

**TRIPLE DIFFUSED PLANER TYPE  
HIGH VOLTAGE,HIGH SPEED SWITCHING**

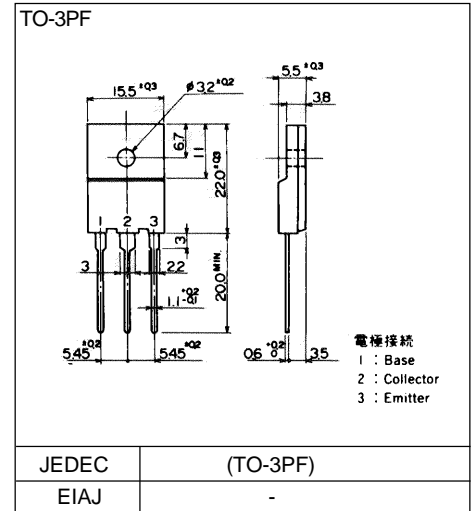
**■ Features**

- High voltage,High speed switching
- Low saturation voltage
- High reliability

**■ Applications**

- Switching regulators
- DC-DC convertors
- Solid state relay
- General purpose power amplifiers

**■ Outline Drawings**



**■ Maximum ratings and characteristics**

● Absolute maximum ratings (T<sub>c</sub>=25°C unless otherwise specified)

| Item                           | Symbol                | Ratings     | Unit |
|--------------------------------|-----------------------|-------------|------|
| Collector-Base voltage         | V <sub>CB0</sub>      | 500         | V    |
| Collector-Emitter voltage      | V <sub>CEO</sub>      | 400         | V    |
| Collector-Emitter voltage      | V <sub>CEO(SUS)</sub> | -           | V    |
| Emitter-Base voltage           | V <sub>EBO</sub>      | 10          | V    |
| Collector current              | I <sub>C</sub>        | 10          | A    |
| Base current                   | I <sub>B</sub>        | 3           | A    |
| Collector power dissipation    | P <sub>C</sub>        | 80          | W    |
| Operating junction temperature | T <sub>j</sub>        | +150        | °C   |
| Storage temperature            | T <sub>stg</sub>      | -55 to +150 | °C   |

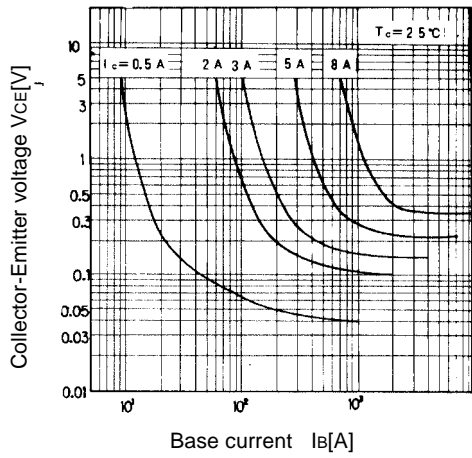
● Electrical characteristics (T<sub>c</sub> =25°C unless otherwise specified)

| Item                                 | Symbol                | Test Conditions                                | Min. | Typ. | Max. | Units |
|--------------------------------------|-----------------------|--|------|------|------|-------|
| Collector-Base voltage               | V <sub>CB0</sub>      | I <sub>CBO</sub> = 1mA                         | 500  |      |      | V     |
| Collector-Emitter voltage            | V <sub>CEO</sub>      |  |      |      |      | V     |
| Collector-Emitter voltage            | V <sub>CEO(SUS)</sub> | I <sub>C</sub> = 200mA                         | 400  |      |      | V     |
| Emitter-Base voltage                 | V <sub>EBO</sub>      | I <sub>EBO</sub> = 1mA                         | 10   |      |      | V     |
| Collector-Base leakage current       | I <sub>CBO</sub>      | V <sub>CB0</sub> = 450V                        |      |      | 0.1  | mA    |
| Emitter-Base leakage current         | I <sub>EBO</sub>      | V <sub>EBO</sub> = 10V                         |      |      | 0.1  | mA    |
| D.C. current gain                    | h <sub>FE</sub>       | I <sub>C</sub> = 1A, V <sub>CE</sub> = 5V      | 25   |      | 65   |       |
| Collector-Emitter saturation voltage | V <sub>CE(Sat)</sub>  | I <sub>C</sub> = 4A, I <sub>B</sub> = 0.8A     |      |      | 0.8  | V     |
| Base-Emitter saturation voltage      | V <sub>BE(Sat)</sub>  |  |      |      | 1.2  | V     |
| *1<br>Switching time                 | t <sub>on</sub>       | I <sub>C</sub> = 5A, I <sub>B1</sub> = 0.5A    |      |      | 1.0  | μs    |
|                                      | t <sub>stg</sub>      | I <sub>B2</sub> = -1A, R <sub>L</sub> = 30 ohm |      |      | 2.5  | μs    |
|                                      | t <sub>f</sub>        | P <sub>w</sub> = 20μs Duty=<2%                 |      |      | 0.5  | μs    |

