

IGBT MODULE ( F series)

查询"6MBI50FA060"供应商

### Features

- Low Saturation Voltage
- Voltage Drive
- All Screw Terminals for Automated Assembly

### Applications

- Inverter for Motor Drive
- AC and DC Servo Drive Amplifier
- Uninterruptible Power Supply
- Industrial Machines, such as Welding Machines

### Maximum Ratings and Characteristics

#### Absolute Maximum Ratings

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	V <sub>CEs</sub>	600	V
Gate-Emitter Voltage	V <sub>GES</sub>	±20	V
Collector Current	Continuous	I <sub>c</sub>	50
	1ms	I <sub>c pulse</sub>	100
	Continuous	-I <sub>c</sub>	50
	1ms	-I <sub>c pulse</sub>	100
Max. Power Dissipation	P <sub>c</sub>	220	W
Operating Temperature	T <sub>j</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-40 to +125	°C
Isolation Voltage	AC, 1min.	V <sub>is</sub>	2500
Screw Torque	Mounting *1	3.5 {35}	N · m
	Terminals *2	1.7 {17}	{kg · cm}

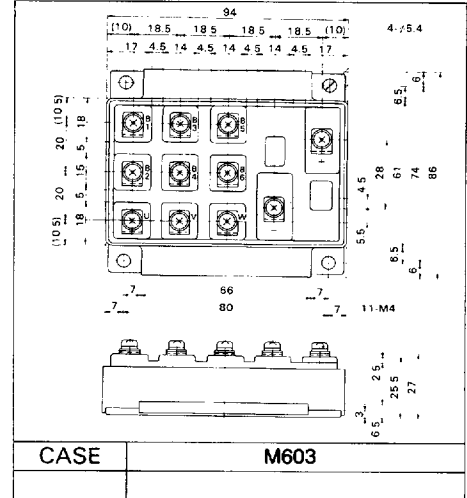
#### Electrical Characteristics (T<sub>c</sub>=25°C)

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> =600V T <sub>j</sub> =25°C			1.0	mA	
		V <sub>GE</sub> =0V V <sub>CE</sub> =600V T <sub>j</sub> =125°C				mA	
Gate-Emitter Leakage Current	I <sub>GES</sub>	V <sub>CE</sub> =0V V <sub>GE</sub> =±20V			100	nA	
Gate-Emitter Threshold Voltage	V <sub>GE(th)</sub>	V <sub>CE</sub> =20V I <sub>c</sub> =50mA	3.0		6.0	V	
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V I <sub>c</sub> =50A			2.5	V	
Input Capacitance	C <sub>ies</sub>	V <sub>GE</sub> =0V		4750		pF	
Output Capacitance	C <sub>oes</sub>	V <sub>CE</sub> =10V					
Reverse Transfer Capacitance	C <sub>res</sub>	f=1MHz					
Turn-on Time	Resistive load	t <sub>on</sub>	V <sub>CC</sub> =300V			0.8	μs
		t <sub>r</sub>	I <sub>c</sub> =50A			0.6	
Turn-off Time	Inductive load	t <sub>off</sub>	V <sub>GE</sub> =±15V			1.5	
		t <sub>f</sub>	R <sub>G</sub> =51Ω			1.0	
Diode Forward On-Voltage	V <sub>F</sub>	I <sub>F</sub> =50A, V <sub>GE</sub> =0V			2.5	V	
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =50A, -di/dt=150A/μs V <sub>GE</sub> =-10V			300	ns	

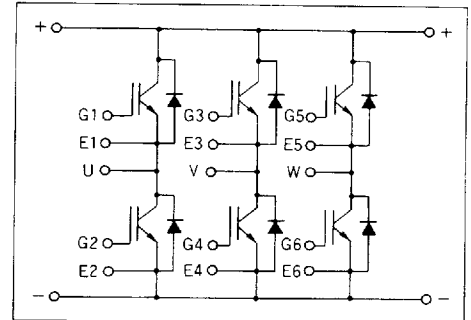
#### Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R <sub>th(j-c)</sub>	IGBT			0.568	°C/W
	R <sub>th(j-c)</sub>	Diode			1.33	
	R <sub>th(c-f)</sub>	With Thermal compound		0.05		

