



SANYO Semiconductors

## DATA SHEET

# MCH6545

 — PNP / NPN Epitaxial Planar Silicon Transistor  

## Push-Pull Circuit Applications

### Applications

- MOSFET gate drivers, relay drivers, lamp drivers, motor drivers.

### Features

- Composite type with a PNP transistor and an NPN transistor contained in one package facilitating high-density mounting.
- Ultrasmall package allows applied sets to be made small and thin.

### Specifications ( ) : PNP

Absolute Maximum Ratings at Ta=25°C

| Parameter                    | Symbol           | Conditions                                            | Ratings     | Unit |
|------------------------------|------------------|-------------------------------------------------------|-------------|------|
| Collector-to-Base Voltage    | V <sub>CB0</sub> |                                                       | (-50)60     | V    |
| Collector-to-Emitter Voltage | V <sub>CEO</sub> |                                                       | (-)50       | V    |
| Emitter-to-Base Voltage      | V <sub>EBO</sub> |                                                       | (-)5        | V    |
| Collector Current            | I <sub>C</sub>   |                                                       | (-)500      | mA   |
| Collector Current (Pulse)    | I <sub>CP</sub>  |                                                       | (-)1.0      | A    |
| Collector Dissipation        | P <sub>C</sub>   | Mounted on a ceramic board (600mm <sup>2</sup> ×0.8m) | 0.5         | W    |
| Total Power Dissipation      | P <sub>T</sub>   | Mounted on a ceramic board (600mm <sup>2</sup> ×0.8m) | 0.55        | W    |
| Junction Temperature         | T <sub>J</sub>   |                                                       | 150         | °C   |
| Storage Temperature          | T <sub>stg</sub> |                                                       | -55 to +150 | °C   |

### Electrical Characteristics at Ta=25°C

| Parameter                               | Symbol               | Conditions                                        | Ratings  |          |           | Unit |
|-----------------------------------------|----------------------|---------------------------------------------------|----------|----------|-----------|------|
|                                         |                      |                                                   | min      | typ      | max       |      |
| Collector Cutoff Current                | I <sub>CBO</sub>     | V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0A       |          |          | (-)100    | nA   |
| Emitter Cutoff Current                  | I <sub>EBO</sub>     | V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0A        |          |          | (-)100    | nA   |
| DC Current Gain                         | h <sub>FE</sub>      | V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)10mA   | (200)300 |          | (500)700  |      |
| Gain-Bandwidth Product                  | f <sub>T</sub>       | V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)50mA  |          | (690)500 |           | MHz  |
| Output Capacitance                      | C <sub>ob</sub>      | V <sub>CB</sub> =(-)10V, f=1MHz                   |          | (3.8)2.8 |           | pF   |
| Collector-to-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =(-)100mA, I <sub>B</sub> =(-)10mA |          | (-60)50  | (-120)100 | mV   |
| Base-to-Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =(-)100mA, I <sub>B</sub> =(-)10mA |          | (-)0.9   | (-)1.2    | V    |
| Collector-to-Base Breakdown Voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =(-)10μA, I <sub>E</sub> =0A       | (-50)60  |          |           | V    |
| Collector-to-Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞        | (-)50    |          |           | V    |
| Emitter-to-Base Breakdown Voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0A       | (-)5     |          |           | V    |

Marking : ET

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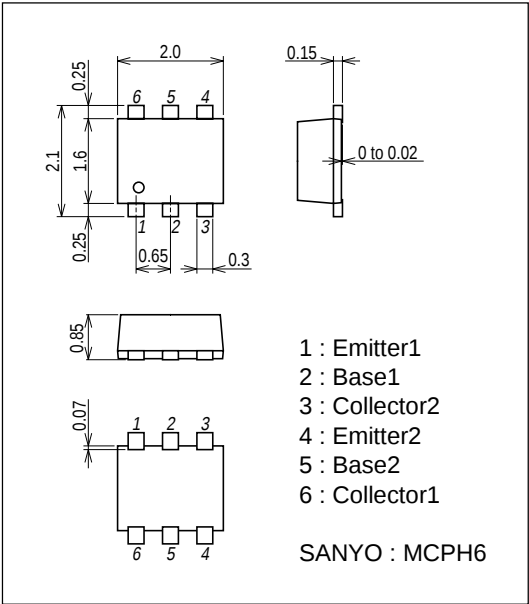
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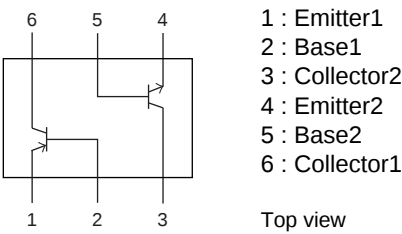
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|--------------|-----------|-----------------------------|---------|----------|-----|------|
|              |           |                             | min     | typ      | max |      |
| Turn-On Time | $t_{on}$  | See specified Test Circuit. |         | (30)30   |     | ns   |
| Storage Time | $t_{stg}$ | See specified Test Circuit. |         | (170)340 |     | ns   |
| Fall Time    | $t_f$     | See specified Test Circuit. |         | (30)55   |     | ns   |