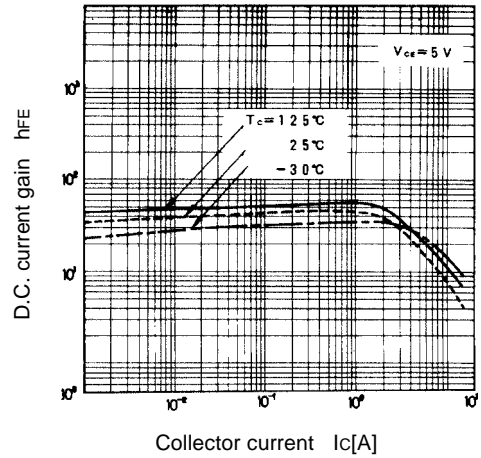
● Thermal characteristics

| Item               | Symbol               | Test Conditions  | Min. | Typ. | Max. | Units |
|--------------------|----------------------|------------------|------|------|------|-------|
| Thermal resistance | R <sub>th(j-c)</sub> | Junction to case |      |      | 1.56 | °C/W  |

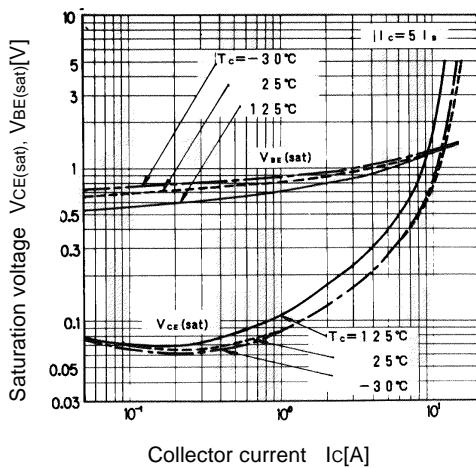
Characteristics



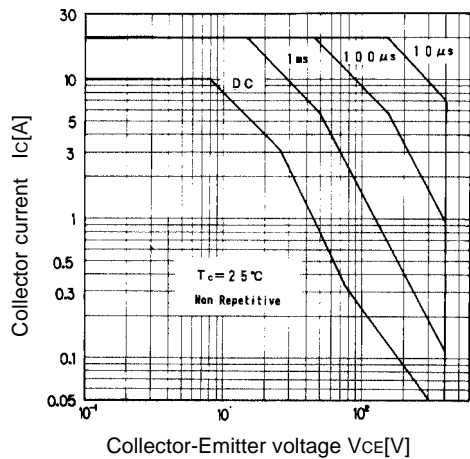
Collector Output Characteristics



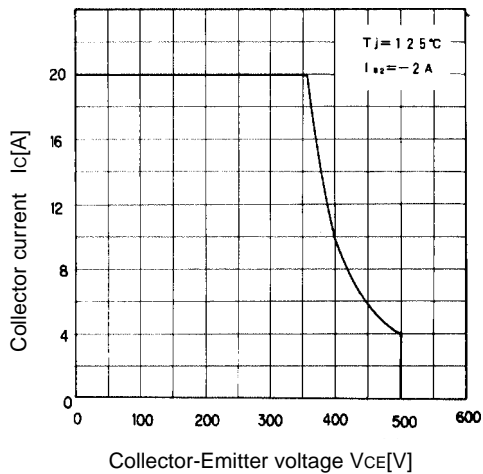
DC Current Gain



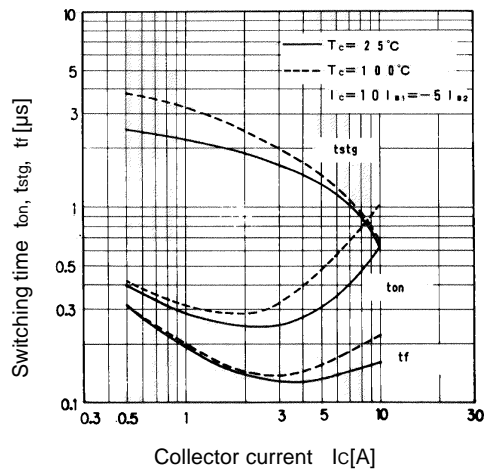
Base and Collector Saturation Voltage



Safe Operating Area

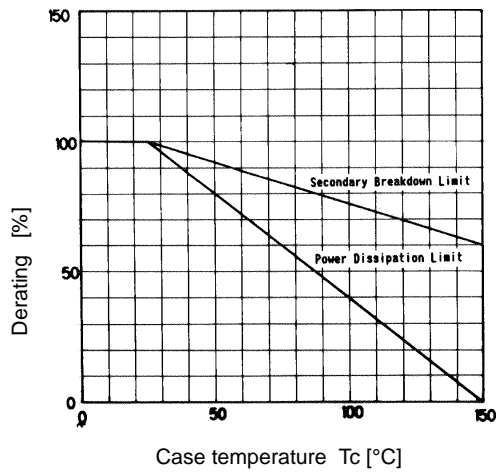


Reverse Biased Safe Operating Area

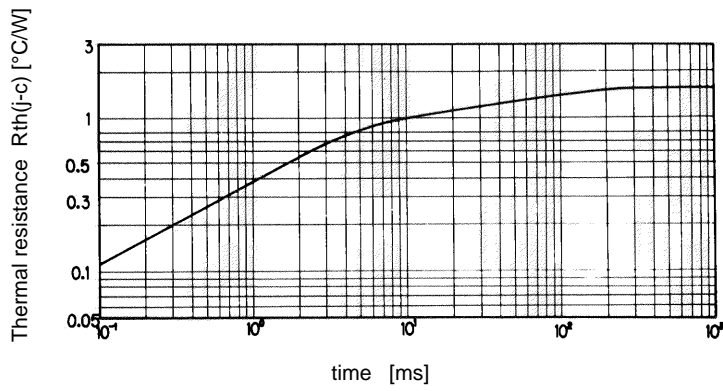


Switching Time

■ Characteristics



ASO Derating



Transient Thermal Resistance