)240 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)1.5A, I_B=(-)75mA$ | | (-)0.94 | (-)1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-30)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. | | (45)40 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | (200)350 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | (23)30 | | ns |

Package Dimensions

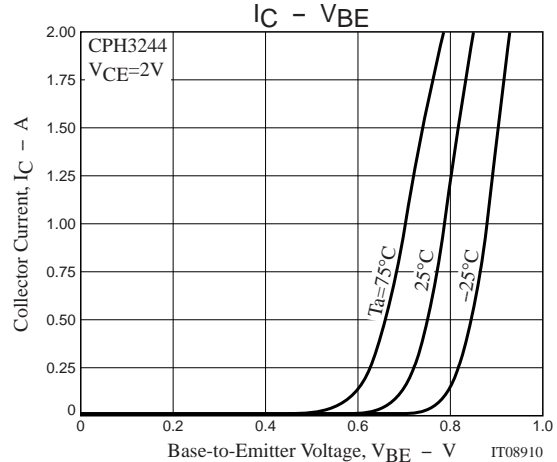
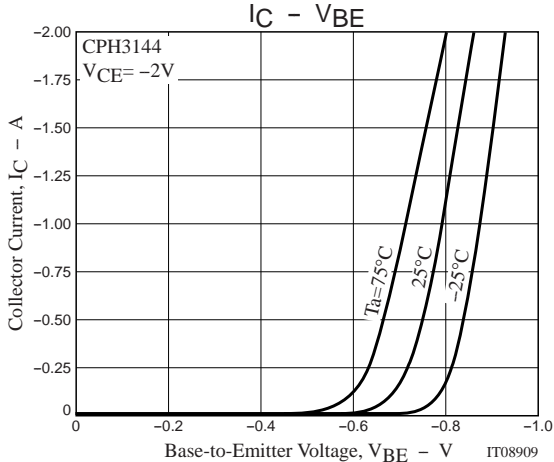
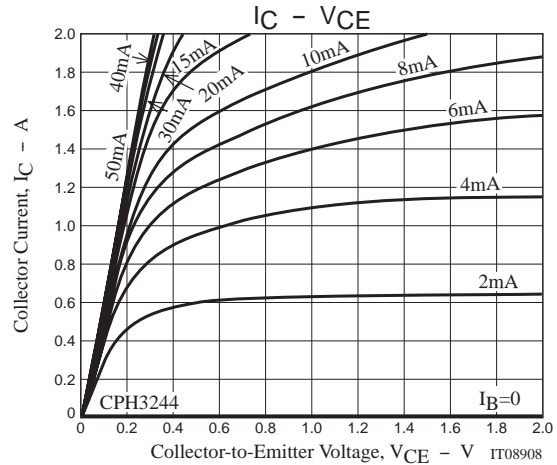
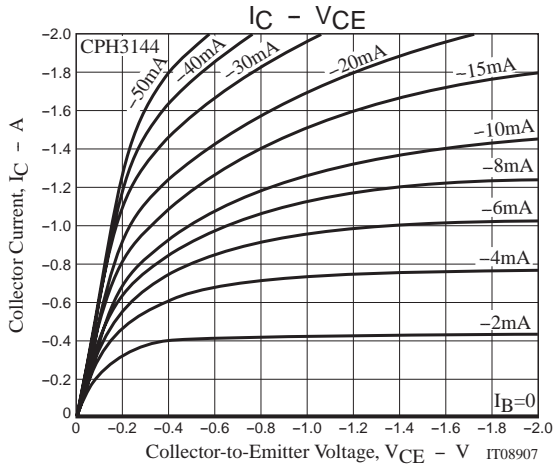
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2150A