Package Dimensions

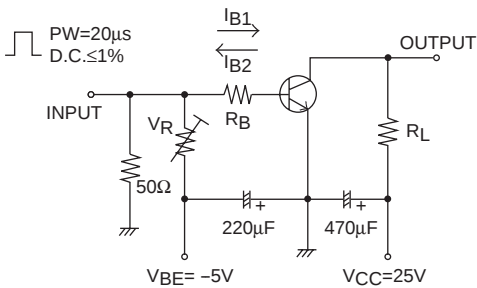
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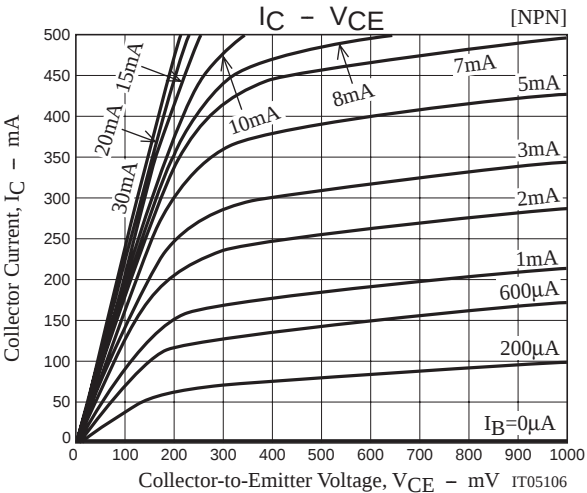
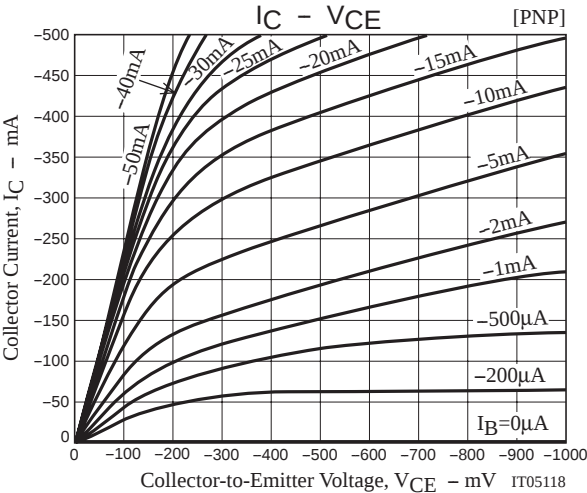
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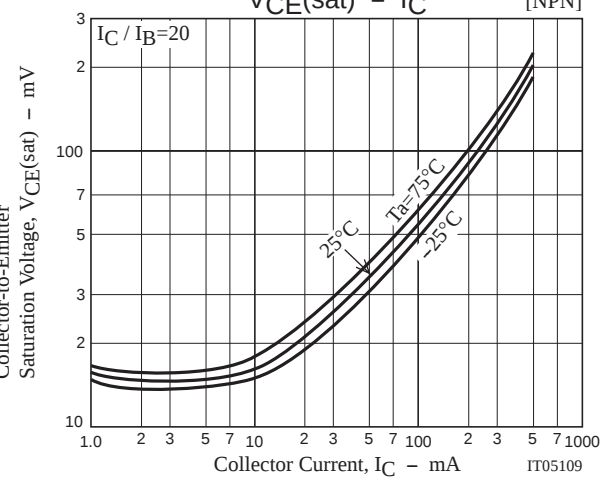
