

TRIPLE DIFFUSED PLANER TYPE
HIGH VOLTAGE, HIGH SPEED SWITCHING

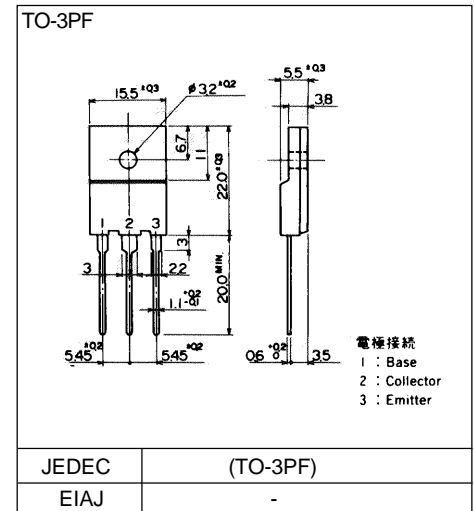
Features

- 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_c=25°C unless otherwise specified)

| Item | Symbol | Ratings | Unit |
|--------------------------------|-----------------------|-------------|------|
| Collector-Base voltage | V _{CB0} | 500 | V |
| Collector-Emitter voltage | V _{CEO} | 400 | V |
| Collector-Emitter voltage | V _{CEO(SUS)} | - | V |
| Emitter-Base voltage | V _{EBO} | 10 | V |
| Collector current | I _C | 10 | A |
| Base current | I _B | 3 | A |
| Collector power dissipation | P _C | 80 | W |
| Operating junction temperature | T _j | +150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

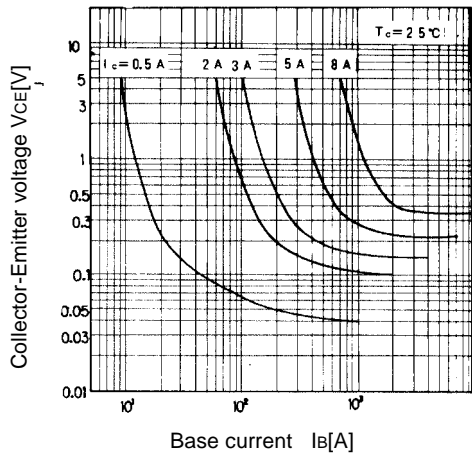
Electrical characteristics (T_c = 25°C unless otherwise specified)

