



TT3031NP — PNP Epitaxial Planar Silicon Transistor

50V / 3A High-Speed Switching Applications

Applications

- High-speed switching applications (switching regulator, driver circuit).

Features

- Adoption of MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|-------------------------|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | -50 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | -50 | V |
| Emitter-to-Base Voltage | V _{EBO} | | -6 | V |
| Collector Current | I _C | | -3 | A |
| Collector Current (Pulse) | I _{CP} | PW≤10μs, duty cycle≤10% | -5 | A |
| Base Current | I _B | | -1 | A |
| Collector Dissipation | P _C | | 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 =0A | | | -10 | μA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =-4V, I _C =0A | | | -10 | μA |
| DC Current Gain | h _{FE} | V _{CE} =-2V, I _C =-125mA | 200 | | 500 | |
| Gain-Bandwidth Product | f _T | V _{CE} =-10V, I _C =-300mA | | 130 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =-10V, f=1MHz | | 55 | | pF |

Continued on next page.

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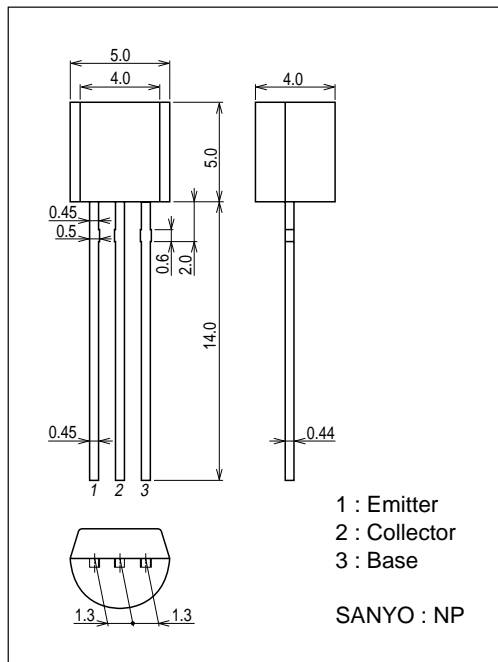
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-------------------------------|---------|------|------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -2.5A, I_B = -125mA$ | | -250 | -500 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = -2.5A, I_B = -125mA$ | | | -1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = -100\mu A, I_E = 0A$ | -50 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -1mA, R_{BE} = \infty$ | -50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = -100\mu A, I_C = 0A$ | -6 | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | 46 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | 280 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 23 | | ns |

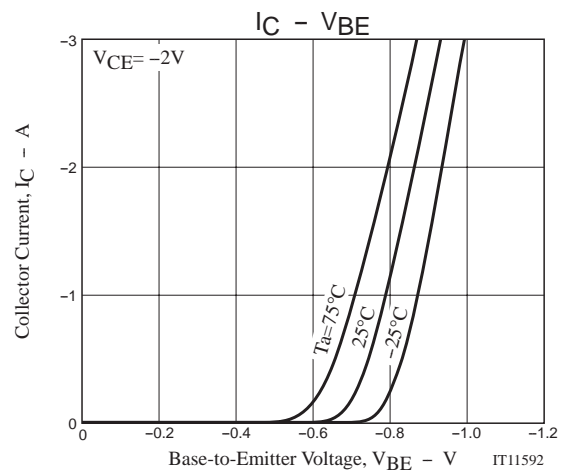
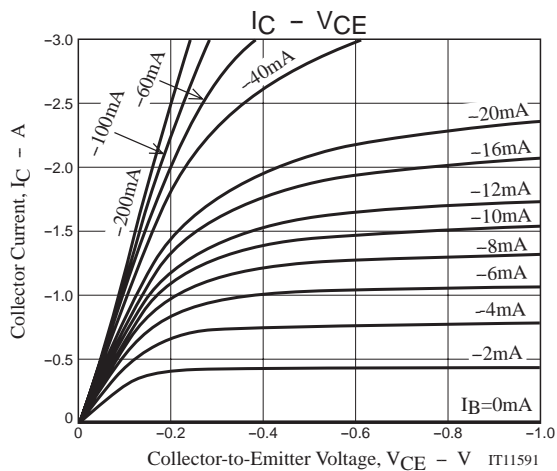
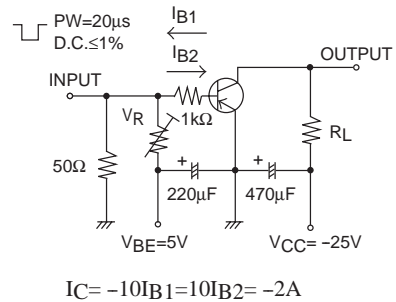
Package Dimensions

unit : mm (typ)