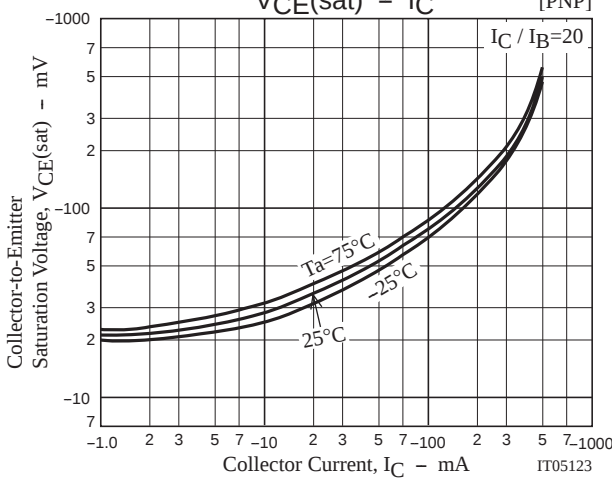
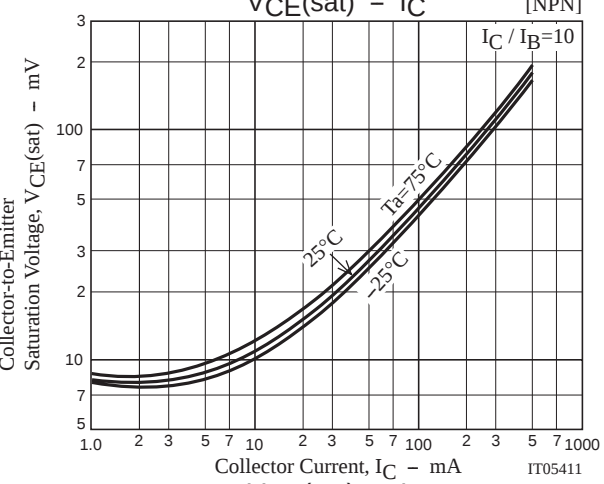
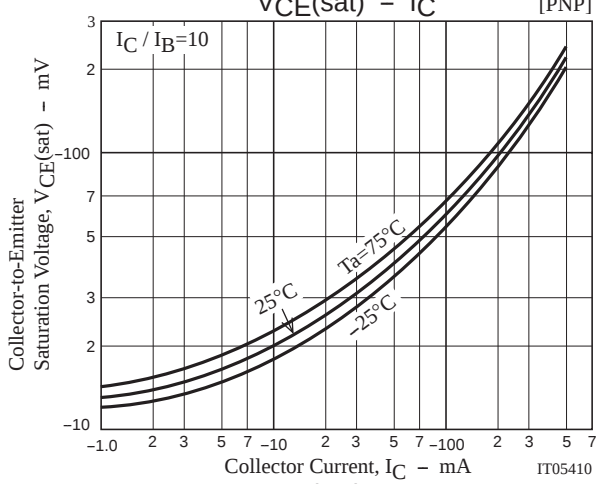
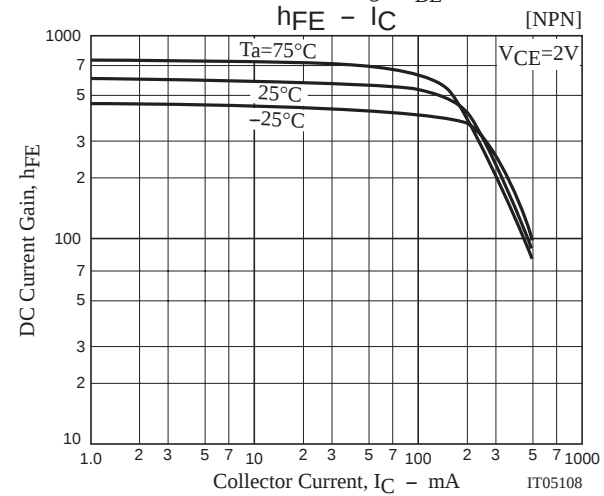
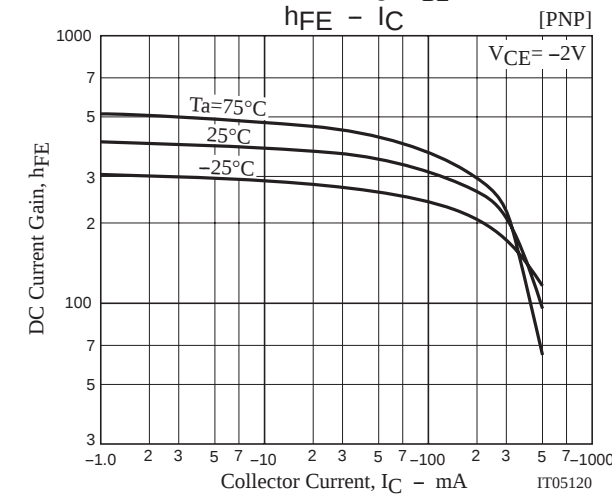
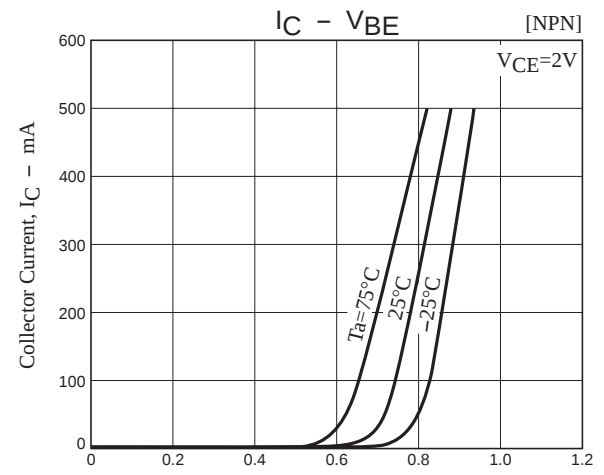
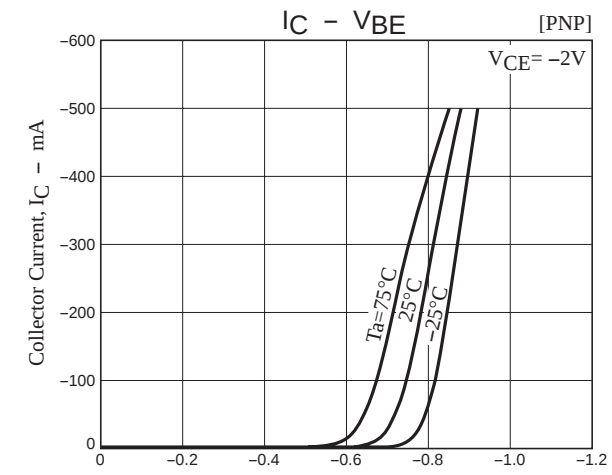


