



SANYO Semiconductors

DATA SHEET

MCH3145 / MCH3245

— 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 permitting applied sets to be small and slim (mounting height : 0.85mm).
- High allowable power dissipation.

Specifications () : MCH3145

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | (-50)80 | V |
| Collector-to-Emitter Voltage | V _{CES} | | (-50)80 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-50) | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-6) | V |
| Collector Current | I _C | | (-2) | A |
| Collector Current (Pulse) | I _{CP} | | (-4) | A |
| Base Current | I _B | | (-400) | mA |
| Collector Dissipation | P _C | Mounted on a ceramic board (600mm ² ×0.8mm) | 0.8 | 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} =(-)40V, I _E =0 | | | (-1) | μA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =(-)4V, I _C =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 | | 420 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-)10V, f=1MHz | | (16)8 | | pF |

Marking : MCH3145 : AN, MCH3245 : CS

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MCH3145 / MCH3245

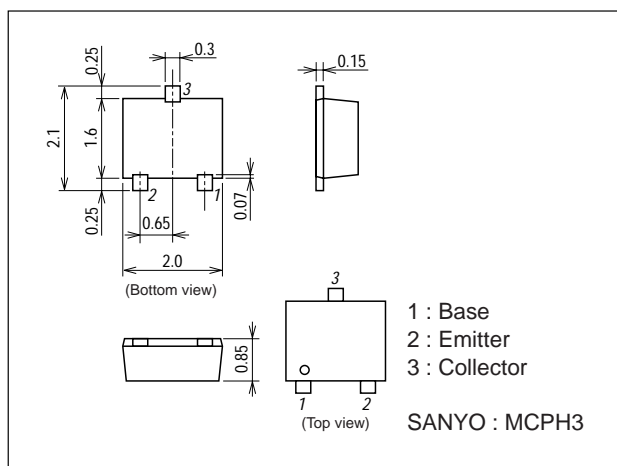
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|-----------|-----------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)1A, I_B=(-)50mA$ | | (-165)130 | (-330)260 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)1A, I_B=(-)50mA$ | | (-0.9) | (-1.2) | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-50)80 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CES}$ | $I_C=(-)100\mu A, R_{BE}=0$ | (-50)80 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-50)80 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)10\mu A, I_C=0$ | (-6) | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | (35)35 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | (200)330 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | (24)40 | | ns |

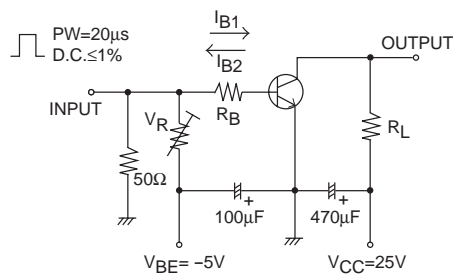
Package Dimensions

unit : mm

2194A

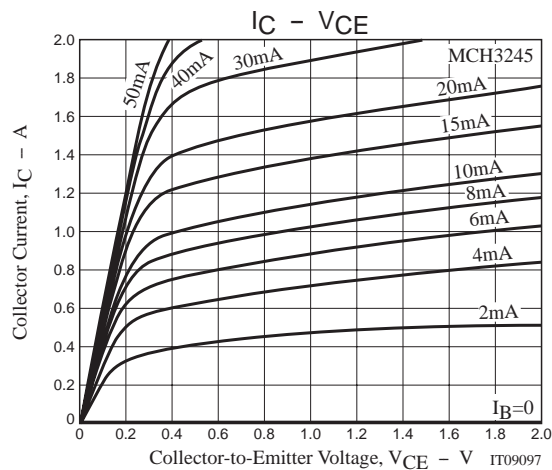
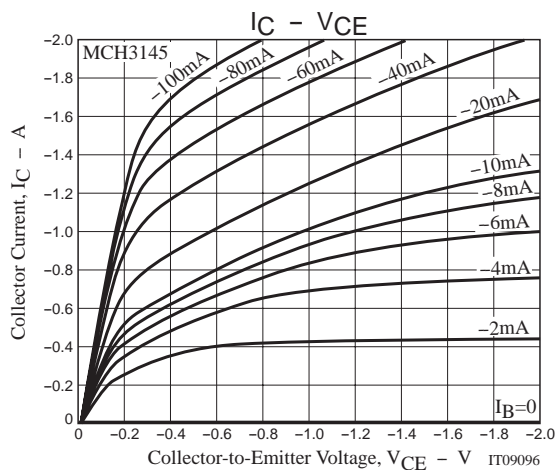


