

TRIPLE DIFFUSED PLANER TYPE  
HIGH VOLTAGE,HIGH SPEED SWITCHING

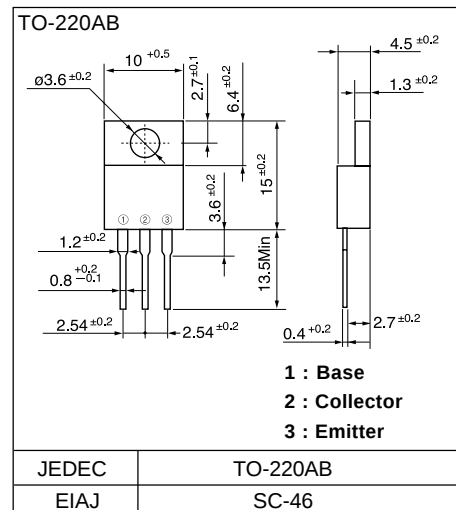
## ■ Features

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

## ■ Applications

- Switching regulators
- DC-DC convertor
- 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> | 450         | V    |
| Collector-Emitter voltage      | V <sub>CE0</sub> | 400         | V    |
| Emitter-Base voltage           | V <sub>EB0</sub> | 10          | V    |
| Collector current              | I <sub>C</sub>   | 7           | A    |
| Base current                   | I <sub>B</sub>   | 2           | A    |
| Collector power dissipation    | P <sub>C</sub>   | 40          | W    |
| Operating junction temperature | T <sub>j</sub>   | +150        | °C   |
| Storage temperature            | T <sub>stg</sub> | -55 to +150 | °C   |

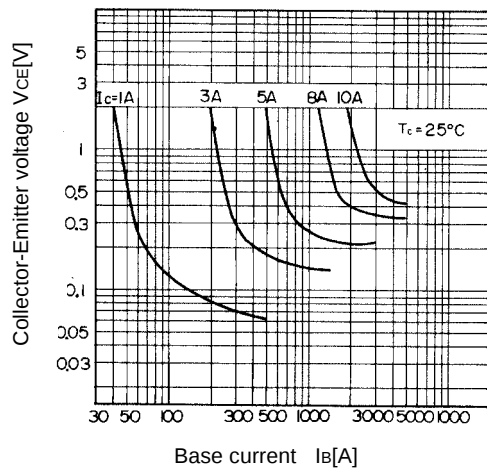
### ● Electrical characteristics (T<sub>c</sub> =25°C unless otherwise specified)

| Item                                 | Symbol               | Test Conditions                                | Min. | Typ. | Max. | Units |
|--------------------------------------|----------------------|------------------------------------------------|------|------|------|-------|
| Collector-Base voltage               | V <sub>CB0</sub>     | I <sub>CBO</sub> = 1mA                         | 450  |      |      | V     |
| Collector-Emitter voltage            | V <sub>CE0</sub>     | I <sub>CE0</sub> = 0.2A                        | 400  |      |      | V     |
| Emitter-Base voltage                 | V <sub>EB0</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>EB0</sub> = 10V                         |      | -    | 0.1  | mA    |
| D.C. current gain                    | h <sub>FE</sub>      | I <sub>C</sub> = 4A, V <sub>CE</sub> = 5V      | 10   |      |      |       |
| Collector-Emitter saturation voltage | V <sub>CE(Sat)</sub> | I <sub>C</sub> = 4A, I <sub>B</sub> = 800mA    |      |      | 0.8  | V     |
| Base-Emitter saturation voltage      | V <sub>BE(Sat)</sub> |                                                |      |      | 1.2  | V     |
| *1                                   | t <sub>on</sub>      | I <sub>C</sub> = 5A, I <sub>B1</sub> = 1A      |      |      | 1.0  | μs    |
| Switching time                       | t <sub>stg</sub>     | I <sub>B2</sub> = -2A, R <sub>L</sub> = 30 ohm |      |      | 2.5  | μs    |
|                                      | t <sub>f</sub>       | P <sub>w</sub> = 20μs Duty=<2%                 |      |      | 0.5  | μs    |

