

TRIPLE DIFFUSED PLANER TYPE  
HIGH SPEED SWITCHING

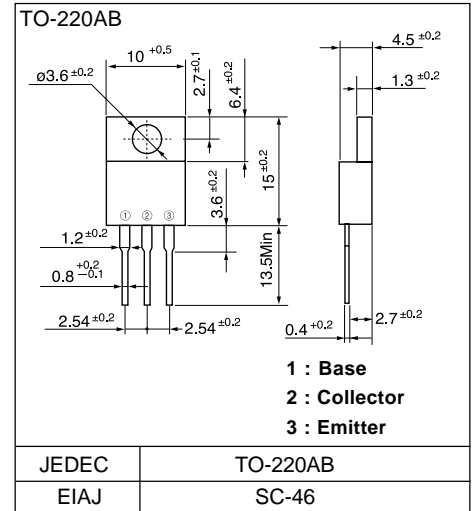
### ■ Features

- High speed switching
- High D.C. current gain
- Low saturation voltage
- High reliability

### ■ Applications

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

### ■ Outline Drawings



### ■ Maximum ratings and characteristics

#### ● Absolute maximum ratings (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit
Collector-Base voltage	V <sub>CB0</sub>	80	V
Collector-Emitter voltage	V <sub>CE0</sub>	50	V
Emitter-Base voltage	V <sub>EB0</sub>	15	V
Collector current	I <sub>C</sub>	10	A
Base current	I <sub>B</sub>	3	A
Collector power dissipation	P <sub>C</sub>	50	W
Operating junction temperature	T <sub>j</sub>	+150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

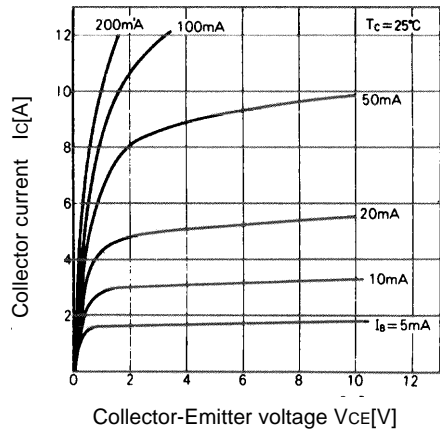
#### ● Electrical characteristics (Tc =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Base voltage	V <sub>CB0</sub>	I <sub>CBO</sub> = 0.1mA	80			V
Collector-Emitter voltage	V <sub>CE0</sub>	I <sub>C</sub> = 10mA	50			V
Emitter-Base voltage	V <sub>EB0</sub>	I <sub>EBO</sub> = 0.1mA	15			V
Collector-Base leakage current	I <sub>CBO</sub>	V <sub>CB0</sub> = 80V			0.01	mA
Emitter-Base leakage current	I <sub>EBO</sub>	V <sub>EB0</sub> = 15V			0.1	mA
D.C. current gain	h <sub>FE</sub>	I <sub>C</sub> = 1A, V <sub>CE</sub> = 5V	300	500		
Collector-Emitter saturation voltage	V <sub>CE(Sat)</sub>	I <sub>C</sub> = 2A, I <sub>B</sub> = 100mA			0.5	V
Base-Emitter saturation voltage	V <sub>BE(Sat)</sub>				1.5	V
*1 Switching time	t <sub>on</sub>	I <sub>C</sub> = 5A, I <sub>B1</sub> = 500mA			0.5	μs
	t <sub>stg</sub>	I <sub>B2</sub> = -500mA, R <sub>L</sub> = 6 ohm			3.0	μs
	t <sub>f</sub>	P <sub>W</sub> = 20μs, Duty = <2%			0.8	μs

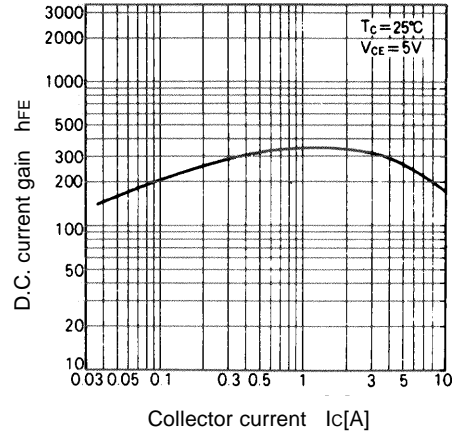
#### ● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R <sub>th(j-c)</sub>	Junction to case			2.5	°C/W

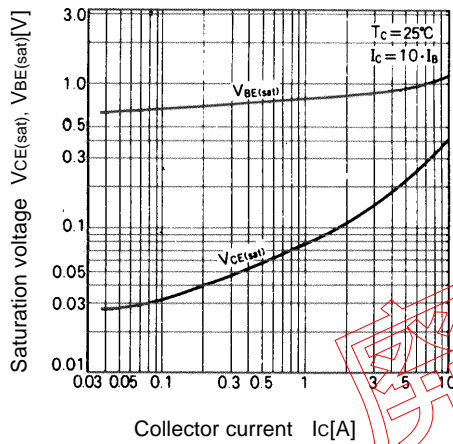
Characteristics



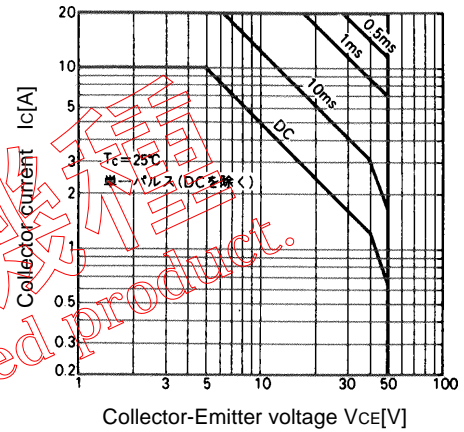
Collector Output Characteristics



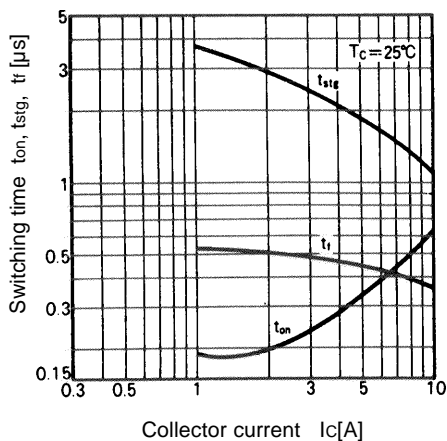
DC Current Gain



Base and Collector Saturation Voltage



Safe Operating Area



Switching Time

\*1 Switching Time Test Circuit

