FUJI ELECTRIC

2MBI 400L-060

2-Pack IGBT
600 V
400 A

IGBT MODULE (L series)

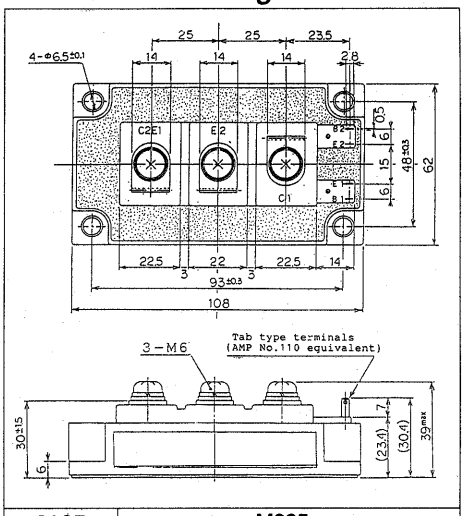
■ Features

- High Speed Switching
- Low Saturation Voltage
- Voltage Drive

■ Applications

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

■ Outline Drawings



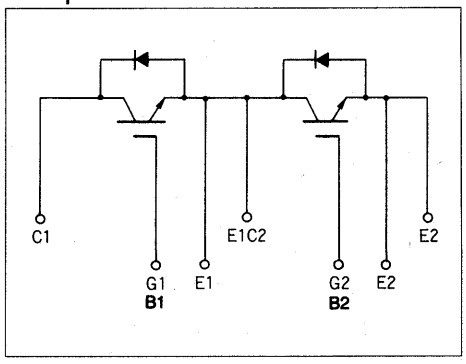
CASE	M225

■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings

Items		Symbols	Ratings	Units
Collecter-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	±20	V
Collecter Current	Continuous	I_C	400	A
	1ms	$I_{C\ pulse}$	800	
	Continuous	$-I_C$	400	
	1ms	$-I_{C\ pulse}$	800	
Max. Power Dissipation		P_C	1600	W
Operating Temperature		T_j	+150	°C
Storage Temperature		T_{stg}	–40 to +125	°C
Isolation Voltage	AC. 1min.	V_{is}	2500	V
Screw Torque		Mounting *1	3.5	N•m
		Terminals *2	4.5	

■ Equilavelent Circuit Schematic



*1 Recommendable Value 2.5 ~ 3.5 N•m (M5)
*2 Recommendable Value 3.5 ~ 4.5 N•m (M6)

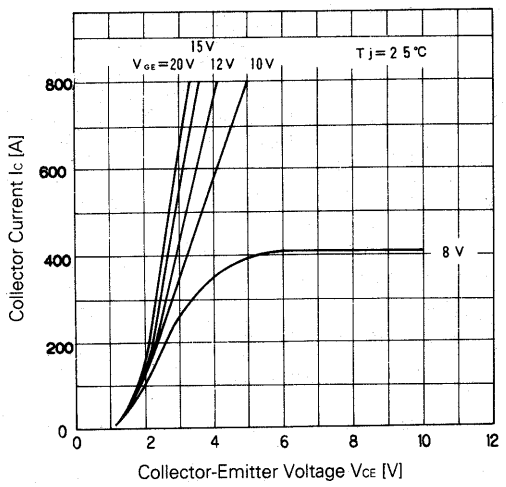
● Electrical Characteristics (T_j=25°C)

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Zero Gate Voltage Collecter Current	I_{CES}	V_{GE}=0V V_{CE}=600V T_j=25°C			4.0	mA
Gate-Emitter Leackage Current	I_{GES}	V_{CE}=0V V_{GE}=±20V			400	nA
Gate-Emitter Threshold Voltage	$V_{GE\ (th)}$	V_{CE}=20V I_C=400mA	3.0		6.0	V
Collecter-Emitter Saturation Voltage	$V_{CE\ (sat)}$	V_{GE}=15V I_C=400A		2.7	3.5	V
Input Capacitance	C_{ies}	V_{GE}=0V		38000		pF
Output Capacitance	C_{oes}	V_{CE}=10V		–		
Reverse Transfer Capacitance	C_{res}	f=1MHz		–		
Turn-on Time	t_{on}	V_{CC}=300V		0.6	0.8	µs
	t_r	I_C=400A		0.4	0.6	
Turn-off Time	t_{off}	V_{GE}=±15V		0.7	1.0	
	t_f	R_G=4.7Ω		0.2	0.35	
Diode Forward On-Voltage	V_F	I_F=400A V_{GE}=0V			2.5	V
Reverse Recovery Time	t_{rr}	I_F=400A –di/dt=1200A/µs V_{GE}=–10V			300	ns