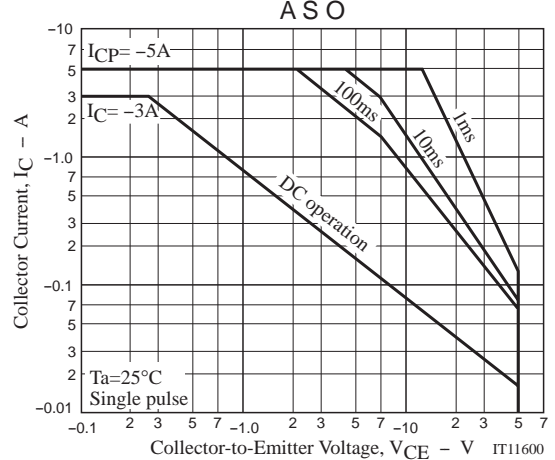
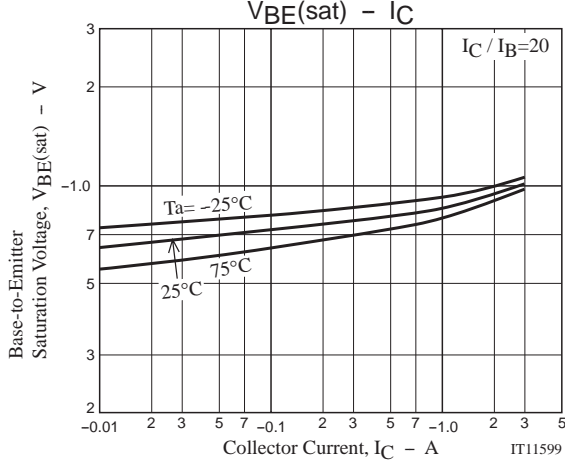
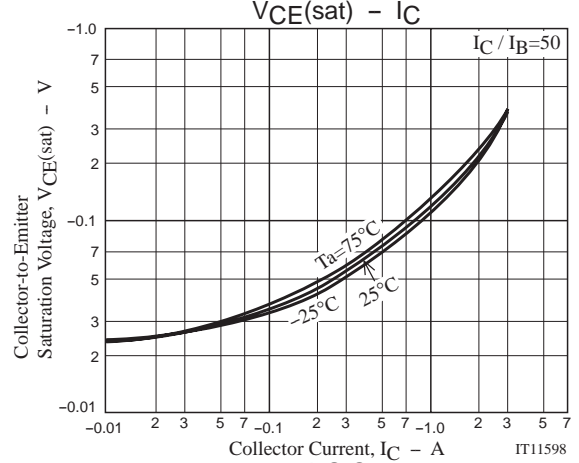
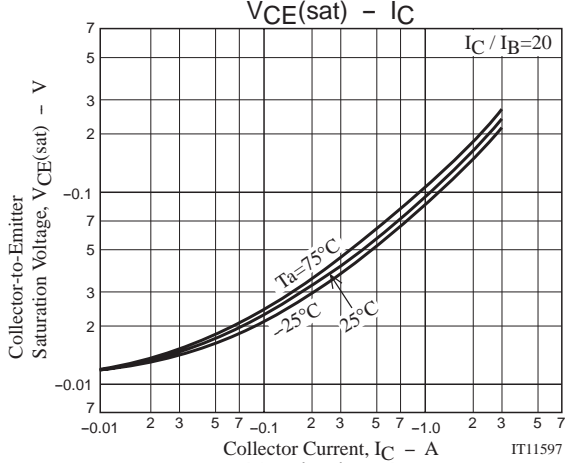
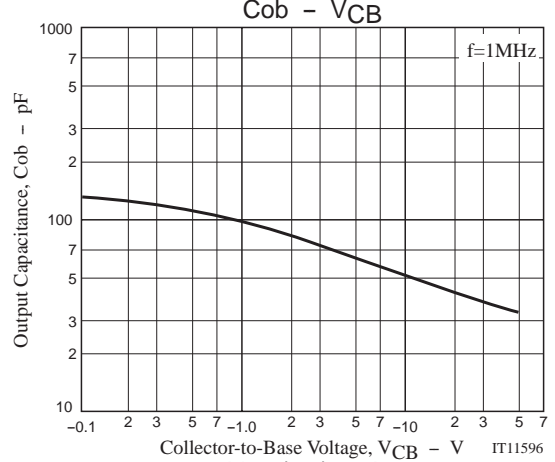
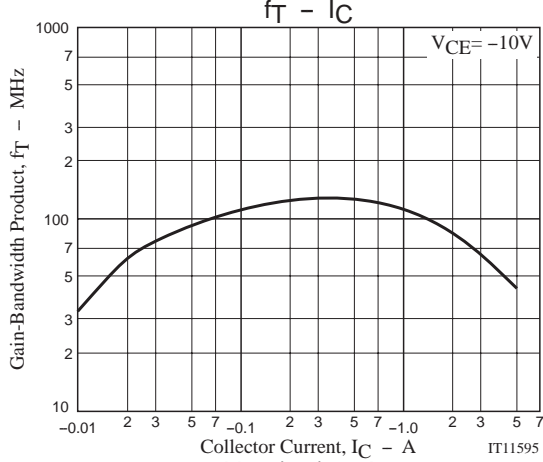
