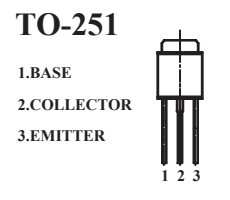


## PNP/NPN Epitaxial Planar Transistors

**(Pb)** Lead(Pb)-Free



### ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Rating  | Symbol                | PNP/WTP772  | NPN/WTP882 | Unit |
|---|-----------------------|-------------|------------|------|
| Collector-Emitter Voltage   | V <sub>CEO</sub>      | -30         | 30         | Vdc  |
| Collector-Base Voltage  | V <sub>CBO</sub>      | -40         | 40         | Vdc  |
| Emitter-Base Voltage  | V <sub>EBO</sub>      | -5.0        | 5.0        | Vdc  |
| Collector Current (DC)  | I <sub>C(DC)</sub>    | -3.0        | 3.0        | Adc  |
| Collector Current (Pulse) <sup>1</sup>                                | I <sub>C(Pulse)</sub> | -7.0        | 7.0        | Adc  |
| Base Current  | I <sub>B(Pulse)</sub> | -0.6        | 0.6        | Adc  |
| Total Device Dissipation T <sub>c</sub> =25°C<br>T <sub>A</sub> =25°C | P <sub>D</sub>        | 10<br>1.4   |            | W    |
| Junction Temperature  | T <sub>j</sub>        | 150         |            | °C   |
| Storage, Temperature  | T <sub>stg</sub>      | -55 to +150 |            | °C   |

### Device Marking

|                           |
|---------------------------|
| WTP772=B772 , WTP882=D882 |
|---------------------------|

### ELECTRICAL CHARACTERISTICS

| Characteristics  | Symbol               | Min      | Max      | Unit |
|--|----------------------|----------|----------|------|
| Collector-Emitter Breakdown Voltage (I <sub>C</sub> = -10/10 mA <sub>dc</sub> , I <sub>B</sub> =0) | V <sub>(BR)CEO</sub> | -30/30   | -        | Vdc  |
| Collector-Base Breakdown Voltage (I <sub>C</sub> = -100/100 μA <sub>dc</sub> , I <sub>E</sub> =0)  | V <sub>(BR)CBO</sub> | -40/40   | -        | Vdc  |
| Emitter-Base Breakdown Voltage (I <sub>E</sub> = -100/100 μA <sub>dc</sub> , I <sub>C</sub> =0)    | V <sub>(BR)EBO</sub> | -5.0/5.0 | -        | Vdc  |
| Collector Cutoff Current (V <sub>CE</sub> = -30/30 Vdc, I <sub>B</sub> =0)                         | I <sub>CEO</sub>     | -        | -1.0/1.0 | uAdc |
| Collector Cutoff Current (V <sub>CB</sub> = -40/40 Vdc, I <sub>E</sub> =0)                         | I <sub>CBO</sub>     | -        | -1.0/1.0 | uAdc |
| Emitter Cutoff Current (V <sub>EB</sub> = -6.0/6.0Vdc, I <sub>C</sub> =0)                          | I <sub>EBO</sub>     | -        | -1.0/1.0 | uAdc |

NOTE: 1.PW ≤350us, duty cycle ≤2%

**WTP772**  
**WTP882**



**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted) (Continued)

| Characteristics | Symbol | Min | TYP | Max | Unit |
|-----------------|--------|-----|-----|-----|------|
|-----------------|--------|-----|-----|-----|------|