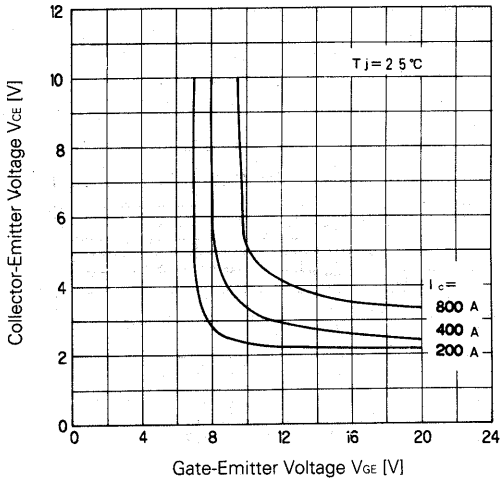
● Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th\ (j-c)}$	IGBT			0.078	°C/W
	$R_{th\ (j-c)}$	Diode			0.15	
	$R_{th\ (c-f)}$	With Thermal compound		0.0125		

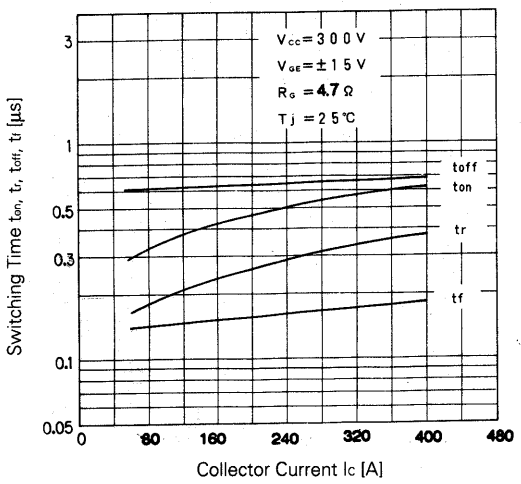
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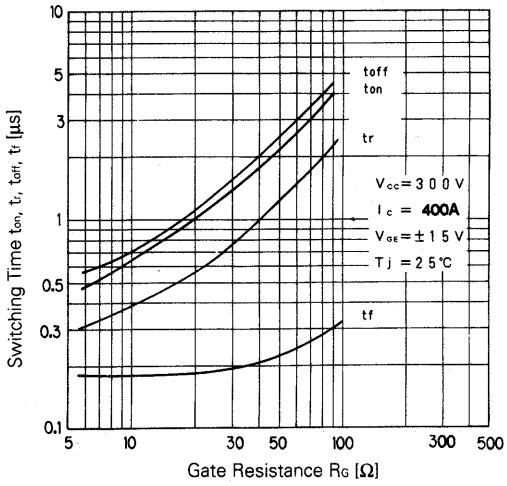
Collector Current vs. Collector-Emitter Voltage



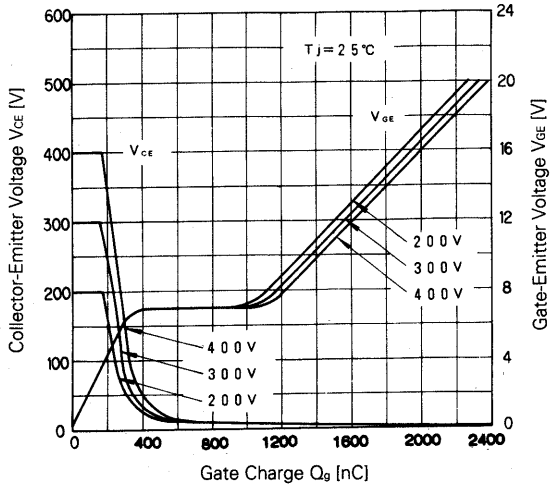
Collector-Emitter Voltage vs. Gate-Emitter Voltage



