FUJI ELECTRIC

1MBI 400L-060

1-Pack IGBT
600 V
400 A

IGBT MODULE (L series)

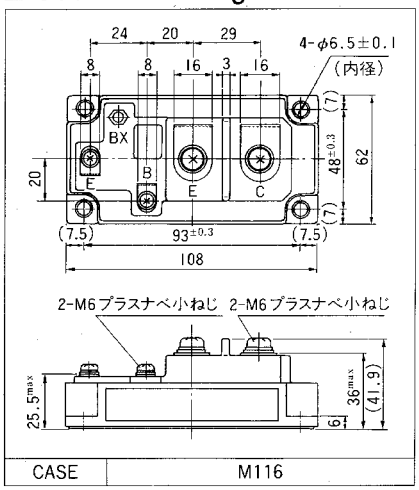
■ Features

- 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	M116

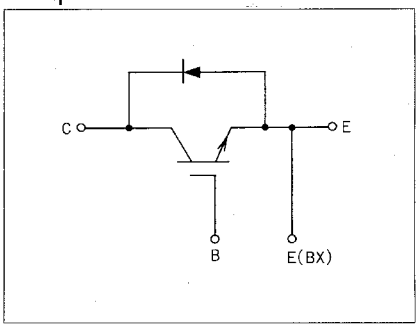
■ Maximum Ratings and Characteristics

● 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
Net. Weight			415	g
Isolation Voltage	AC. 1min.	V_{isol}	2500	V
Screw Torque		Mounting *1	35	kg•cm
		Terminals *2	45	
		Terminals *3	17	

*1 Recommendable Value 25 to 35kg•cm
*2 Recommendable Value 35 to 40kg•cm
*3 Recommendable Value 13 to 16kg•cm

■ Equilavelent Circuit Schematic



● Electrical Characteristics (Tj=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}=V_{GE} 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 *4	t_{on}	V_{CC}=300V		0.6	0.8	μs
	t_r	I_C=400A		0.4	0.6	
Turn-off Time *5	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

*4 Resistive load *5 Inductive load

● 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		