

TRIPLE DIFFUSED PLANER TYPE
HIGH VOLTAGE, HIGH SPEED SWITCHING

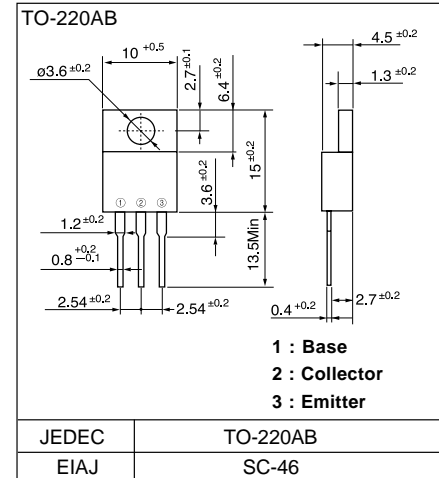
Features

- High voltage, High speed switching
- High reliability

Applications

- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

Outline Drawings



Maximum ratings and characteristics

- Absolute maximum ratings ($T_c=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Ratings	Unit
Collector-Base voltage	V_{CB0}	450	V
Collector-Emitter voltage	V_{CE0}	400	V
Collector-Emitter voltage	$V_{CE0(SUS)}$	400	V
Emitter-Base voltage	V_{EBO}	7	V
Collector current	I_C	5	A
Base current	I_B	1.5	A
Collector power dissipation	P_C	40	W
Operating junction temperature	T_j	+150	$^\circ\text{C}$
Storage temperature	T_{stg}	-45 to +150	$^\circ\text{C}$

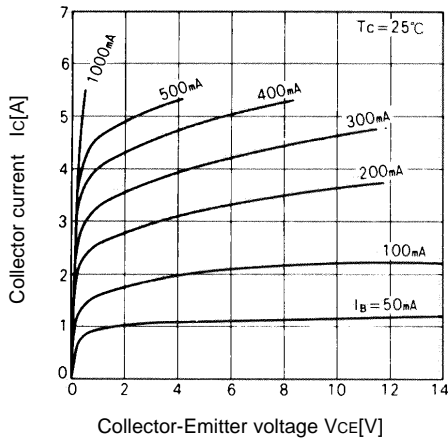
- Electrical characteristics ($T_c=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Base voltage	V_{CB0}	$I_{CBO} = 1\text{mA}$	450			V
Collector-Emitter voltage	V_{CE0}	$I_{CEO} = 10\text{mA}$	400			V
Collector-Emitter voltage	$V_{CE0(SUS)}$	$I_C = 1\text{A}$	400	-		V
Emitter-Base voltage	V_{EBO}	$I_{EBO} = 0.1\text{mA}$	7	-		V
Collector-Base leakage current	I_{CBO}	$V_{CB0} = 450\text{V}$		-	1.0	mA
Emitter-Base leakage current	I_{EBO}	$V_{EBO} = 7\text{V}$		-	0.1	mA
D.C. current gain	h_{FE}	$I_C = 2\text{A}, V_{CE} = 5\text{V}$	10			
Collector-Emitter saturation voltage	$V_{CE(Sat)}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1.2	V
Base-Emitter saturation voltage	$V_{BE(Sat)}$				1.5	V
*1	t_{on}	$I_C = 4\text{A}, I_{B1} = 0.8\text{A}$			1.0	μs
Switching time	t_{stg}	$I_{B2} = -0.8\text{A}, R_L = 20\text{ohm}$			2.0	μs
	t_f	$P_w = 20\mu\text{s}, \text{Duty} < 2\%$			1.0	μs

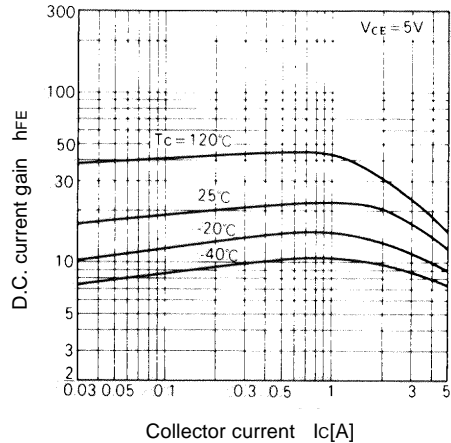
- Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(j-c)}$	Junction to case			3.0	$^\circ\text{C/W}$

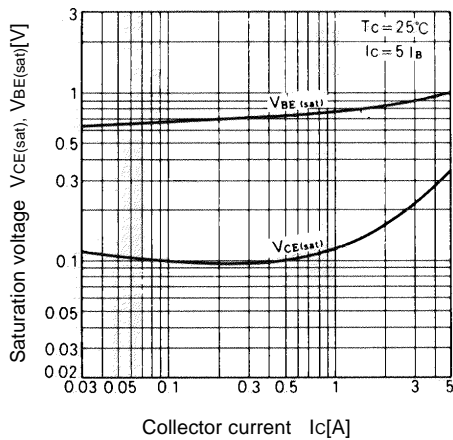
Characteristics



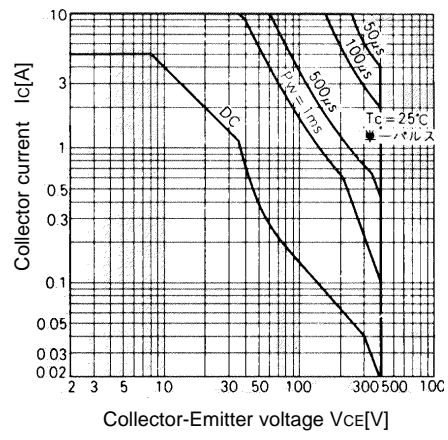
Collector Output Characteristics



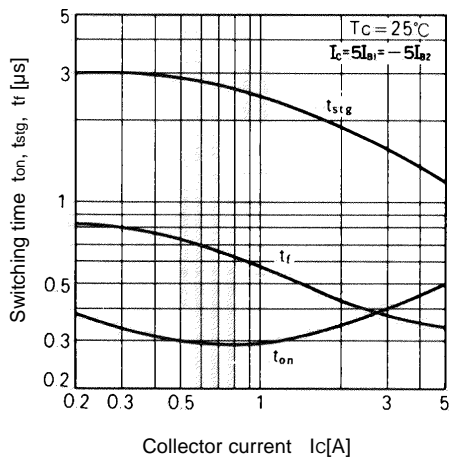
DC Current Gain



Base and Collector Saturation Voltage



Safe Operating Area



Switching Time

*1 Switching Time Test Circuit