### Outline Drawings

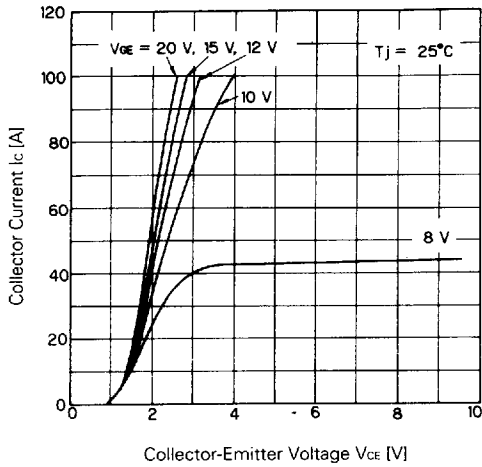


### Equivalent Circuit Schematic

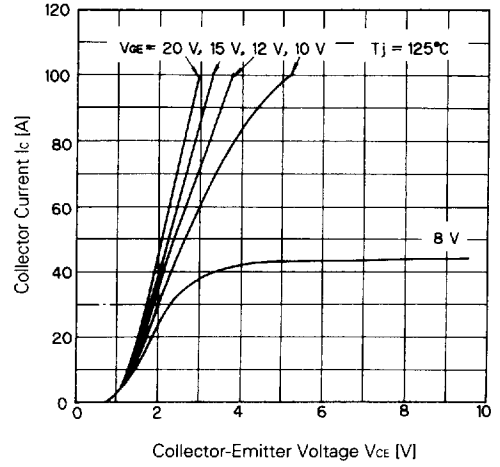


\*1 Recommendable Value 2.5 to 3.5 N·m {25 to 35 kg·cm} (M5)  
 \*2 Recommendable Value 1.3 to 1.7 N·m {13 to 17 kg·cm} (M4)

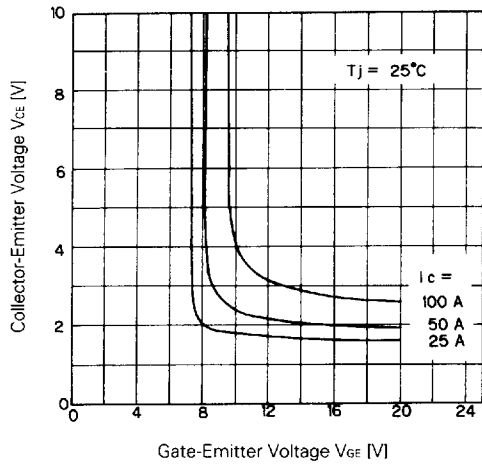
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 ■ Characteristics



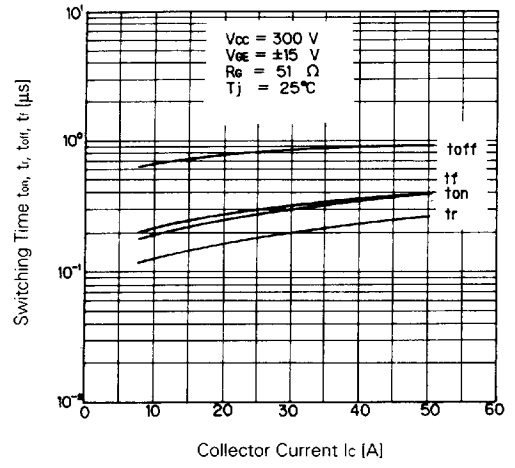
Collector Current vs. Collector-Emitter Voltage



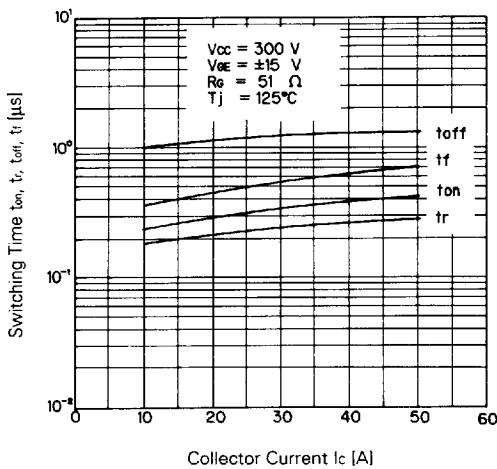
Collector Current vs. Collector-Emitter Voltage



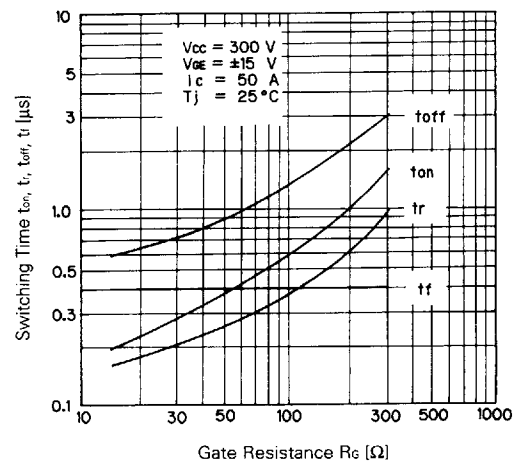
Collector-Emitter Voltage vs. Gate-Emitter Voltage



