

## Fuji Discrete Package IGBT

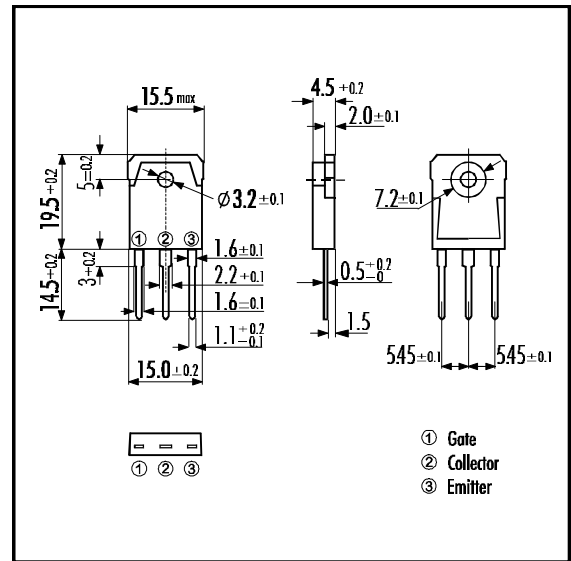
### ■ Features

- 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

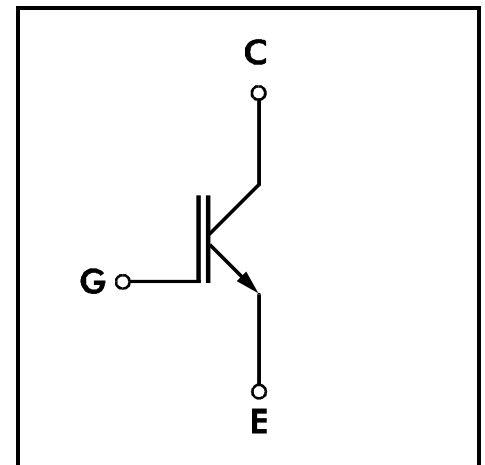


## ■ Maximum Ratings and Characteristics

### • Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	$V_{CES}$	600	V
Gate -Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC $T_c=25^\circ\text{C}$	$I_{C25}$	38
	DC $T_c=100^\circ\text{C}$	$I_{C100}$	20
	1ms $T_c=25^\circ\text{C}$	$I_{CPULSE}$	152
IGBT Max. Power Dissipation	$P_C$	145	W
Operating Temperature	$T_j$	+150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 ~ +150	$^\circ\text{C}$
Mounting Screw Torque		50	Nm

## ■ Equivalent Circuit



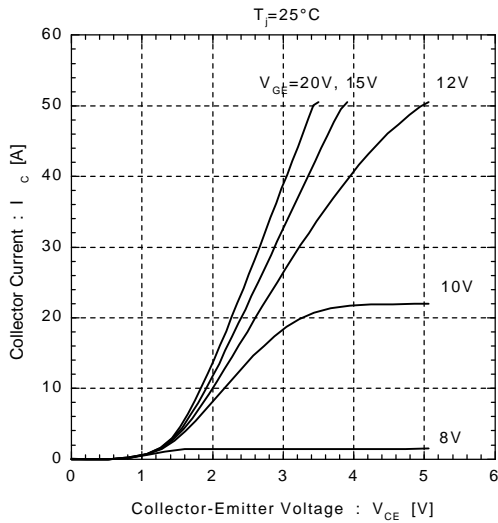
### • Electrical Characteristics ( at $T_F=25^\circ\text{C}$ )

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units	
Zero Gate Voltage Collector Current	$I_{CES}$	$V_{GE}=0V$ $V_{CE}=600V$			1.0	mA	
Gate-Emitter Leakage Current	$I_{GES}$	$V_{CE}=0V$ $V_{GE}=\pm 20V$			20	$\mu\text{A}$	
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=20V$ $I_C=20\text{mA}$	5.5		8.5	V	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V$ $I_C=20\text{A}$			3.0	V	
Input capacitance	$C_{ies}$	$V_{GE}=0V$		1300		pF	
Output capacitance	$C_{oes}$	$V_{CE}=10V$		300			
Reverse Transfer capacitance	$C_{res}$	$f=1\text{MHz}$		70			
Switching Time	Turn-on Time	$t_{ON}$	$V_{CC}=300V$ $I_C=20A$ $V_{GE}=\pm 15V$ $R_G=120\Omega$		1.2	$\mu\text{s}$	
		$t_r$			0.6		
	Turn-off Time	$t_{OFF}$			1.0		
		$t_f$			0.35		
	Turn-on Time	$t_{ON}$	$V_{CC}=300V$ $I_C=20A$ $V_{GE}=+15V$ $R_G=12\Omega$		0.16	$\mu\text{s}$	
		$t_r$			0.11		
		Turn-off Time		$t_{OFF}$			0.30
				$t_f$			0.35