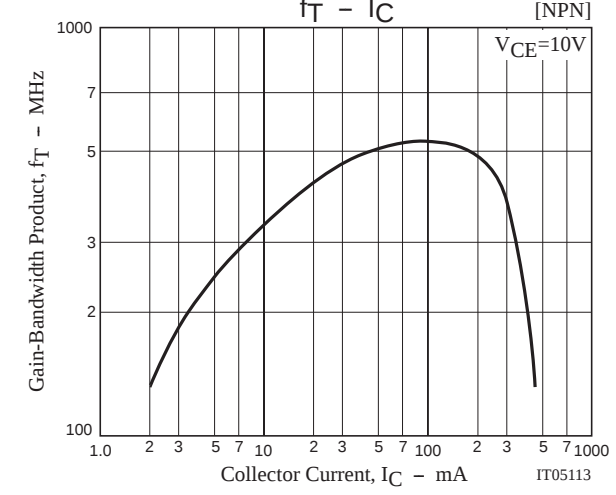
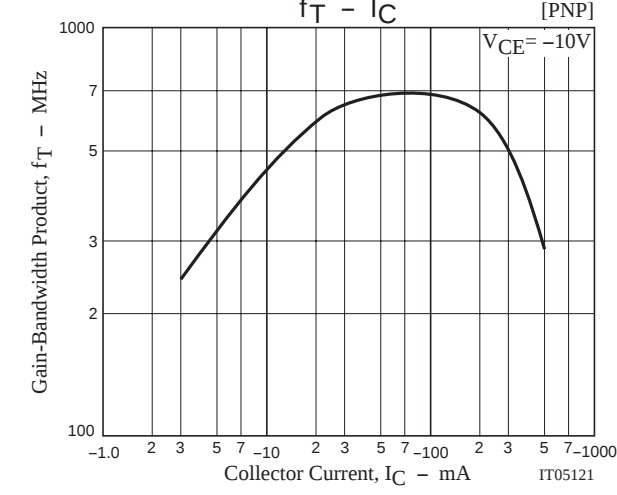
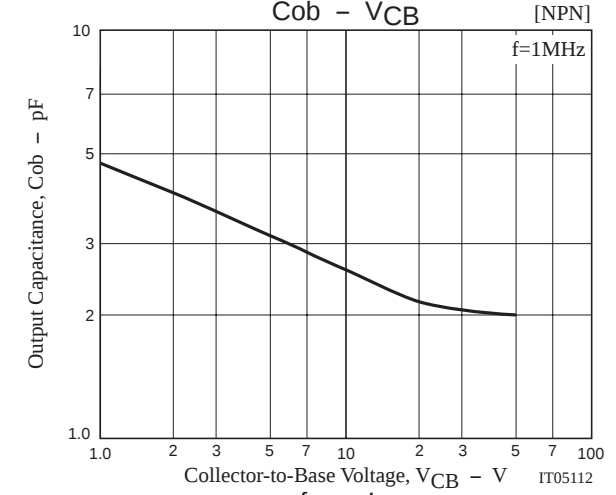
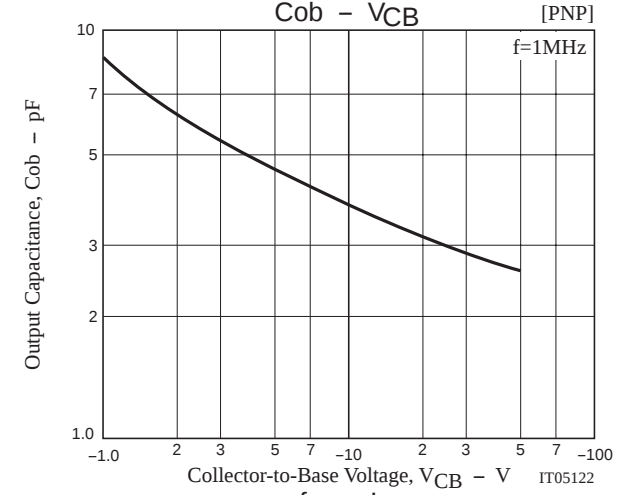
