

Fuji Discrete Package IGBT

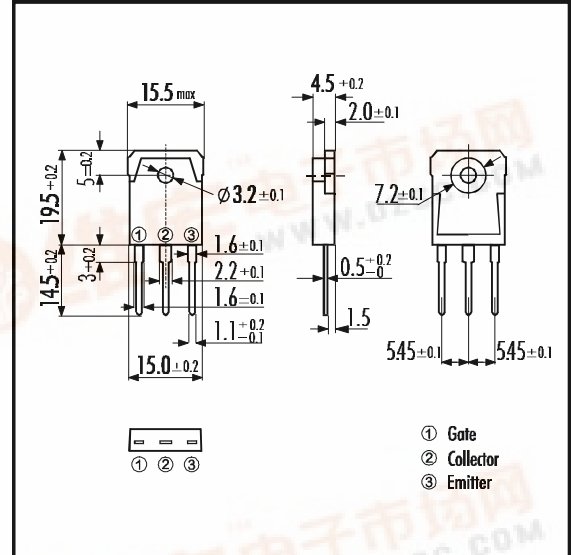
■ Features

- 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

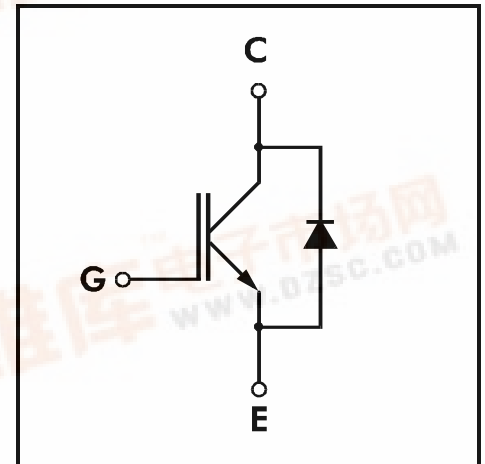


■ Maximum Ratings and Characteristics

• Absolute Maximum Ratings (T_c=25°C)

Items	Symbols	Rated	Units
Collector-Emitter Voltage	V _{CE} S	1200	V
Gate -Emitter Voltage	V _{GE} S	± 20	V
Collector Current	DC T _c = 25°C	I _C 25	13
	DC T _c =100°C	I _C 100	8
	1ms T _c = 25°C	I _C PULSE	39
IGBT Max. Power Dissipation	P _C	115	W
FWD Max. Power Dissipation	P _C	70	W
Operating Temperature	T _j	+150	°C
Storage Temperature	T _{stg}	-40 ~ +150	°C
Mounting Screw Torque		50	Nm