Switching Time Test Circuit

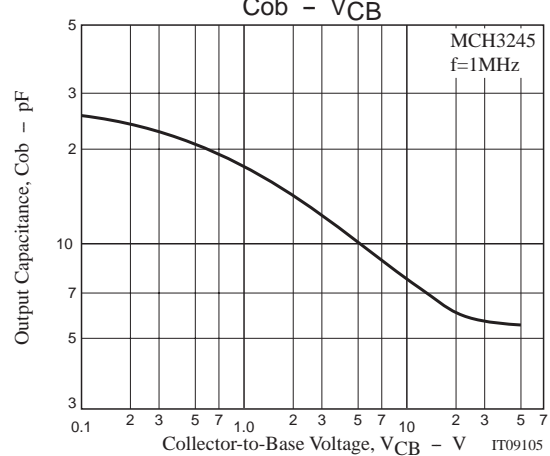
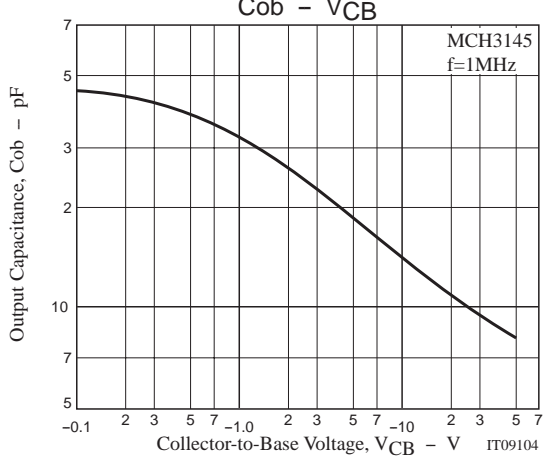
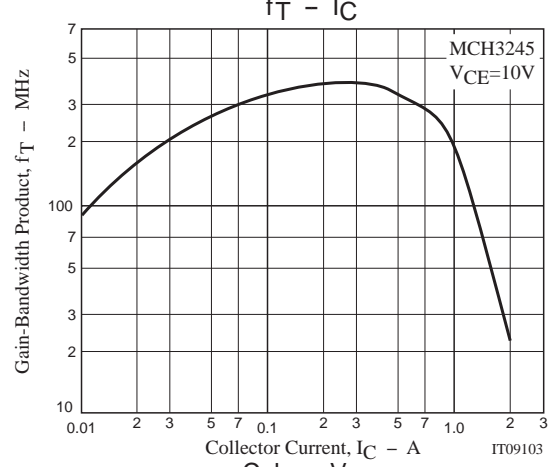
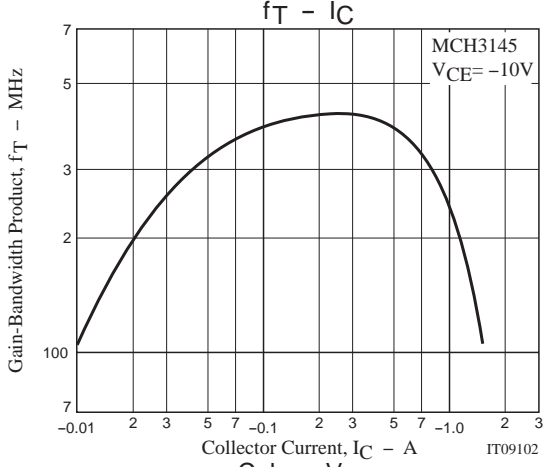
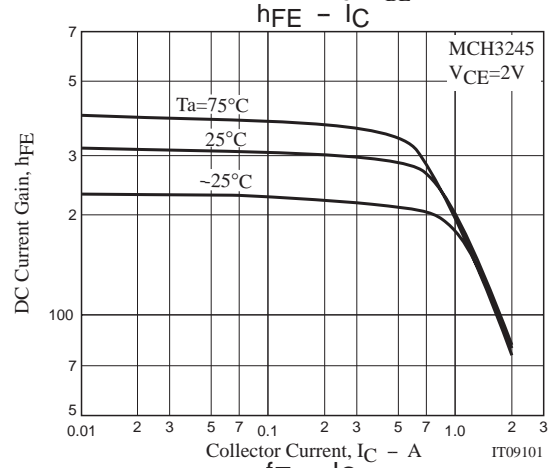
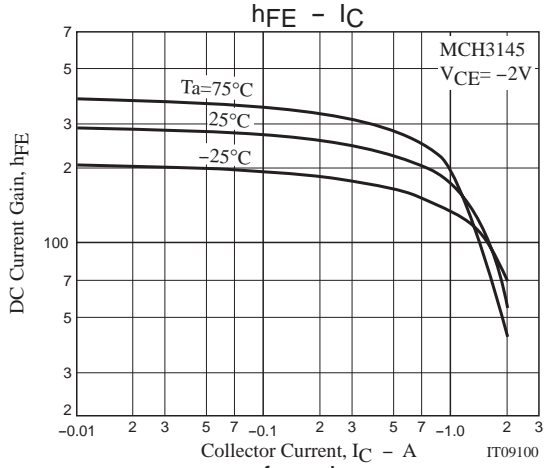
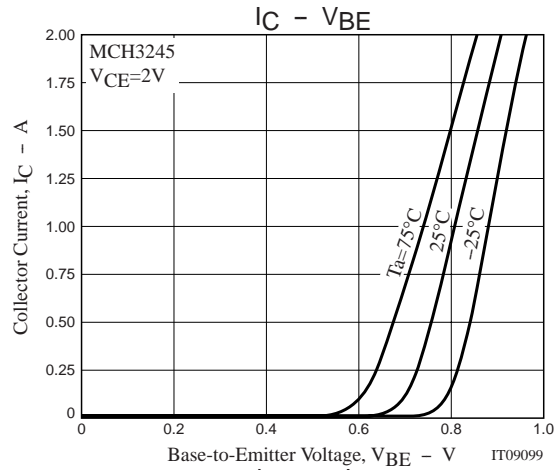
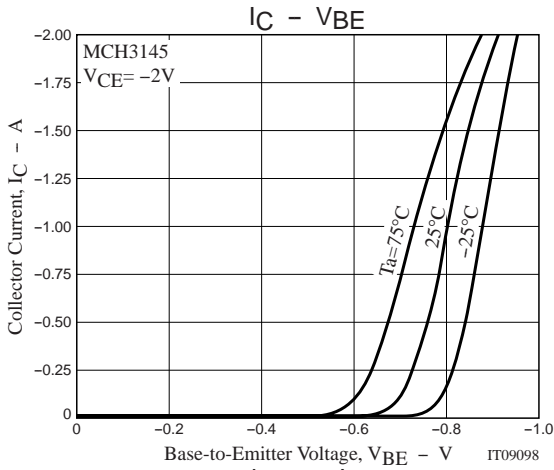