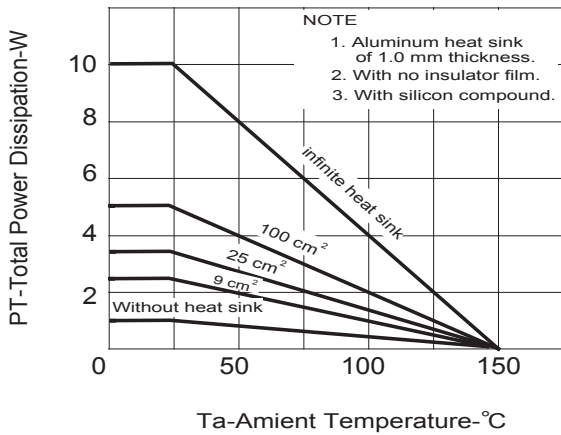
**ON CHARACTERISTICS**

|  |               |    |       |          |     |
|--|---------------|----|-------|----------|-----|
| DC Current Gain<br>( $I_C = -1.0/1.0 \text{ Adc}, V_{CE} = -2.0/2.0 \text{ Vdc}$ )                                     | $h_{FE(1)}$   | 60 | -     | 400      | -   |
| DC Current Gain<br>( $I_C = -100/100 \text{ mAdc}, V_{CE} = -2.0/2.0 \text{ Vdc}$ )                                    | $h_{FE(2)}$   | 32 | -     | -        | -   |
| Collector-Emitter Saturation Voltage<br>( $I_C = -2.0/2.0 \text{ Adc}, I_B = -0.2/0.2 \text{ mAdc}$ )                  | $V_{CE(sat)}$ | -  | -     | -0.5/0.5 | Vdc |
| Base-Emitter Saturation Voltage<br>( $I_C = -2.0/2.0 \text{ Adc}, I_B = -0.2/0.2 \text{ mAdc}$ )                       | $V_{BE(sat)}$ | -  | -     | -2.0/2.0 | Vdc |
| Current-Gain-Bandwidth Product<br>( $I_C = -0.1/0.1 \text{ mAdc}, V_{CE} = -5.0/5.0 \text{ Vdc}, f = 10 \text{ MHz}$ ) | $f_T$         | -  | 80/90 | -        | MHz |

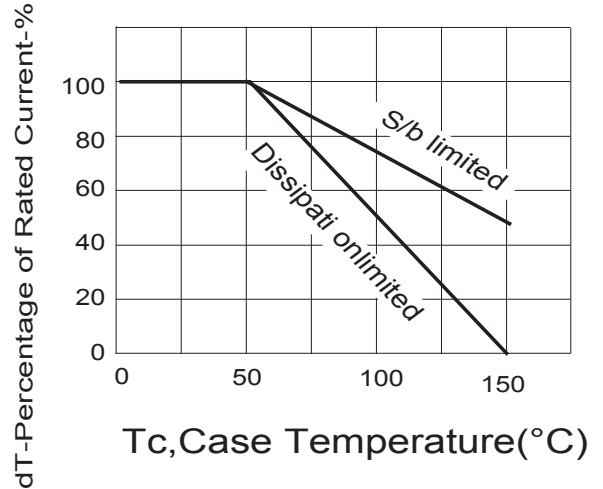
**Classification of  $h_{FE(1)}$**

| Rank  | R      | O       | Y       | GR      |
|-------|--------|---------|---------|---------|
| Range | 60-120 | 100-200 | 160-320 | 200-400 |

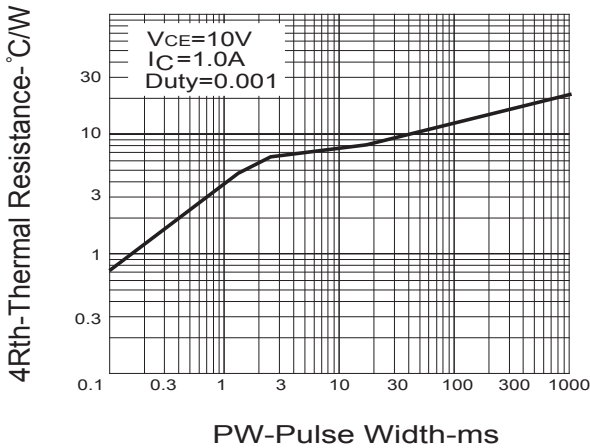
**F1. Total Power Dissipation VS. Ambient Temperature**