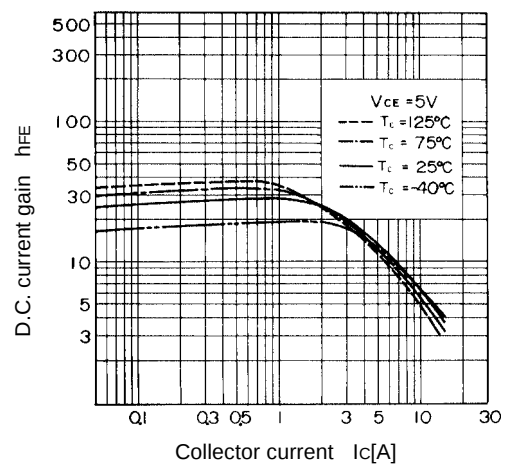
### ● Thermal characteristics

| Item               | Symbol               | Test Conditions  | Min. | Typ. | Max. | Units |
|--------------------|----------------------|------------------|------|------|------|-------|
| Thermal resistance | R <sub>th(j-c)</sub> | Junction to case |      |      | 3.0  | °C/W  |

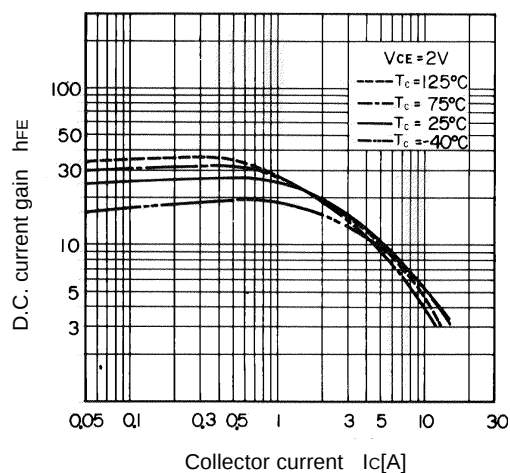
Characteristics



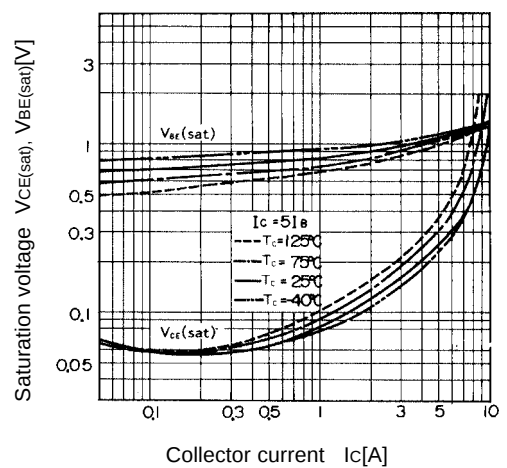
Collector Output Characteristics



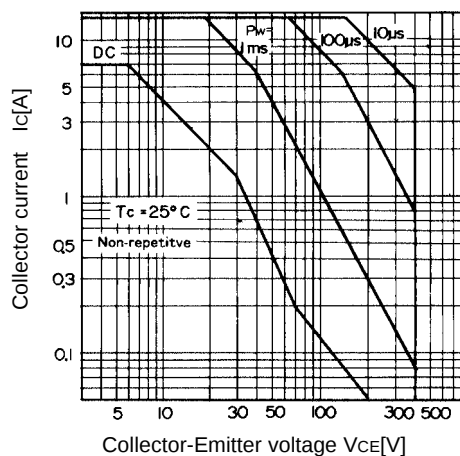
DC Current Gain



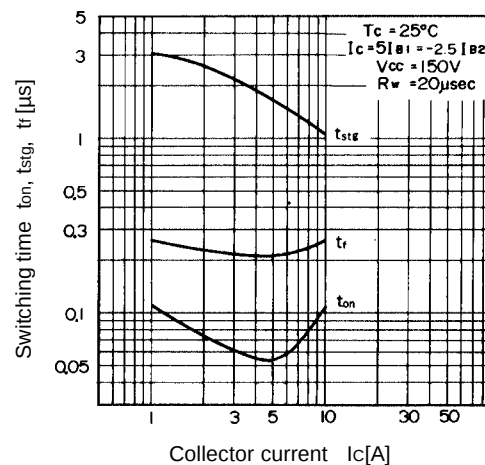
DC Current Gain



Base and Collector Saturation Voltage



Safe Operating Area



Switching Time