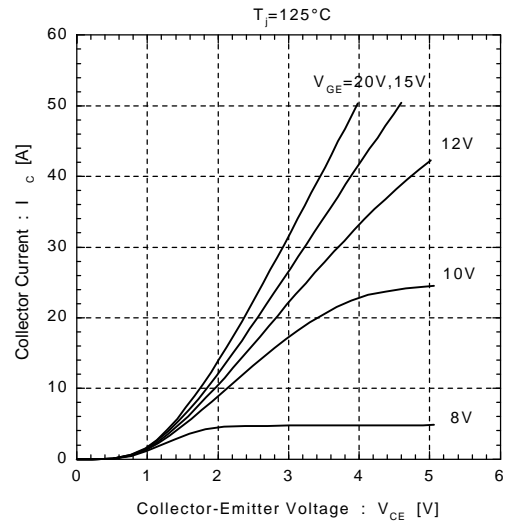
### • Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th(j-c)}$				0.86	

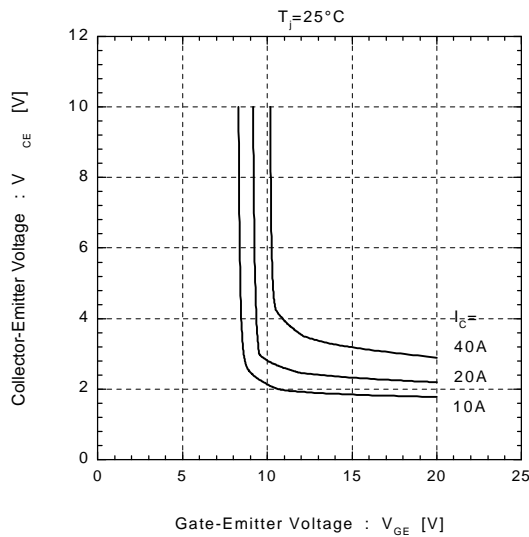
Collector Current vs. Collector-Emitter Voltage



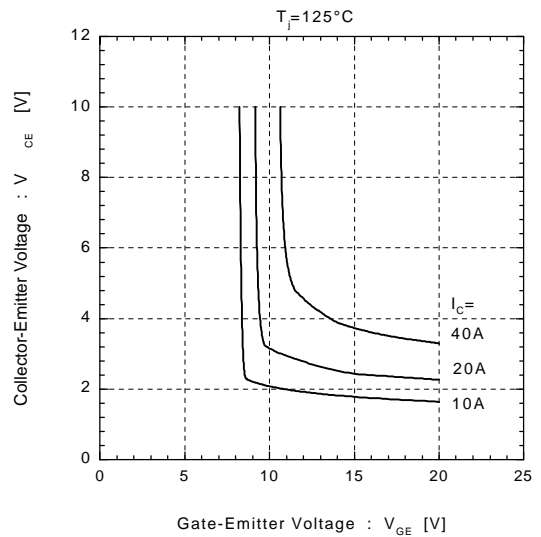
Collector Current vs. Collector-Emitter Voltage



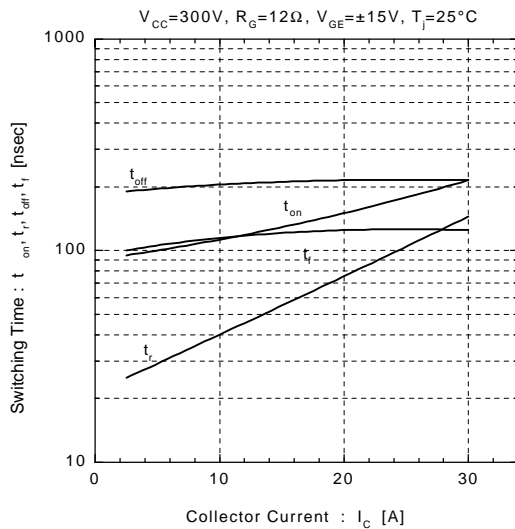
Collector-Emitter Voltage vs. Gate-Emitter Voltage



Collector-Emitter Voltage vs. Gate-Emitter Voltage



Switching Time vs. Collector Current



Switching Time vs. Collector Current