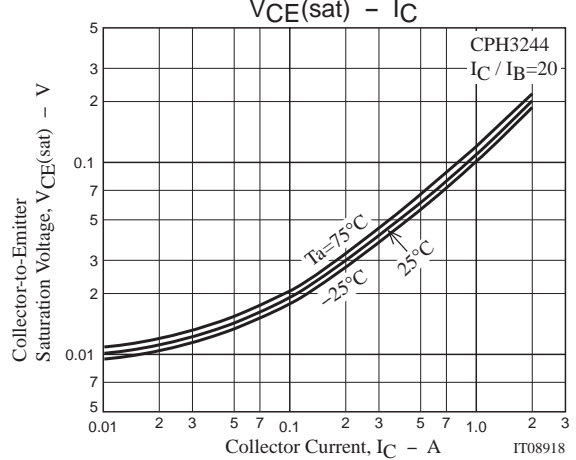
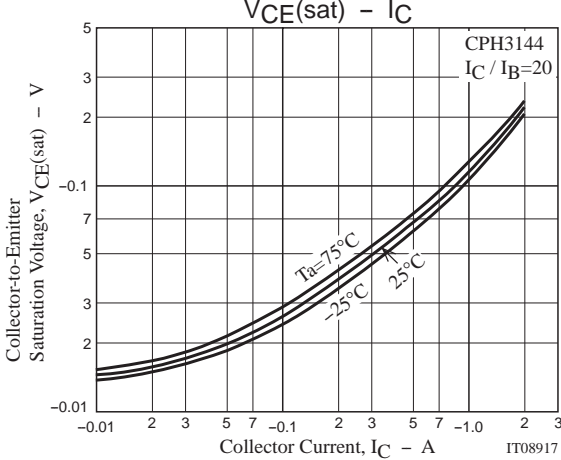
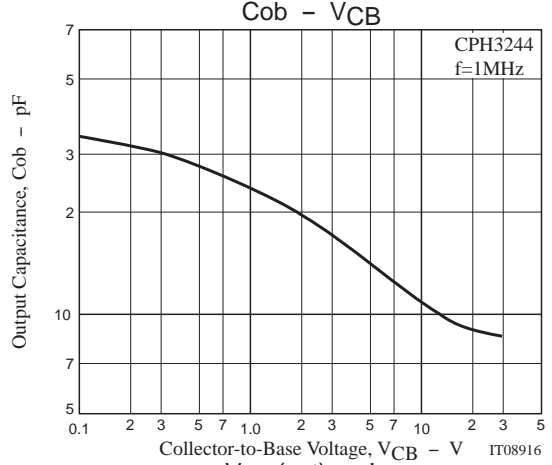
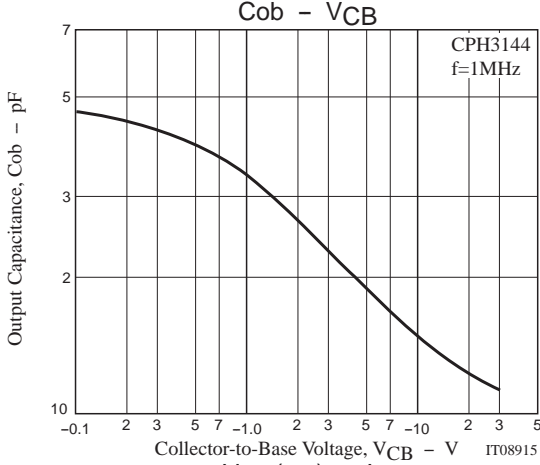
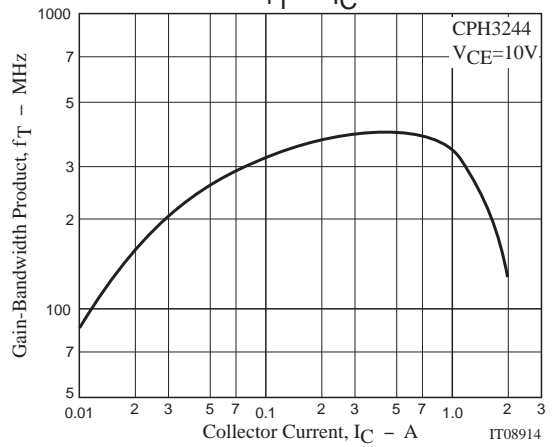
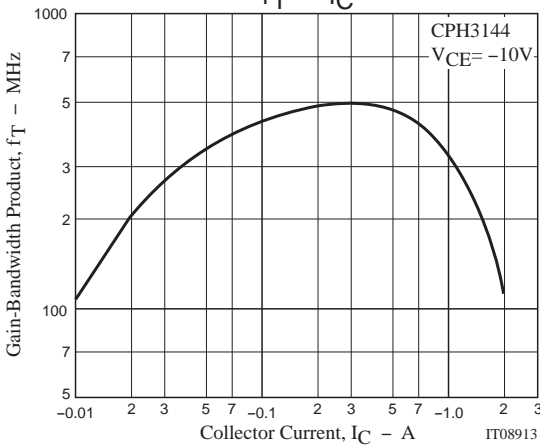
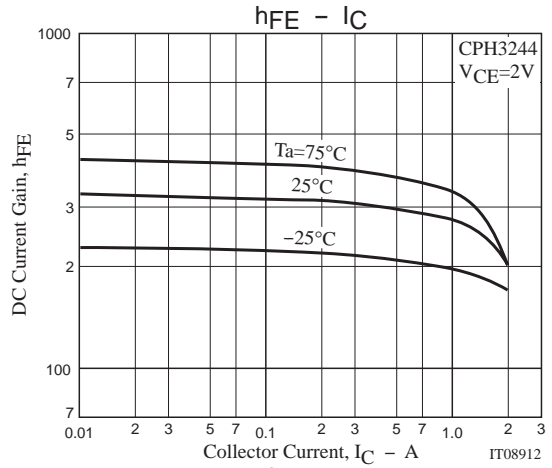
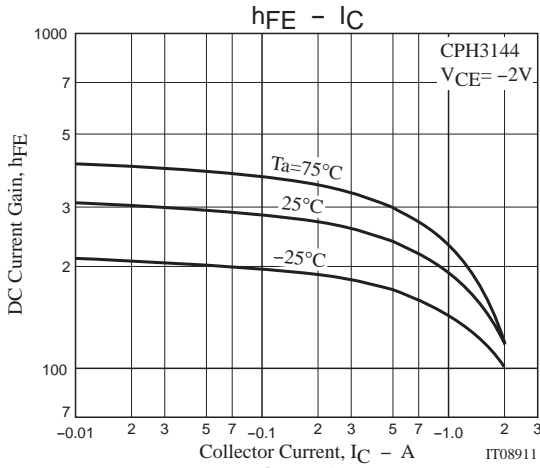