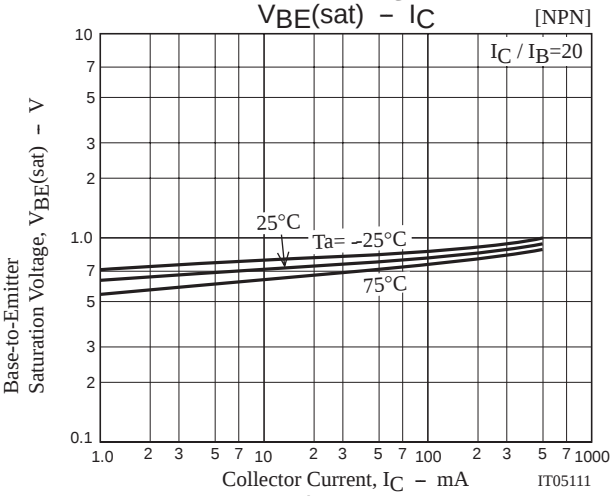
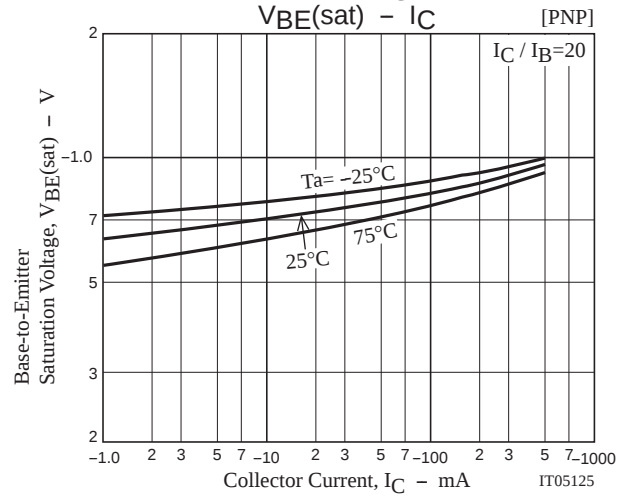
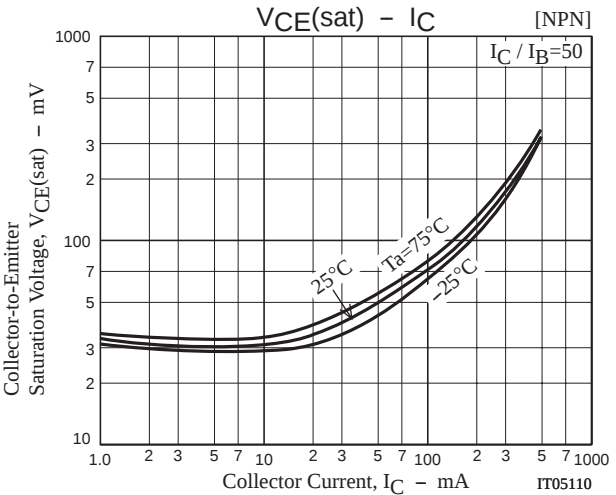
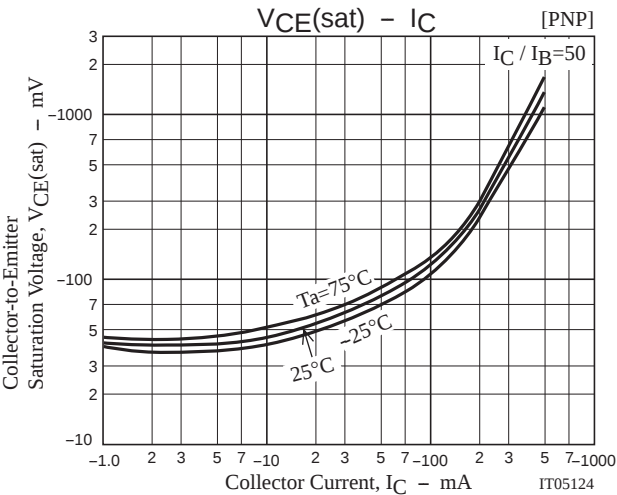
Switching Time Test Circuit