Switching Time

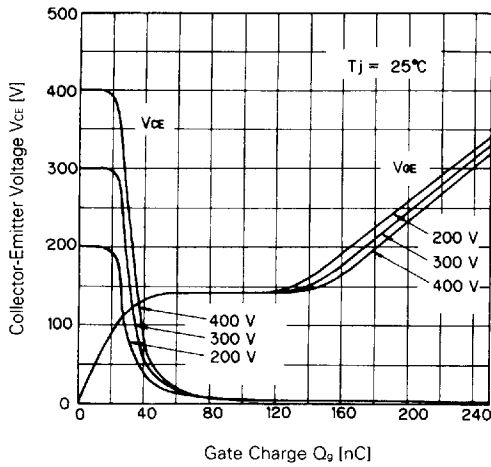


Switching Time

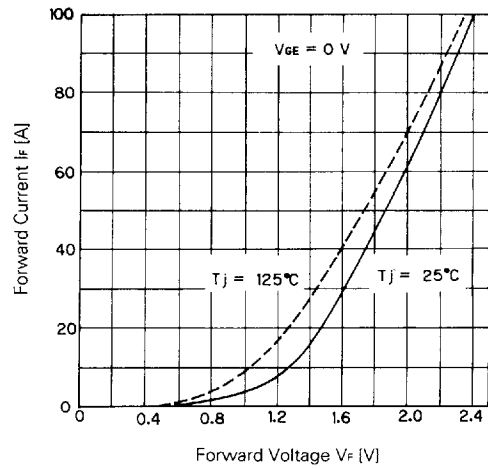


Switching Time-Gate Resistance

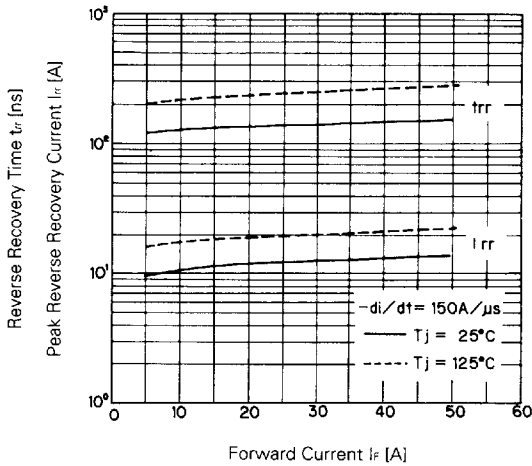
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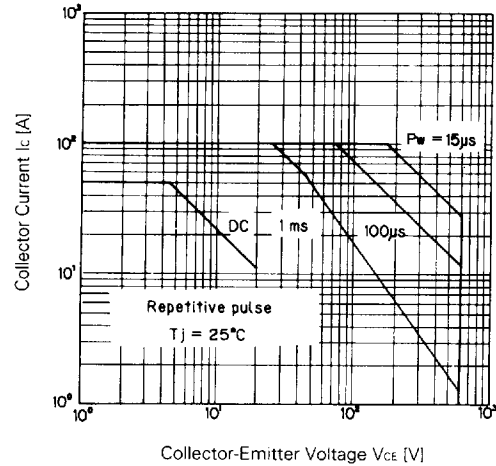
Dynamic Input Characteristic



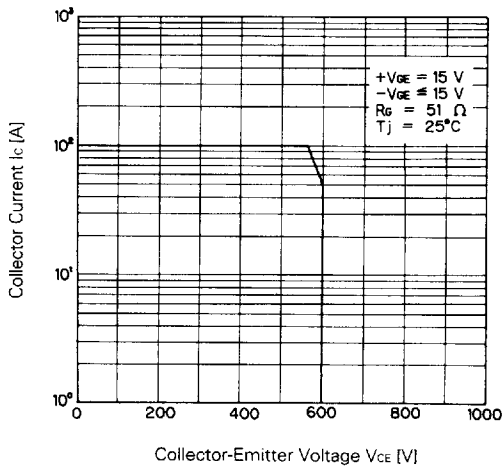
Forward Voltage of Free Wheel Diode



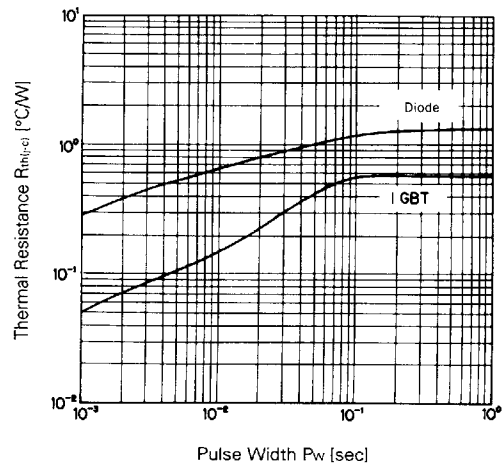
$T_{rr}, I_{rr}-I_f$



Safe Operating Area



Reverse Biased Safe Operating Area



Transient Thermal Resistance