$$I_C = 10I_{B1} = -10I_{B2} = 0.7A$$

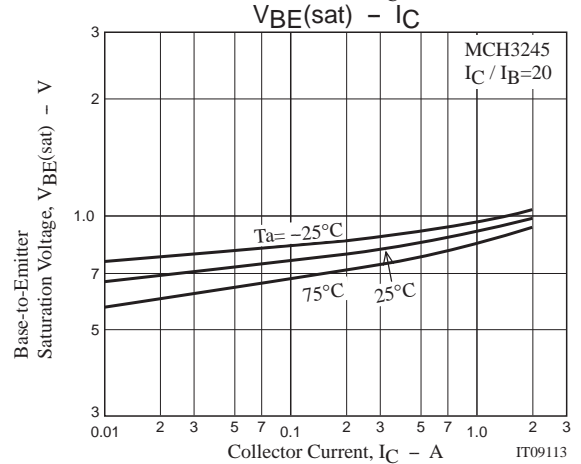
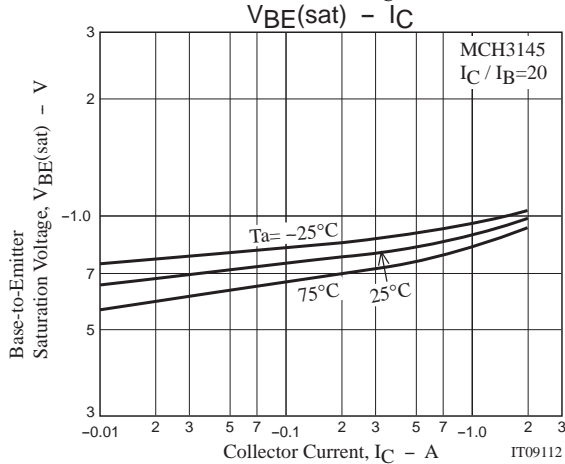
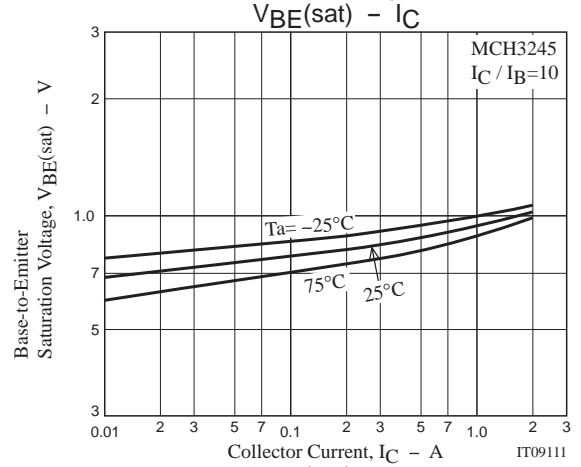
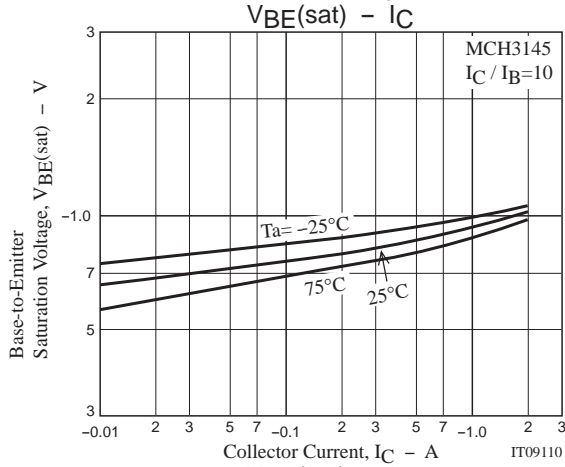
