

Fuji Discrete Package IGBT

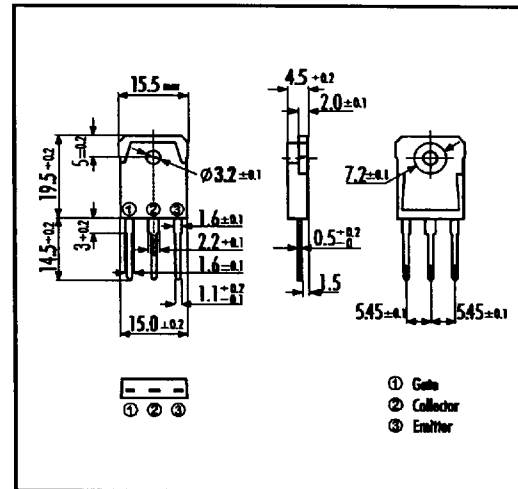
■ Features

- 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

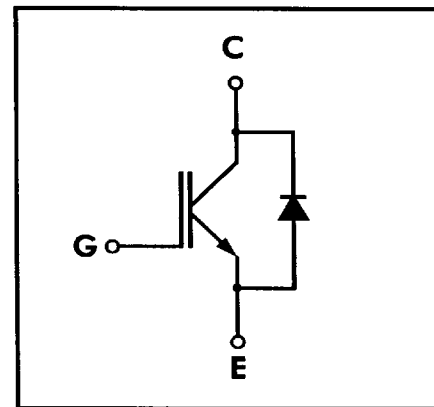


■ Maximum Ratings and Characteristics

• Absolute Maximum Ratings (T_c=25°C)

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	V _{CE}	600	V
Gate-Emitter Voltage	V _{GE}	± 20	V
Collector Current	DC T _c = 25°C	I _{C 25}	38
	DC T _c =100°C	I _{C 100}	20
	1ms T _c = 25°C	I _{C PULSE}	152
IGBT Max. Power Dissipation	P _C	145	W
FWD Max. Power Dissipation	P _C	75	W
Operating Temperature	T _J	+150	°C
Storage Temperature	T _{stg}	-40 ~ +150	°C
Mounting Screw Torque		50	Nm