■ Equivalent Circuit



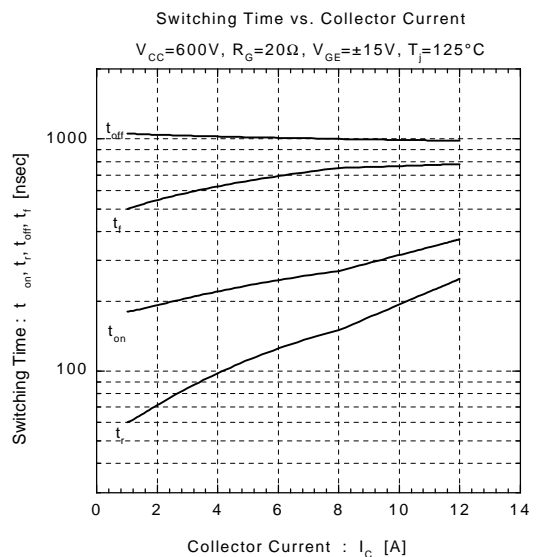
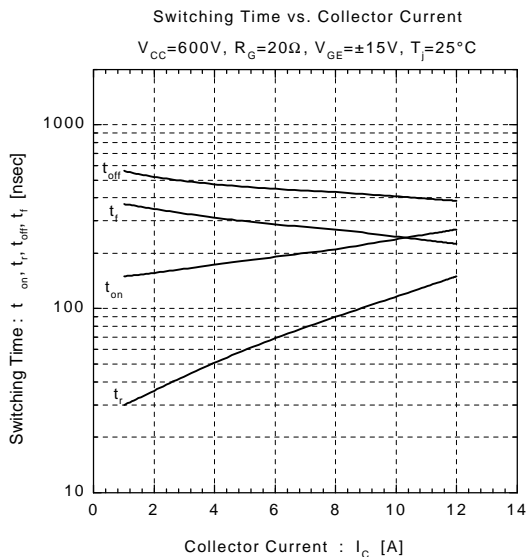
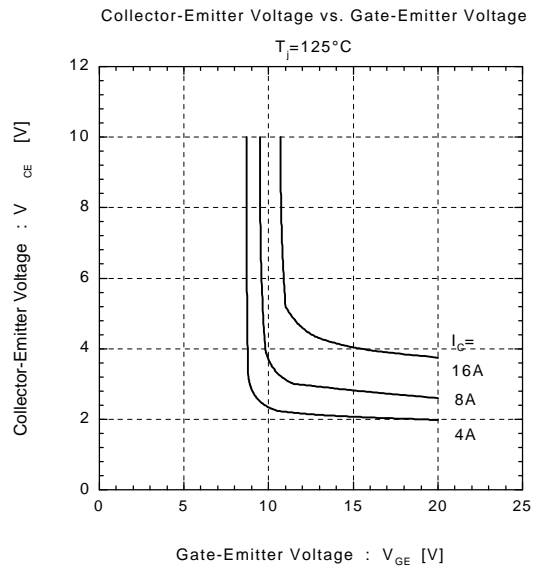
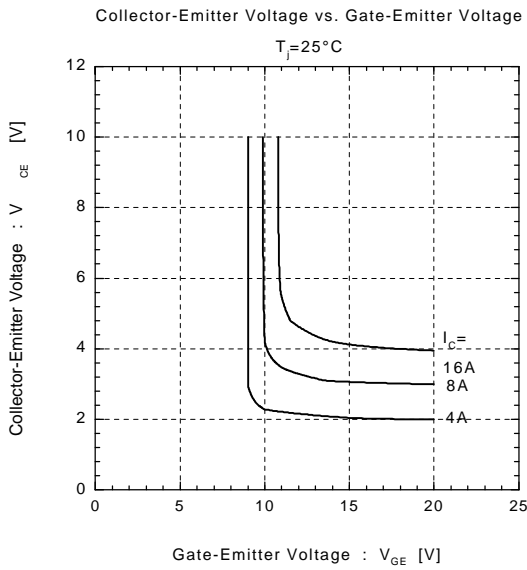
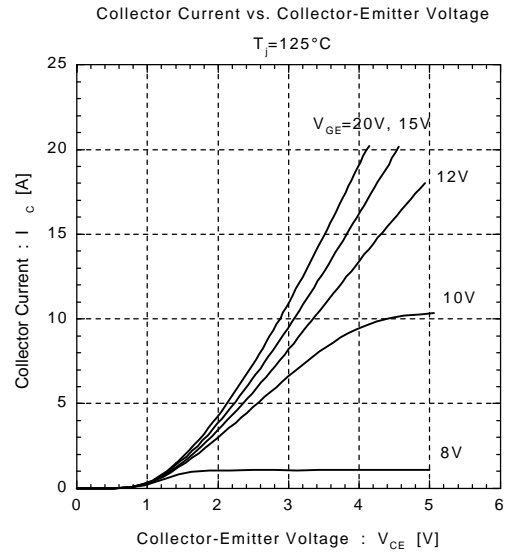
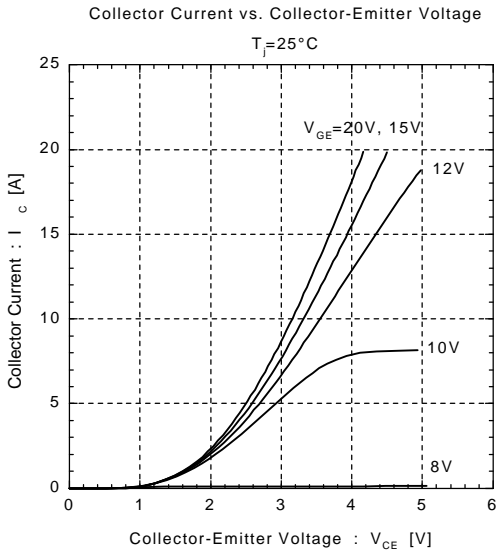
• Electrical Characteristics (at T_F=25°C)