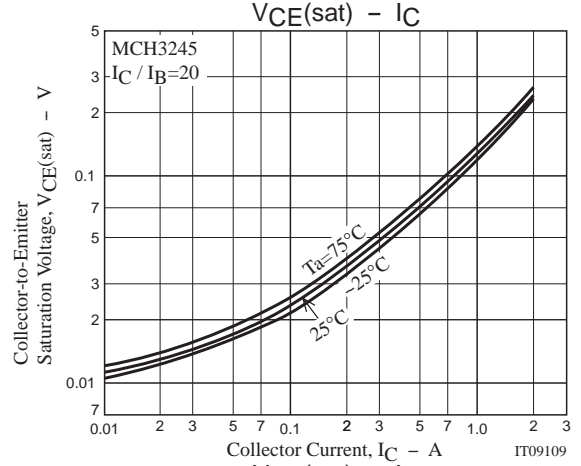
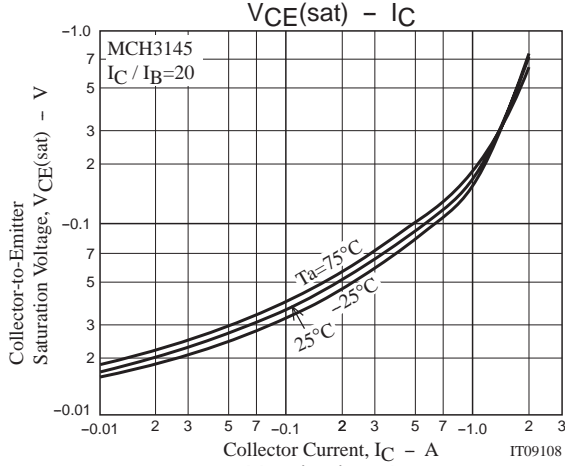
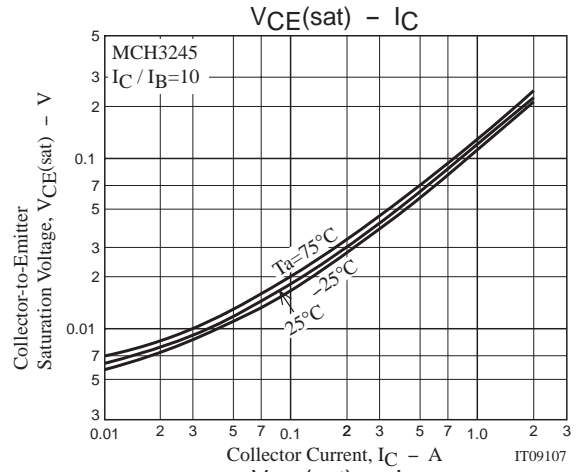
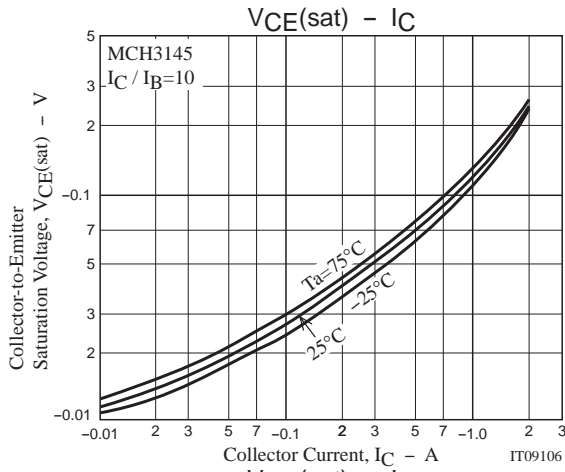
For PNP, the polarity is reversed.