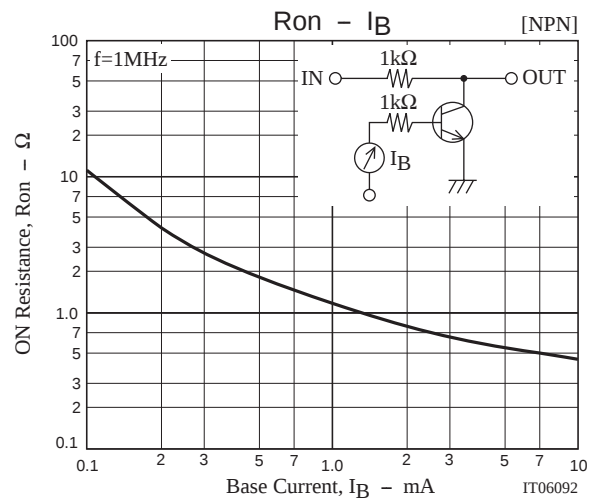
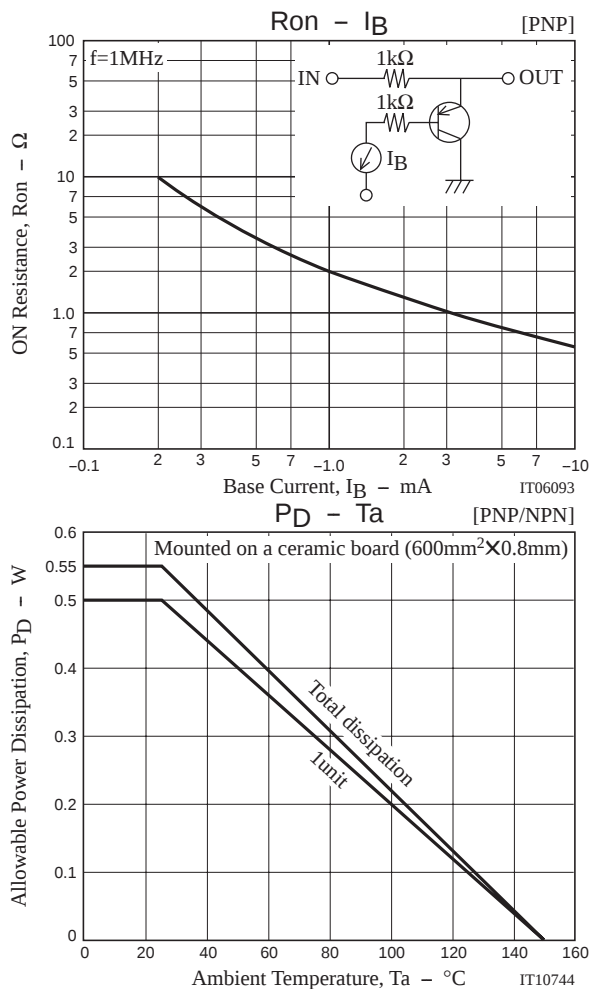


$I_C=20I_{B1}=-20I_{B2}=200\text{mA}$   
For PNP, the polarity is reversed.









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