■ Equivalent Circuit

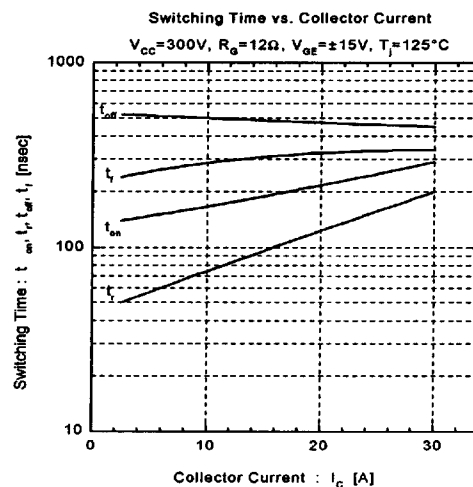
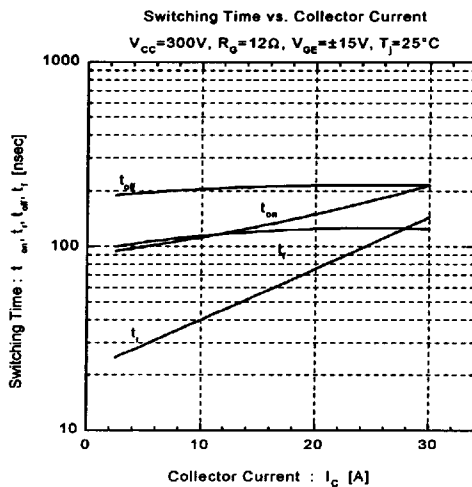
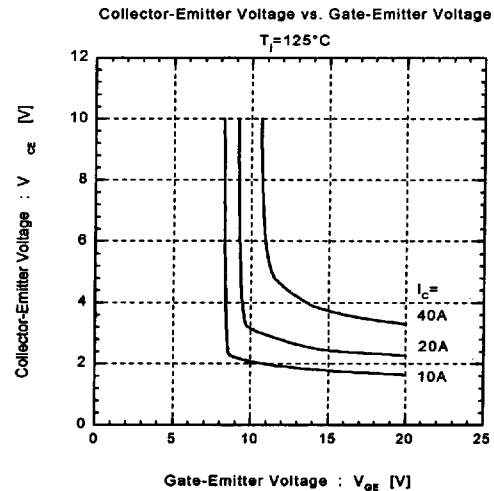
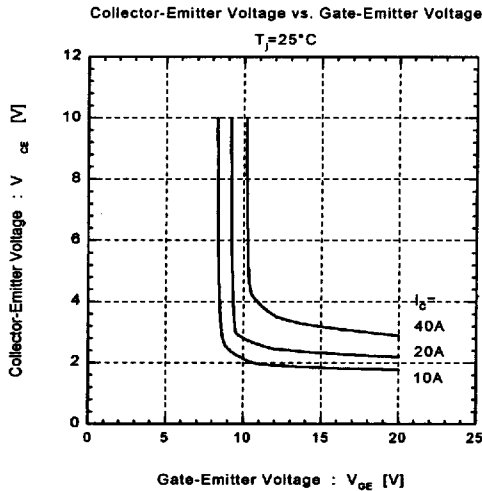
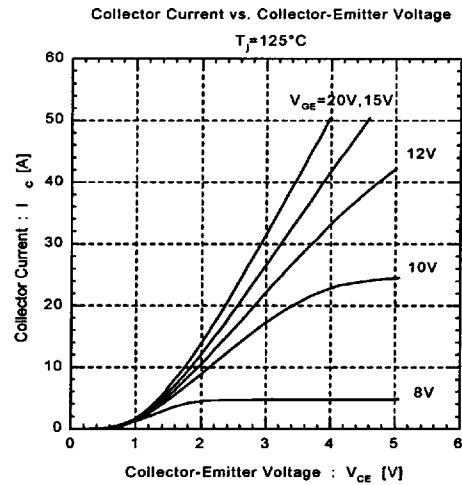
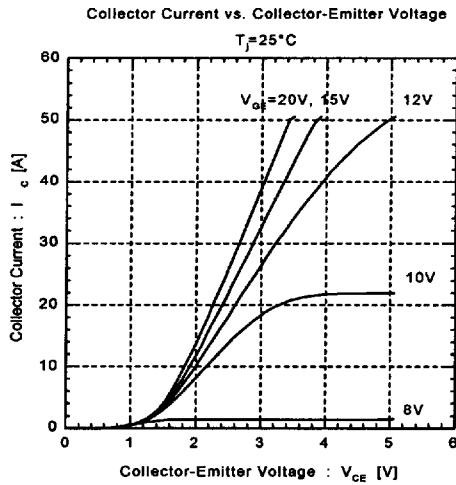