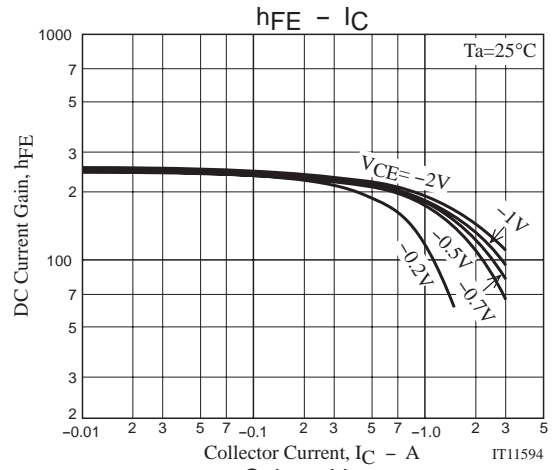
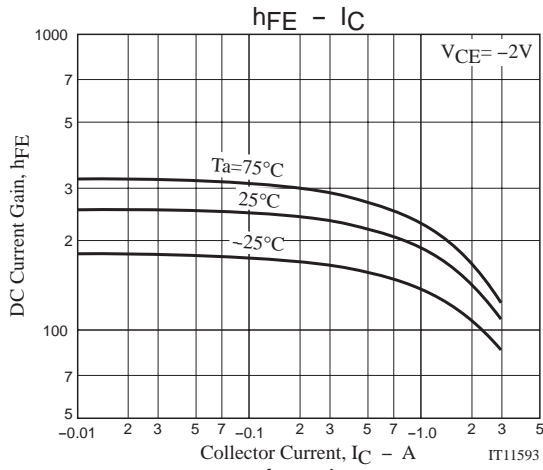
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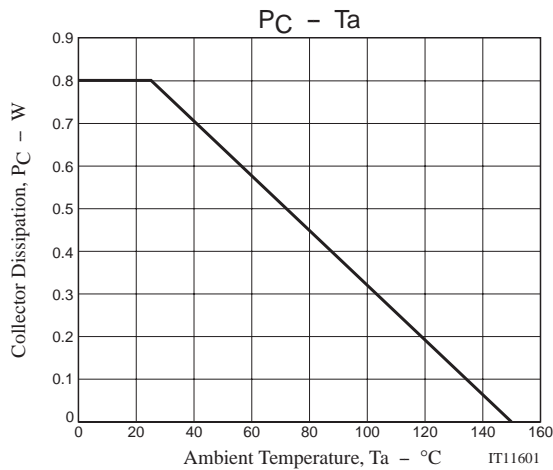


Switching Time Test Circuit



TT3031NP





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