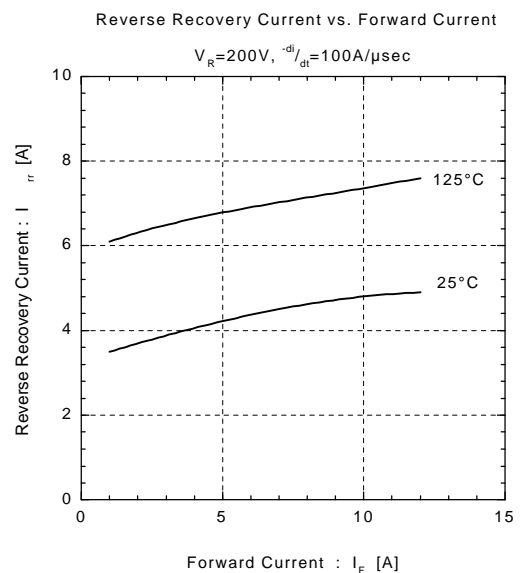
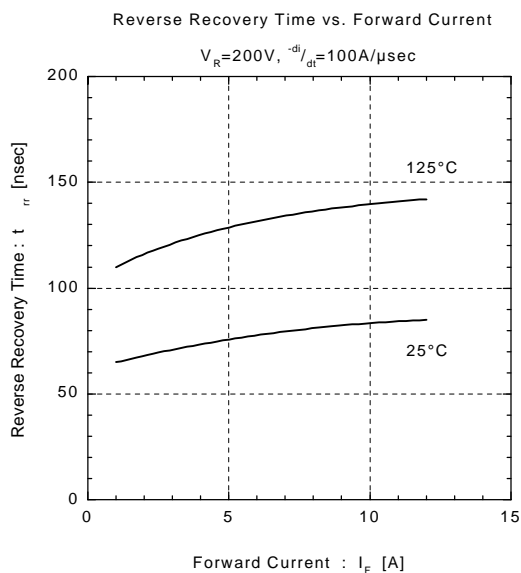
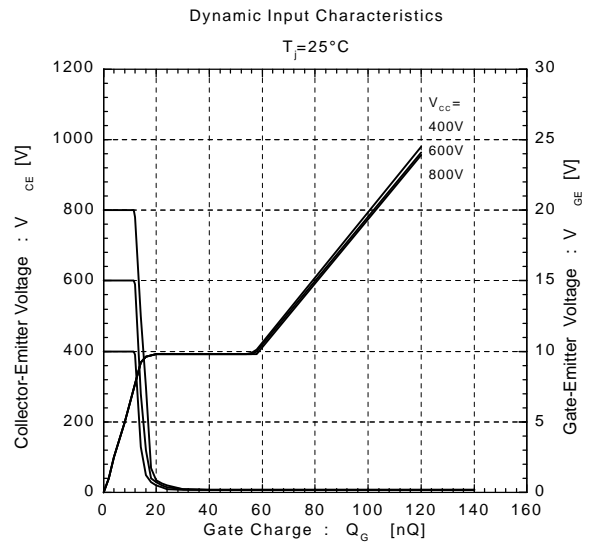
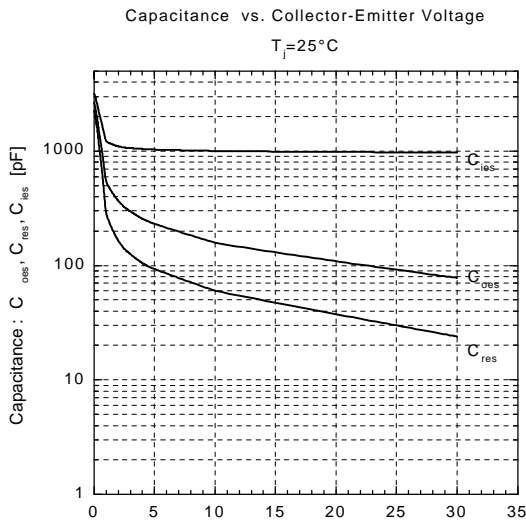
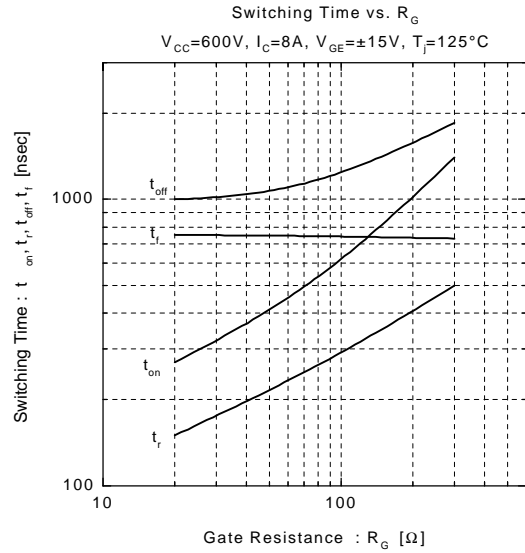
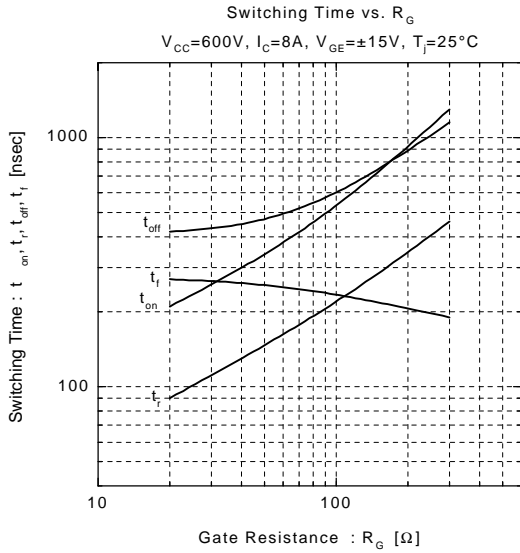
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units		
Zero Gate Voltage Collector Current	I _{CE} S	V _{GE} =0V V _{CE} =1200V			1.0	mA		
Gate-Emitter Leakage Current	I _{GES}	V _{CE} =0V V _{GE} =± 20V			20	μA		
Gate-Emitter Threshold Voltage	V _{GE(th)}	V _{GE} =20V I _C =8mA	5.5		8.5	V		
Collector-Emitter Saturation Voltage	V _{CE(sat)}	V _{GE} =15V I _C =8A			3.5	V		
Input capacitance	C _{ies}	V _{GE} =0V		1000		pF		
Output capacitance	C _{oes}	V _{CE} =10V		160				
Reverse Transfer capacitance	C _{res}	f=1MHz		60				
Switching Time	Turn-on Time	t _{ON}	V _{CC} =600V			1.2	μs	
		t _r	I _C =8A			0.6		
	Turn-off Time	t _{OFF}	V _{GE} =±15V			1.5		
		t _f	R _G =200Ω			0.5		
	Turn-on Time	t _{ON}	V _{CC} =600V		0.16			μs
		t _r	I _C =8A		0.11			
t _{OFF}		V _{GE} =+15V		0.30				
t _f		R _G =20Ω			0.5			
Diode Forward On-Voltage	V _F	I _F =8A V _{GE} =0V			3.0	V		
Reverse Recovery Time	t _{rr}	I _F =8A, V _{GE} =-10V, di/dt=100A/μs			350	ns		