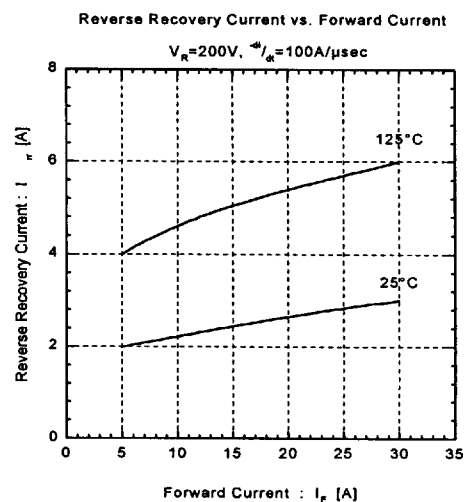
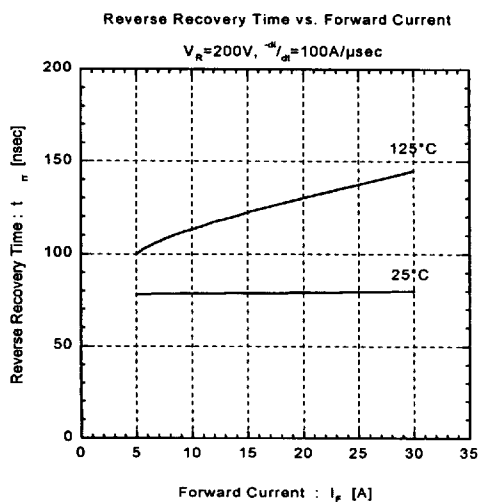
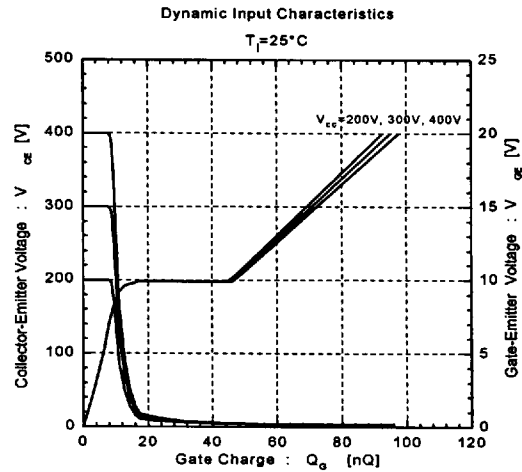
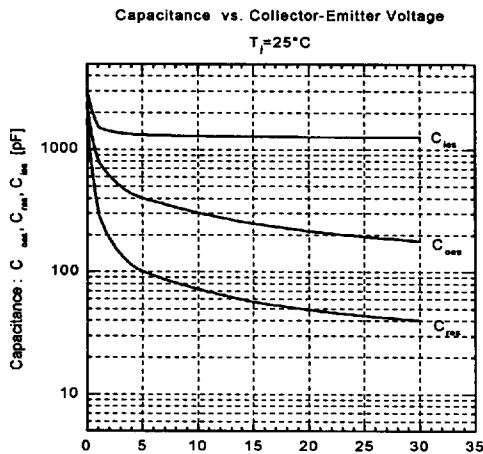
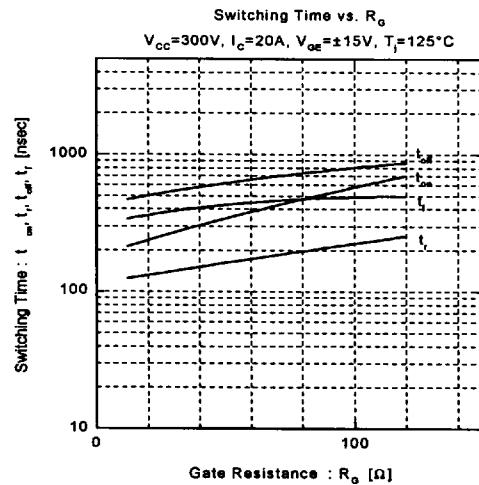
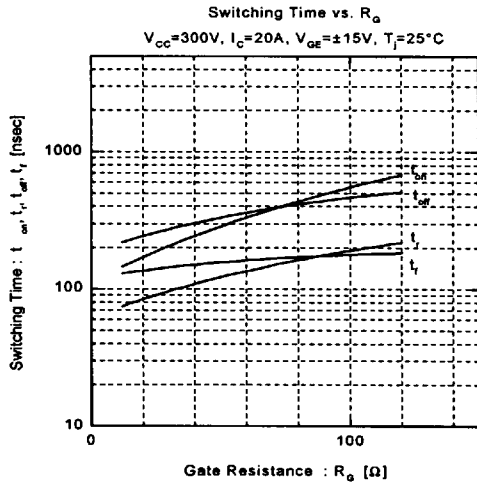
• Electrical Characteristics (at T_J=25°C)