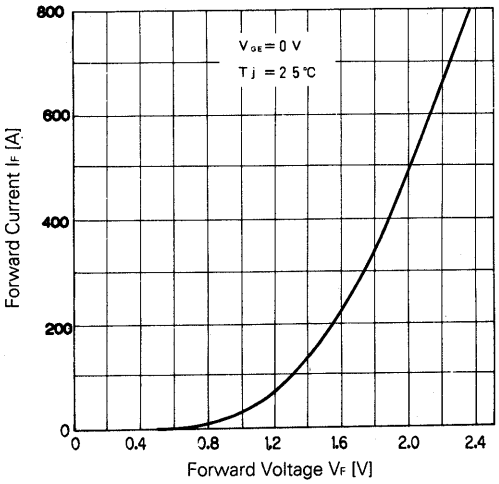
Switching Time



Switching Time-Gate Resistance

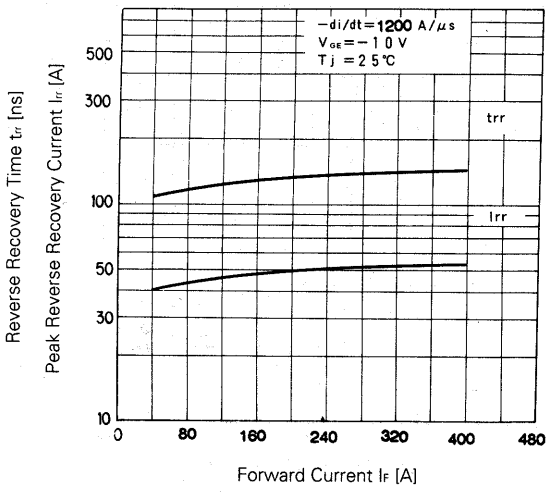


Dynamic Input Characteristic

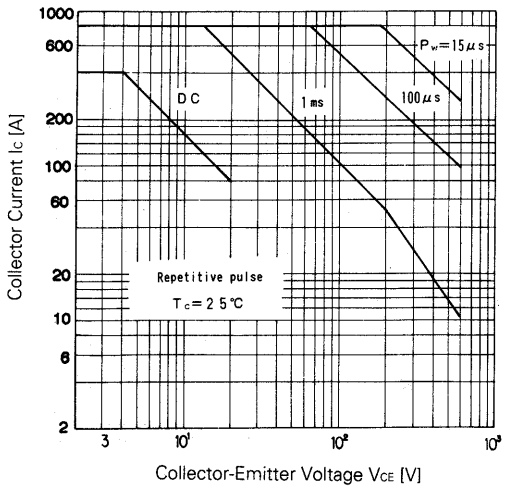


Forward Voltage of Free Wheel Diode

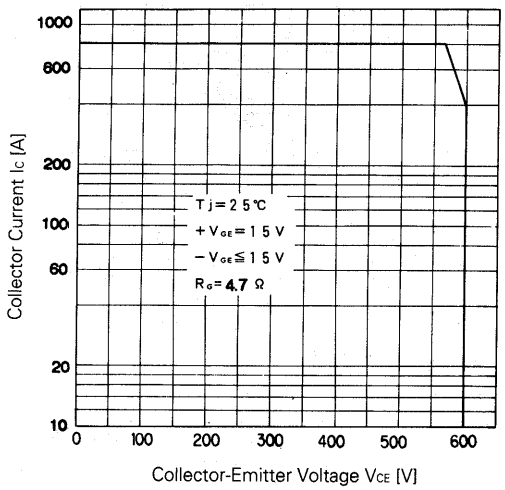
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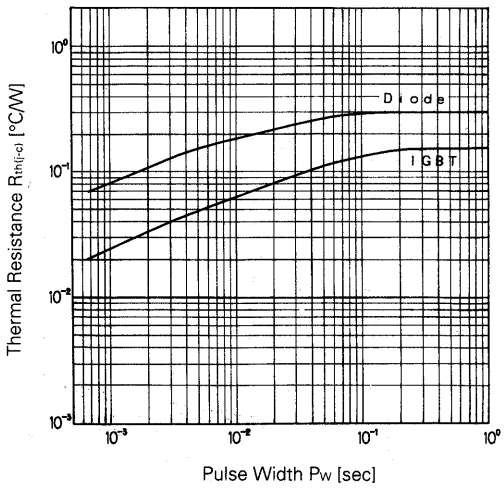
trr, Irr-IF



Safe Operating Area



Reverse Biased Safe Operating Area



Transient Thermal Resistance

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For more information, contact:

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