

## Fuji Discrete Package IGBT

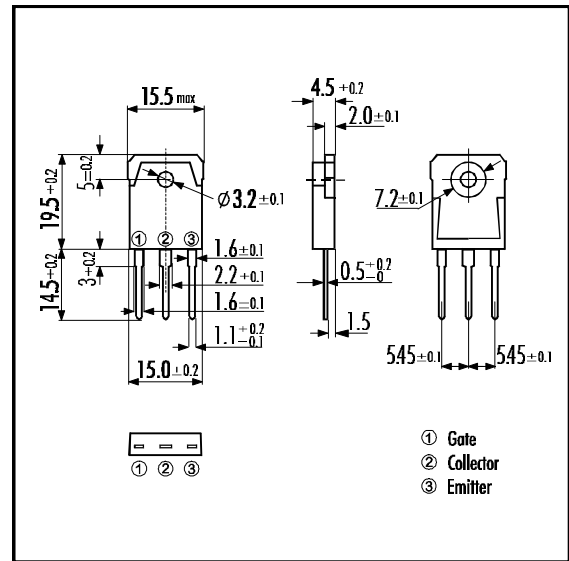
### ■ Features

- Square RBSOA
- Low Saturation Voltage
- Less Total Power Dissipation
- Minimized Internal Stray Inductance

### ■ Applications

- High Power Switching
- A.C. Motor Controls
- D.C. Motor Controls
- Uninterruptible Power Supply

## ■ Outline Drawing

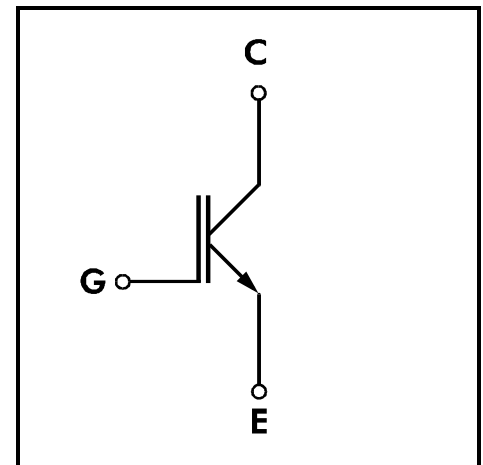


## ■ Maximum Ratings and Characteristics

### • Absolute Maximum Ratings (T<sub>c</sub>=25°C)

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	V <sub>CES</sub>	1200	V
Gate -Emitter Voltage	V <sub>GES</sub>	± 20	V
Collector Current	DC T <sub>c</sub> = 25°C	I <sub>C 25</sub>	16
	DC T <sub>c</sub> =100°C	I <sub>C 100</sub>	10
	1ms T <sub>c</sub> = 25°C	I <sub>C PULSE</sub>	48
IGBT Max. Power Dissipation	P <sub>C</sub>	135	W
Operating Temperature	T <sub>i</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +150	°C
Mounting Screw Torque		50	Nm

## ■ Equivalent Circuit



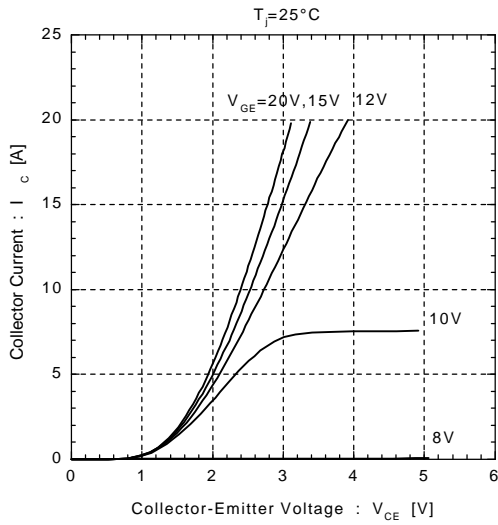
### • Electrical Characteristics (at T<sub>F</sub>=25°C)

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units		
Zero Gate Voltage Collector Current	I <sub>CES</sub>	V <sub>GE</sub> =0V V <sub>CE</sub> =1200V			1.0	mA		
Gate-Emitter Leakage Current	I <sub>GES</sub>	V <sub>CE</sub> =0V V <sub>GE</sub> =± 20V			20	μA		
Gate-Emitter Threshold Voltage	V <sub>GE(th)</sub>	V <sub>GE</sub> =20V I <sub>C</sub> =10mA	5.5		8.5	V		
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V I <sub>C</sub> =10A			3.5	V		
Input capacitance	C <sub>ies</sub>	V <sub>GE</sub> =0V		1200		pF		
Output capacitance	C <sub>oes</sub>	V <sub>CE</sub> =10V		250				
Reverse Transfer capacitance	C <sub>res</sub>	f=1MHz		80				
Switching Time	Turn-on Time	t <sub>ON</sub>	V <sub>CC</sub> =600V			1.2	μs	
		t <sub>r</sub>	I <sub>C</sub> =10A			0.6		
	Turn-off Time	t <sub>OFF</sub>	V <sub>GE</sub> =±15V			1.5		
		t <sub>f</sub>	R <sub>G</sub> =160Ω			0.5		
	Turn-on Time	t <sub>ON</sub>	V <sub>CC</sub> =600V		0.16		μs	
		t <sub>r</sub>	I <sub>C</sub> =10A		0.11			
		Turn-off Time	t <sub>OFF</sub>	V <sub>GE</sub> =+15V		0.30		
			t <sub>f</sub>	R <sub>G</sub> =16Ω				0.5