Thermal Characteristics

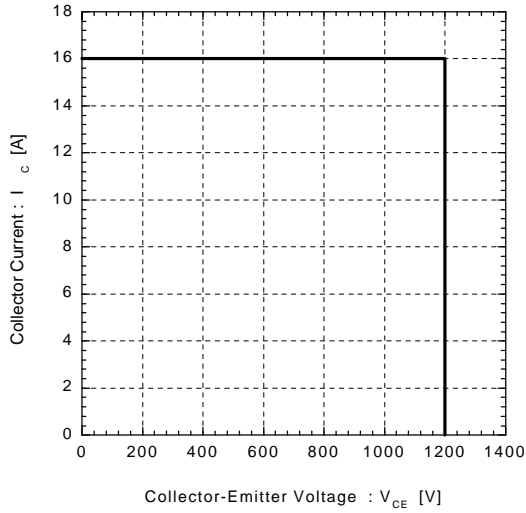
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R _{th(j-c)}	IGBT			1.08	°C/W
	R _{th(j-e)}	Diode			1.78	°C/W



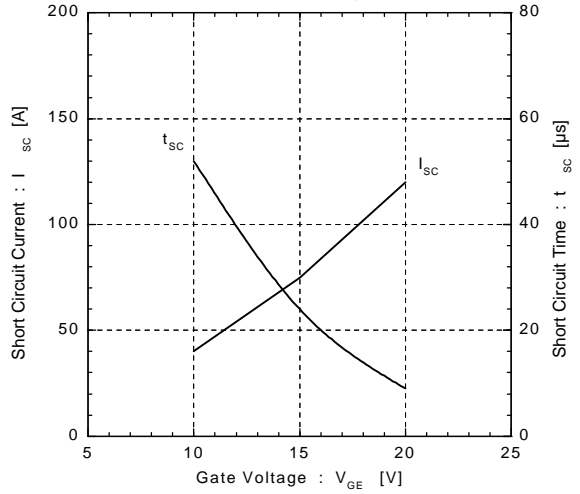




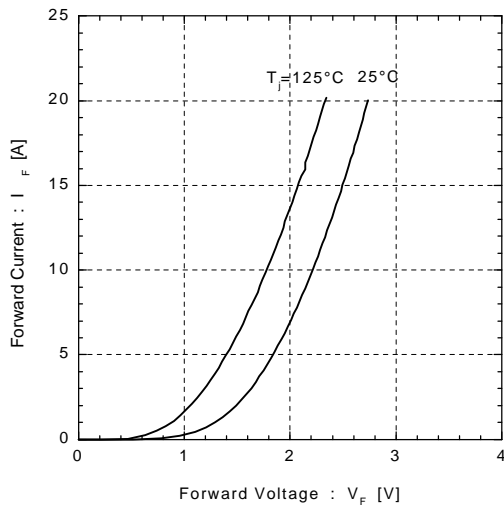
Reverse Biased Safe Operating Area
+V_{GE}=15V, -V_{GE}≤15V, T_J≤125°C, R_G≥20Ω



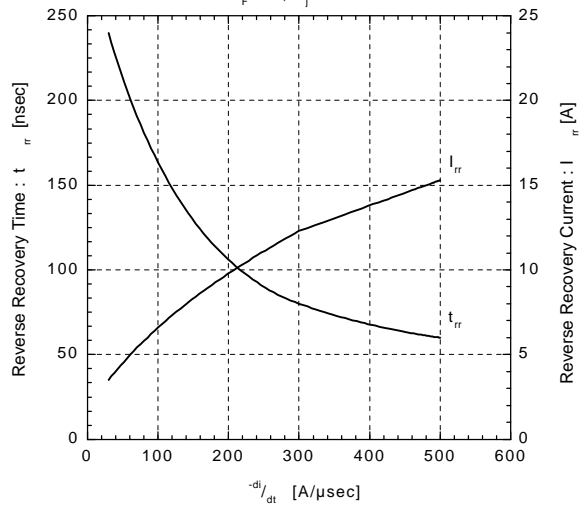
Typical Short Circuit Capability
V_{CC}=800V, R_G=20Ω, T_J=125°C