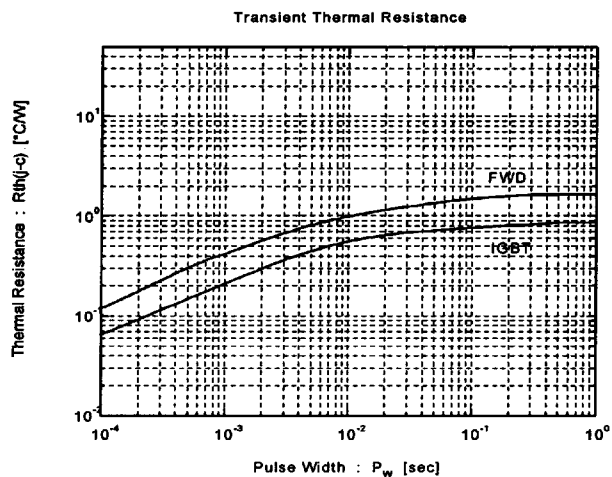
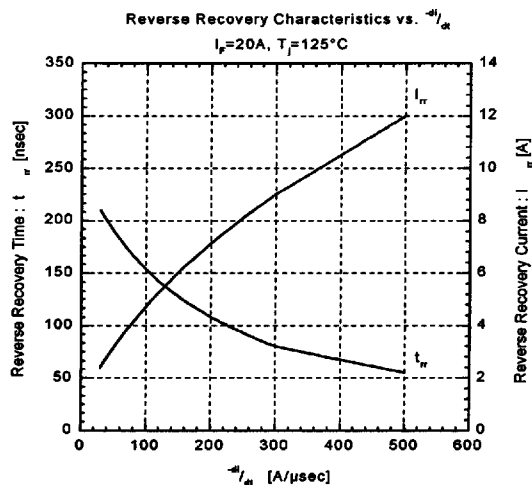
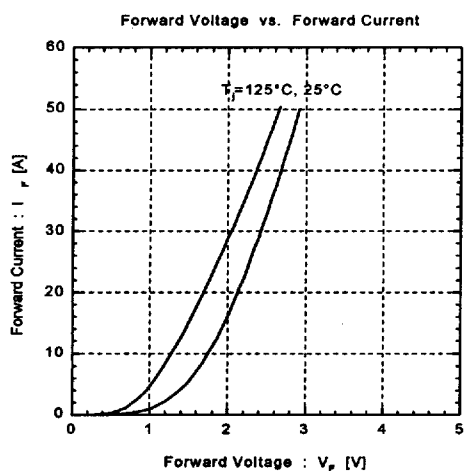
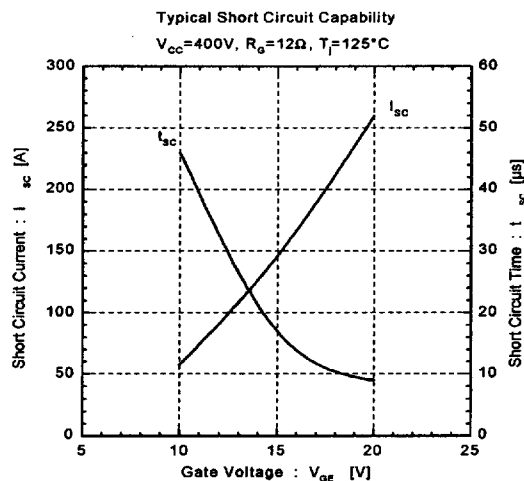
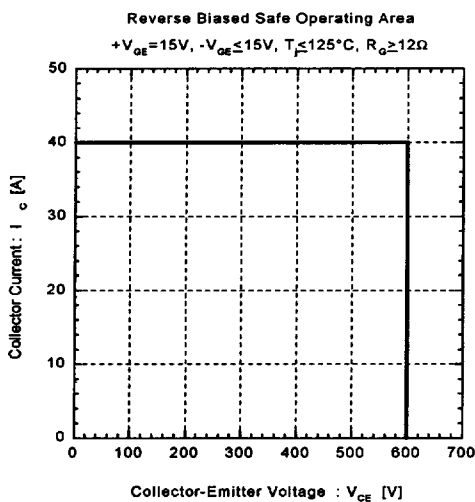
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Zero Gate Voltage Collector Current	I _{CES}	V _{GE} =0V V _{CE} =600V			1.0	mA
Gate-Emitter Leakage Current	I _{GES}	V _{CE} =0V V _{GE} =± 20V			20	μA
Gate-Emitter Threshold Voltage	V _{GE(th)}	V _{GE} =20V I _C =20mA	5.5		8.5	V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	V _{GE} =15V I _C =20A			3.0	V
Input capacitance	C _{ies}	V _{GE} =0V		1300		pF
Output capacitance	C _{oss}	V _{CE} =10V		300		pF
Reverse Transfer capacitance	C _{res}	f=1MHz		70		pF
Switching Time	Turn-on Time	t _{ON}	V _{CC} =300V		1.2	μs
		t _r	I _C =20A		0.6	
	Turn-off Time	t _{OFF}	V _{GE} =±15V		1.0	μs
		t _f	R _G =120Ω		0.35	
	Turn-on Time	t _{ON}	V _{CC} =300V	0.16		μs
		t _r	I _C =20A	0.11		
	Turn-off Time	t _{OFF}	V _{GE} =+15V	0.30		μs
		t _f	R _G =12Ω		0.35	
Diode Forward On-Voltage	V _F	I _F =20A V _{GE} =0V			3.0	V
Reverse Recovery Time	t _{rr}	I _F =20A, V _{GE} =-10V, di/dt=100A/μs			300	ns

• Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R _{th(l-c)}	IGBT			0.86	°C/W
	R _{th(l-e)}	Diode			1.66	

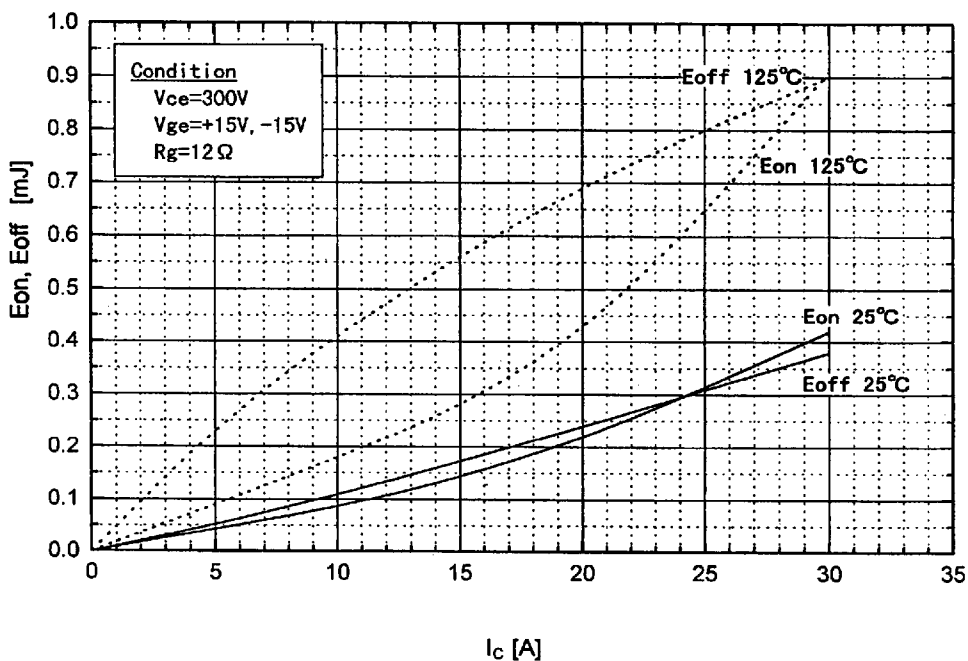




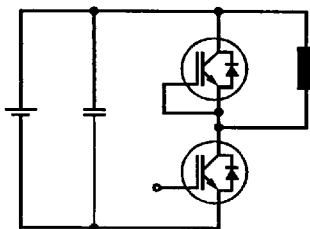


Switching losses

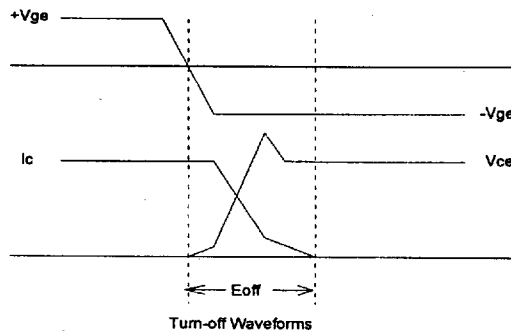
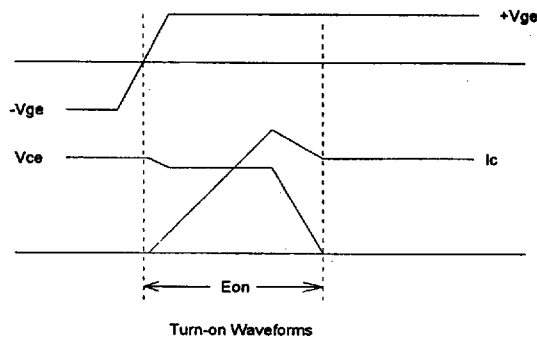
(E_{on} , E_{off} vs. I_c)



Test Circuit



Switching waveforms



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