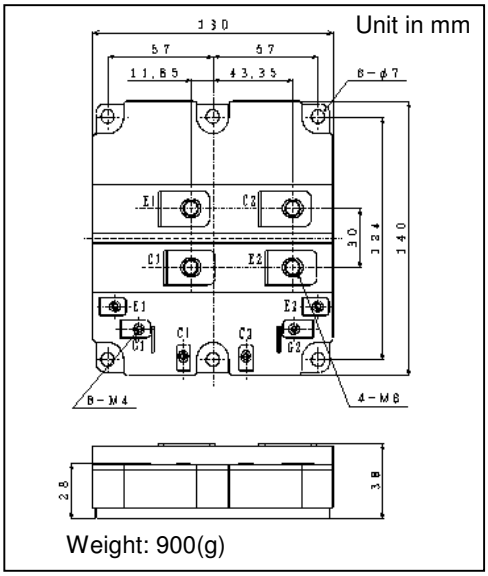
MBM600E17D

Silicon N-channel IGBT

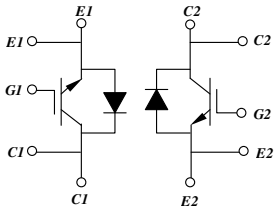
OUTLINE DRAWING



1. FEATURES

* High speed, low loss IGBT module.
* Low driving power due to low input capacitance MOS gate.
* Low noise due to ultra soft fast recovery diode.
* High reliability, high durability module.
* High thermal fatigue durability.
  (delta Tc=70°C, N>30,000cycles)
* Isolated heat sink (terminal to base).

CIRCUIT DIAGRAM



2. ABSOLUTE MAXIMUM RATINGS (Tc=25°C)

Item		Symbol	Unit	MBM600E17D
Collector Emitter Voltage		V_{CES}	V	1,700
Gate Emitter Voltage		V_{GES}	V	±20
Collector Current	DC	I_C	A	600
	1ms	I_{Cp}		1,200
Forward Current	DC	I_F	A	600
	1ms	I_{FM}		1,200
Junction Temperature		T_j	°C	-40 ~ +125
Storage Temperature		T_{stg}	°C	-40 ~ +125
Isolation Voltage		V_{ISO}	V_{RMS}	4,000(AC 1 minute)
Screw Torque	Terminals (M4/M8)	-	N·m	2/15 (1)
	Mounting (M6)	-		6 (2)

Notes: (1) Recommended Value 1.8±0.2 / 15^{+0}_{-3} N·m (2) Recommended Value 5.5±0.5N·m

3. ELECTRIC CHARACTERISTICS

Item		Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Collector Emitter Cut-Off Current		I_{CES}	mA	-	-	5.0	V_{CE}=1,700V, V_{GE}=0V, Tj=25°C
				-	5	17	V_{CE}=1,700V, V_{GE}=0V, Tj=125°C
Gate Emitter Leakage Current		I_{GES}	nA	-500	-	+500	V_{GE}=±20V, V_{CE}=0V, Tj=25°C
Collector Emitter Saturation Voltage		$V_{CE(sat)}$	V	2.1	2.6	3.1	I_C=600A, V_{GE}=15V, Tj=125°C
Gate Emitter Threshold Voltage		$V_{GE(TO)}$	V	5.0	6.5	8.0	V_{CE}=10V, I_C=60mA, Tj=25°C
Input Capacitance		C_{ies}	nF	-	50	-	V_{CE}=10V, V_{GE}=0V, f=100kHz, Tj=25°C
Internal Gate Resistance		Rg(int)	Ω	-	1.6	-	
Switching Times	Rise Time	t_r	µs	0.25	0.5	1.0	V_{CC}=900V, Ic=600A L=100nH,CGE=68nF (3) R_G=1.5Ω (3) V_{GE}=±15V, Tj=125°C
	Turn On Time	t_{on}		0.4	0.8	1.6	
	Fall Time	t_f		0.25	0.5	1.0	
	Turn Off Time	t_{off}		0.75	1.5	3.0	
Peak Forward Voltage Drop		V_{FM}	V	1.4	1.9	2.3	I_F=600A, V_{GE}=0V, Tj=125°C
Reverse Recovery Time		t_{rr}	µs	0.1	0.5	1.0	V_{CC}=900V, Ic=600A, L=100nH,CGE=68nF (3) R_G=1.5Ω (3) V_{GE}=±15V, Tj=125°C
Turn On Loss		$E_{on(10\%)}$	J/P	-	0.13	0.2	
Turn Off Loss		$E_{off(10\%)}$	J/P	-	0.2	0.3	
Reverse Recovery Loss		$E_{rr(10\%)}$	J/P	-	0.2	0.3	
Thermal Impedance	IGBT	Rth(j-c)	K/W	-	-	0.038	Junction to case
	FWD	Rth(j-c)		-	-	0.060	
Contact Thermal Impedance		Rth(c-f)	K/W	-	0.016	-	Case to fin (per 1 arm)

Notes:(3) R_G value is a test condition value for evaluation, not recommended value.
Please, determine the suitable R_G value by measuring switching behaviors.

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