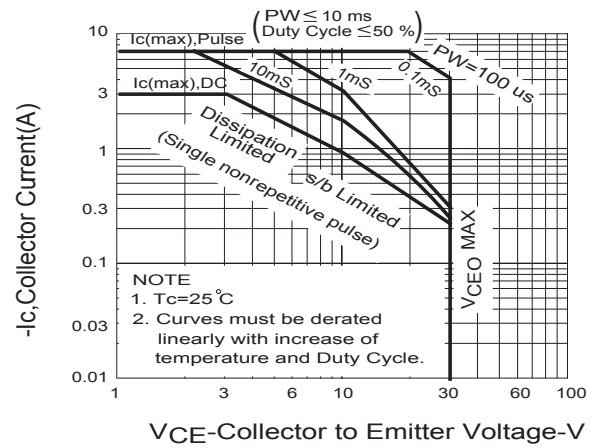
**F.2 Derating Curve for All Types**



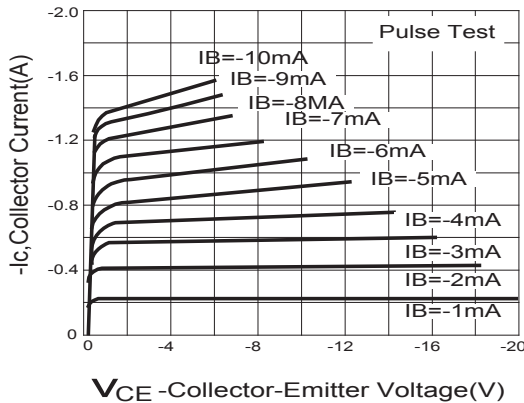
**F3. Thermal Resistance VS. Pulse Width**



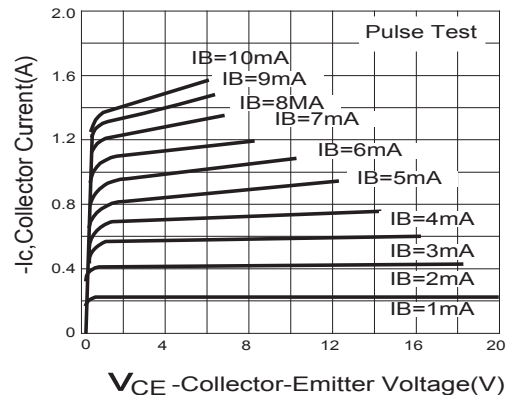
**F4. Safe Operating Areas**



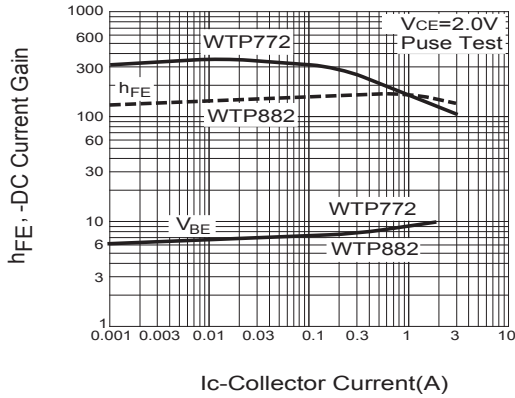
**WTP772**  
**F5. Collector Current VS. Collector To Emitter Voltage**



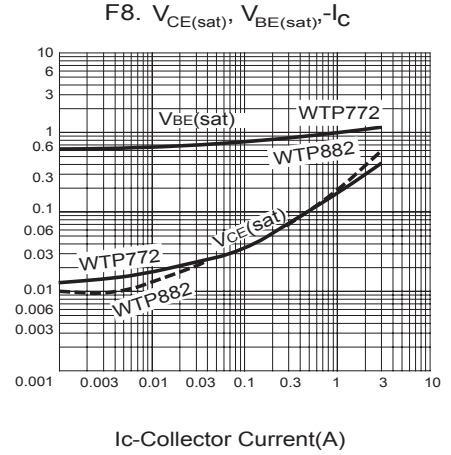
**WTP882**  
**F6. Collector Current VS. Collector To Emitter Voltage**