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

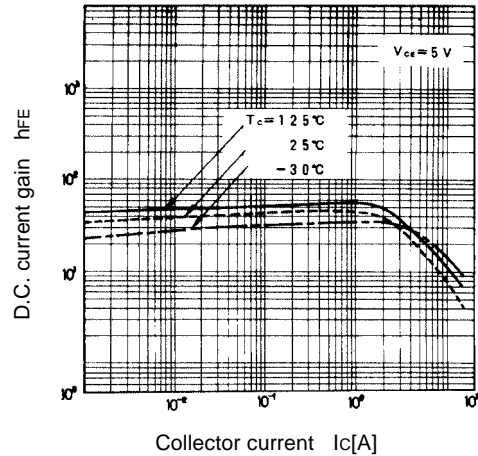
Thermal characteristics

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

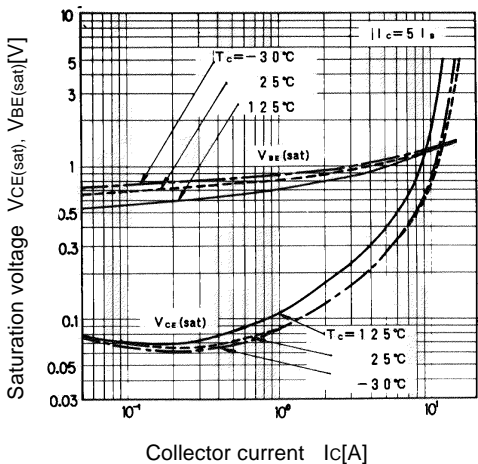
Characteristics



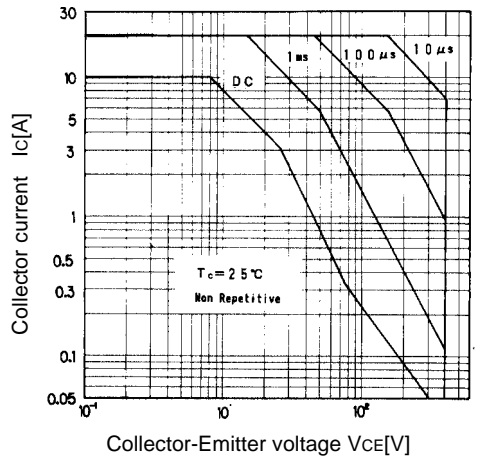
Collector Output Characteristics



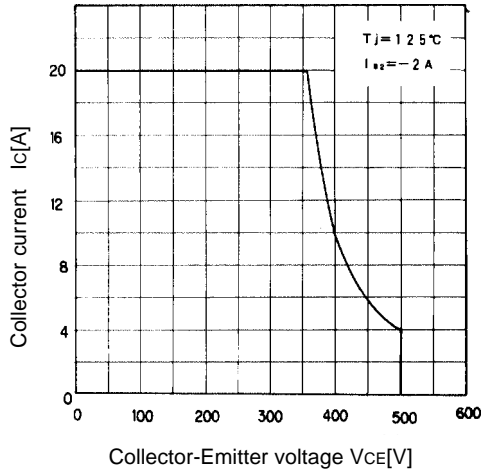
DC Current Gain



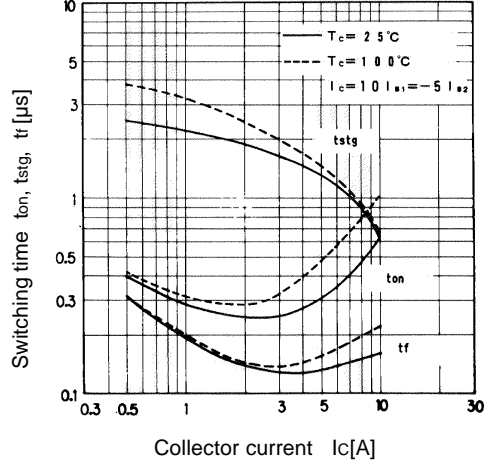
Base and Collector Saturation Voltage



Safe Operating Area

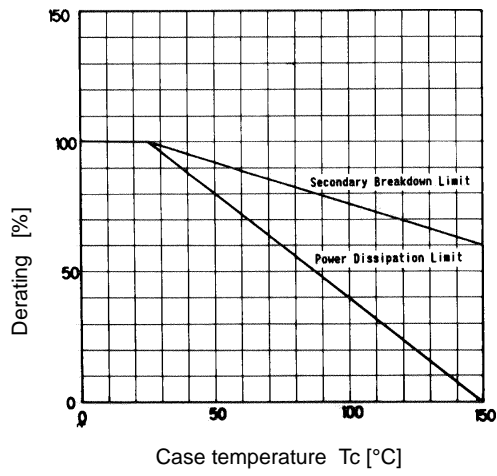


Reverse Biased Safe Operating Area

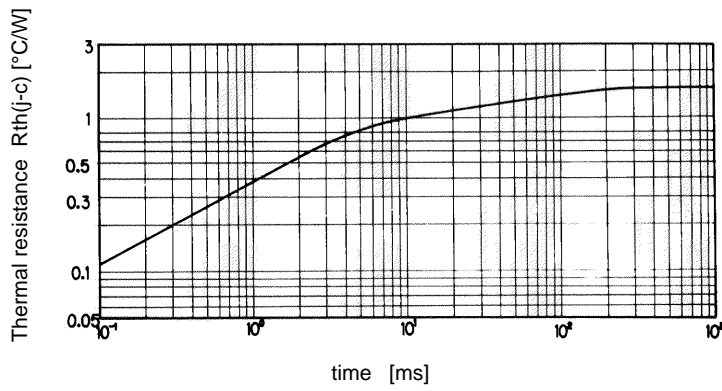


Switching Time

■ Characteristics



ASO Derating



Transient Thermal Resistance