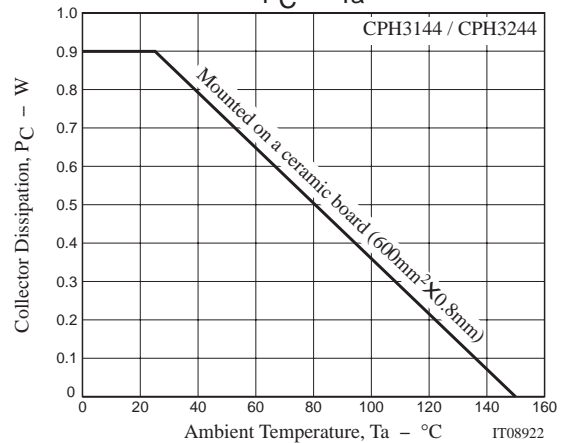
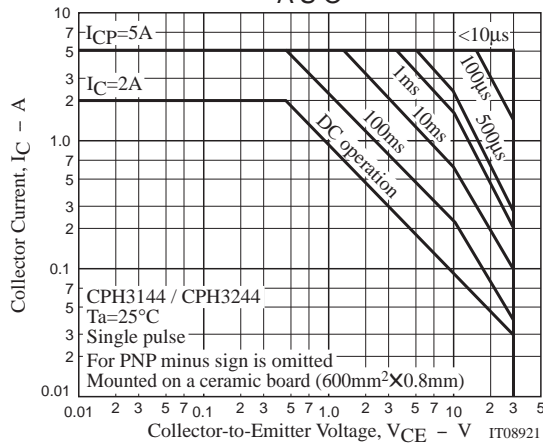
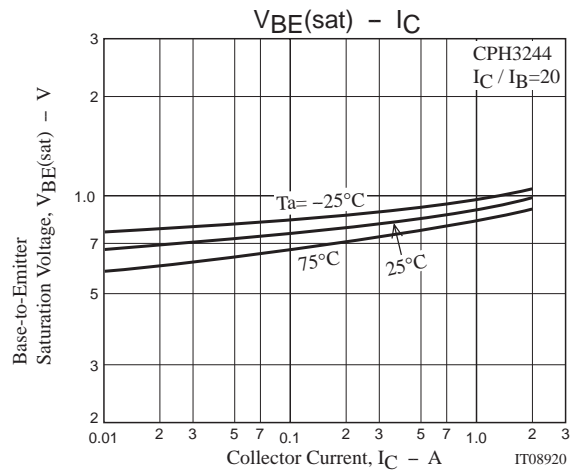
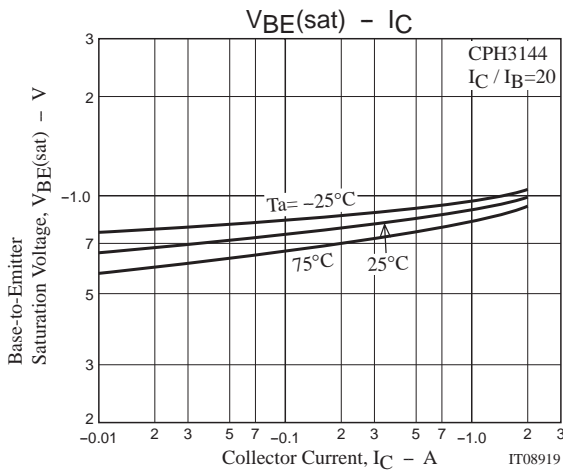
Switching Time Test Circuit



$I_C=20I_{B1}=-20I_{B2}=500mA$
For PNP, the polarity is reversed.







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