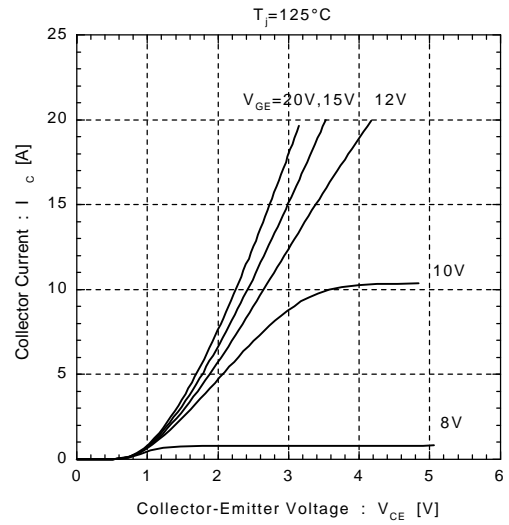
### • Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R <sub>th(j-c)</sub>				0.92	°C/W

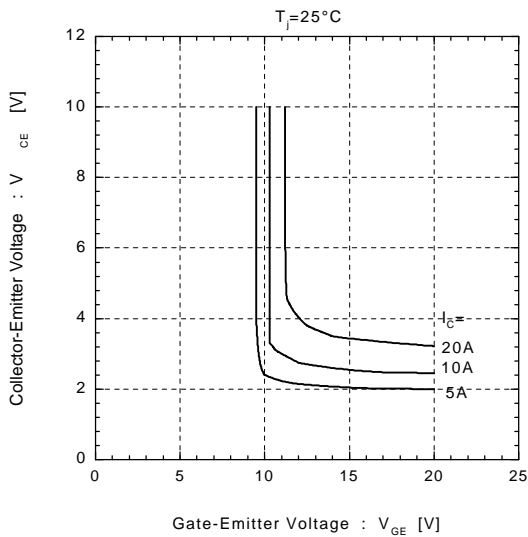
Collector Current vs. Collector-Emitter Voltage



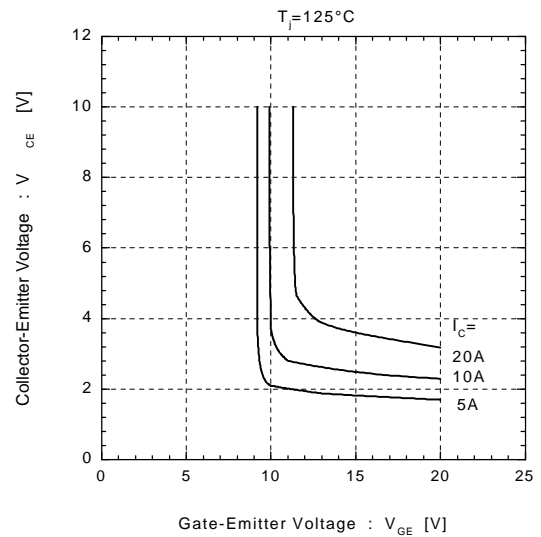
Collector Current vs. Collector-Emitter Voltage



Collector-Emitter Voltage vs. Gate-Emitter Voltage

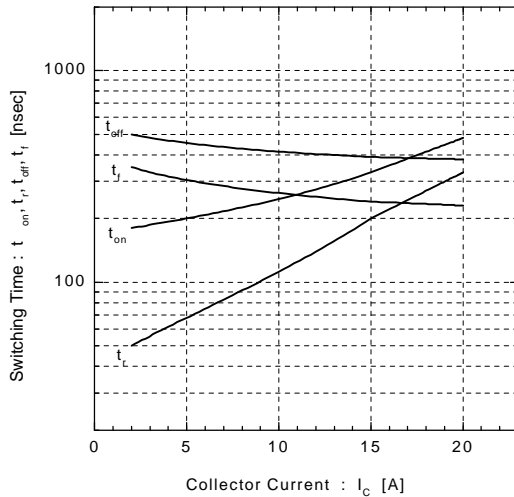


Collector-Emitter Voltage vs. Gate-Emitter Voltage



Switching Time vs. Collector Current

$V_{CC}=600V, R_G=16\Omega, V_{GE}=\pm 15V, T_J=25^\circ\text{C}$



Switching Time vs. Collector Current

$V_{CC}=600V, R_G=16\Omega, V_{GE}=\pm 15V, T_J=125^\circ\text{C}$