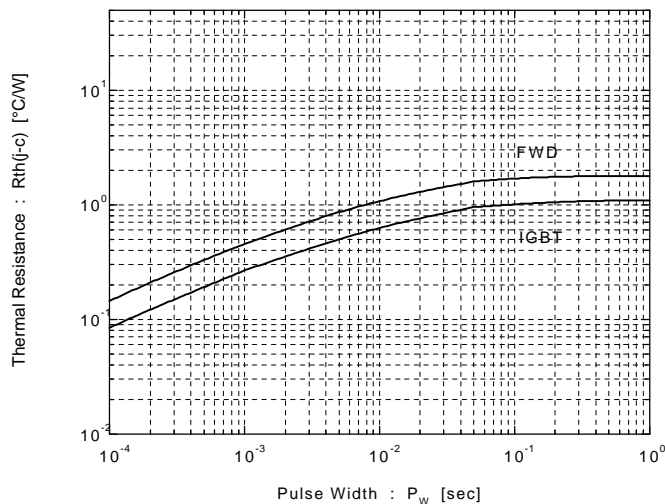
Forward Voltage vs. Forward Current



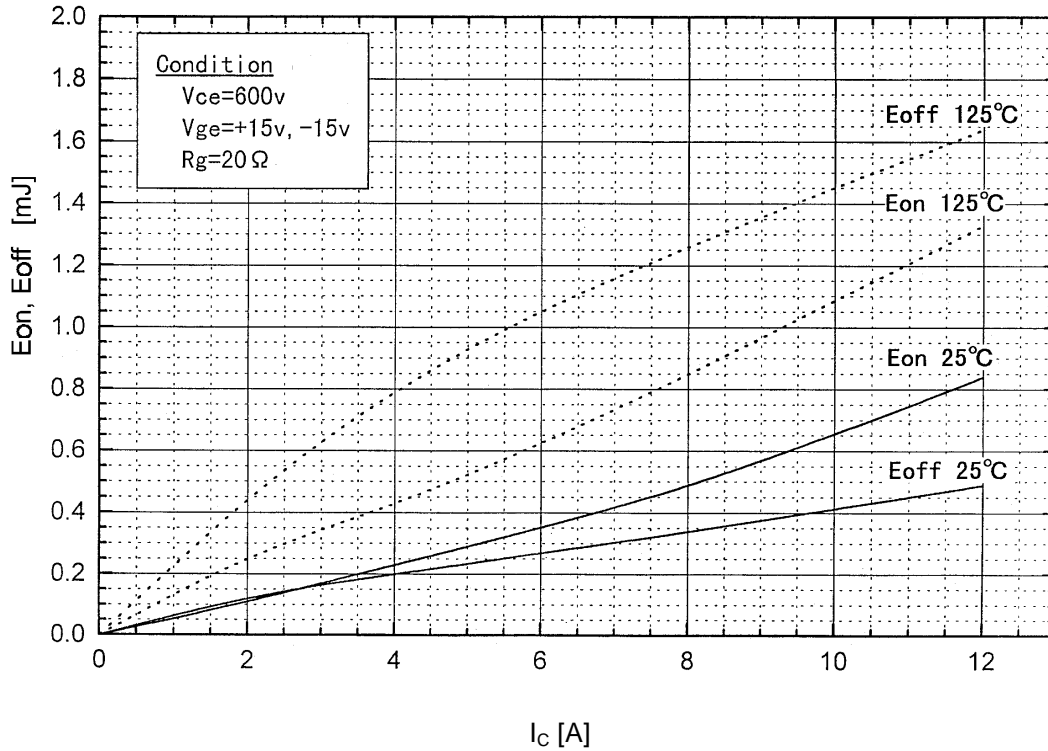
Reverse Recovery Characteristics vs. -di/dt
I_F=8A, T_J=125°C



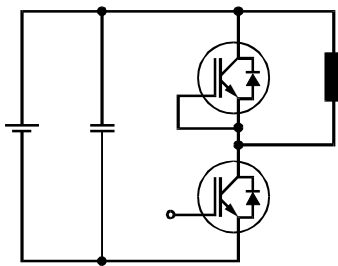
Transient Thermal Resistance



Switching losses (E_{on} , E_{off} vs. I_c)



Test Circuit



Switching waveforms