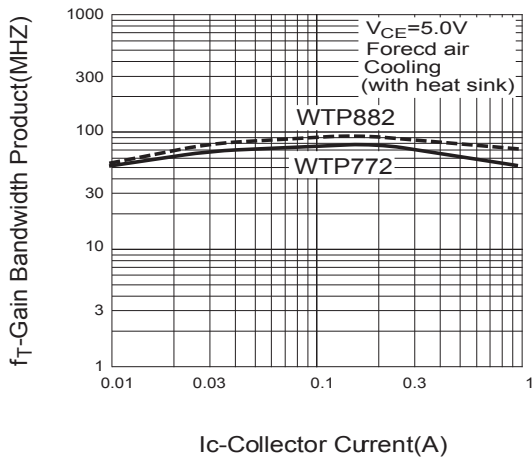
F7.  $h_{FE}, V_{BE}-I_C$



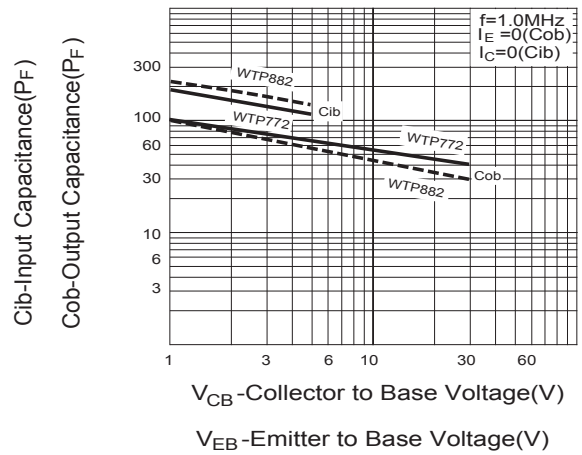
$V_{CE(sat)}, V_{BE(sat)}-I_C$



F9.  $f_T - I_C$

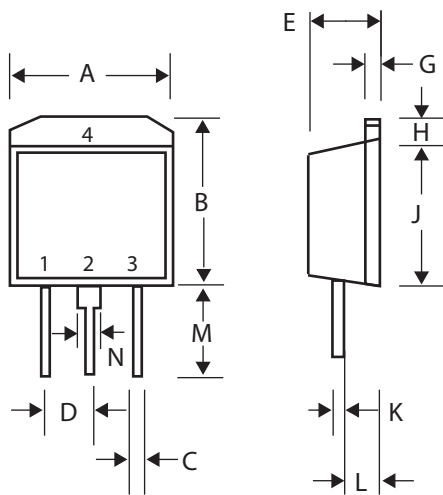


F10.  $C_{ob}-V_{CB}, C_{ib}-V_{CE}$



**TO-251 Outline Dimensions**

unit:mm



| <b>TO-251</b> |            |            |
|---------------|------------|------------|
| <b>Dim</b>    | <b>Min</b> | <b>Max</b> |
| <b>A</b>      | 6.40       | 6.80       |
| <b>B</b>      | 6.80       | 7.20       |
| <b>C</b>      | 0.50       | 0.80       |
| <b>D</b>      | -          | 2.30       |
| <b>E</b>      | 2.20       | 2.50       |
| <b>G</b>      | 0.45       | 0.55       |
| <b>H</b>      | 1.00       | 1.60       |
| <b>J</b>      | 5.40       | 5.80       |
| <b>K</b>      | 0.45       | 0.69       |
| <b>L</b>      | 0.90       | 1.50       |
| <b>M</b>      | 6.50       | -          |
| <b>N</b>      | -          | 0.90       |

1. Emitter
2. Base
3. Collector