

TRIPLE DIFFUSED PLANER TYPE  
HIGH VOLTAGE, HIGH SPEED SWITCHING

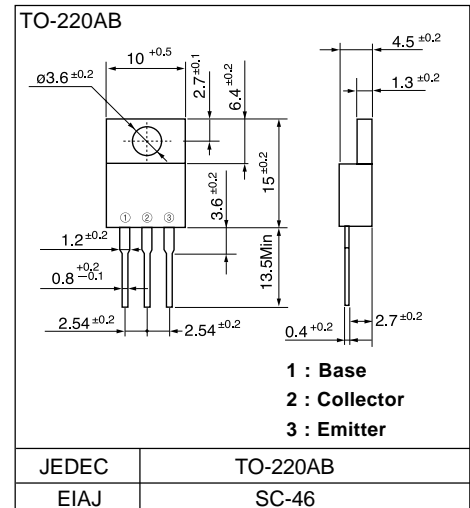
## ■ Features

- 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>	500	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>	10	A
Base current	I <sub>B</sub>	3	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

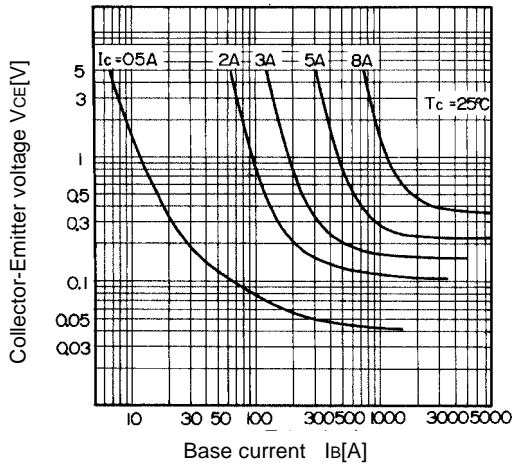
### ● Electrical characteristics (T<sub>c</sub> =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Base voltage	V <sub>CB0</sub>	I <sub>CBO</sub> = 1mA	500			V
Collector-Emitter voltage	V <sub>CE0</sub>	I <sub>CEO</sub> = 0.2A	400			V
Collector-Emitter voltage	V <sub>EB0</sub>	I <sub>EBO</sub> = 1mA	10			V
Emitter-Base voltage	I <sub>CBO</sub>	V <sub>CB0</sub> = 450V			0.1	mA
Collector-Base leakage current	I <sub>EBO</sub>	V <sub>EB0</sub> = 10V			0.1	mA
Emitter-Base leakage current	h <sub>FE</sub>	I <sub>C</sub> = 1A, V <sub>CE</sub> = 5V	25		55	
D.C. current gain	V <sub>CE(Sat)</sub>	I <sub>C</sub> = 4A, I <sub>B</sub> = 800mA			0.8	V
Collector-Emitter saturation voltage	V <sub>BE(Sat)</sub>				1.2	V
Base-Emitter saturation voltage	t <sub>on</sub>	I <sub>C</sub> = 5A, I <sub>B1</sub> = 500mA			1.0	μs
*1	t <sub>stg</sub>	I <sub>B2</sub> = -1000mA, R <sub>L</sub> = 30 ohm			2.5	μs
Switching time	t <sub>f</sub>	P <sub>w</sub> = 20μs Duty=<2%			0.5	μs

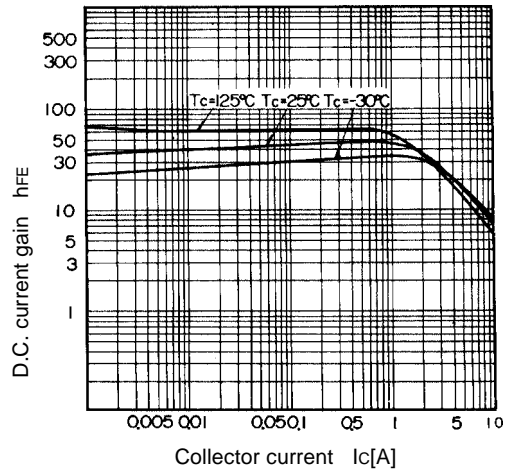
### ● Thermal characteristics

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

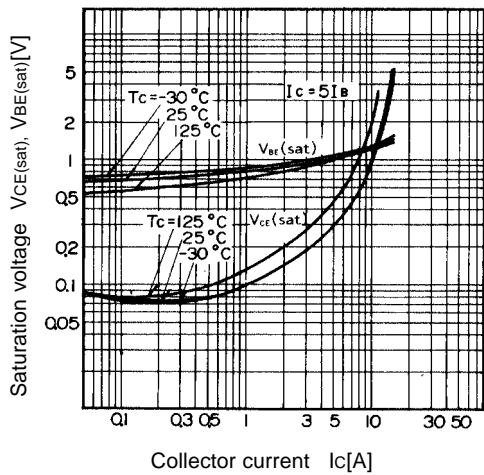
Characteristics



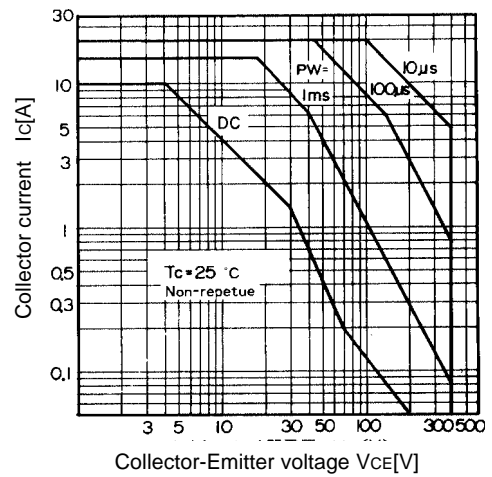
Collector Output Characteristics



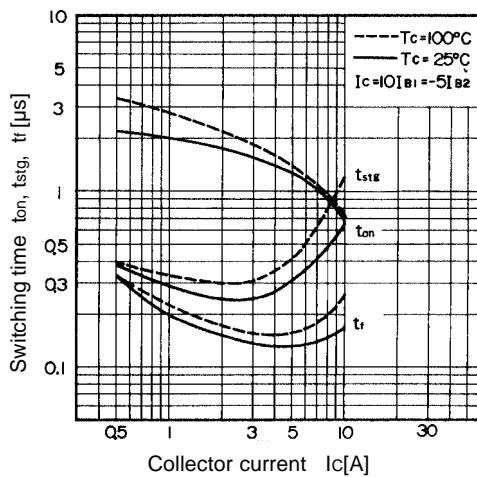
DC Current Gain



Base and Collector Saturation Voltage



Safe Operating Area



Switching Time

\*1 Switching Time Test Circuit