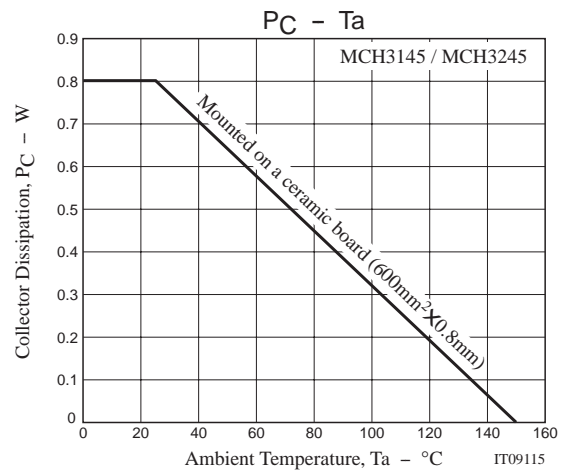
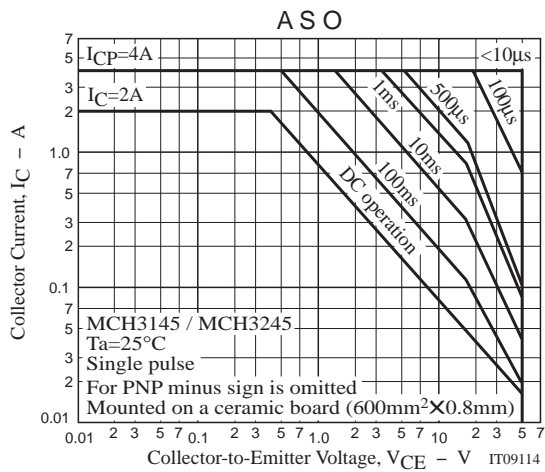
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