MBM 1200E17D

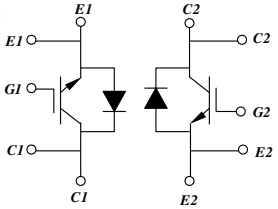
PRELIMINARY SPECIFICATION

Silicon N-channel IGBT

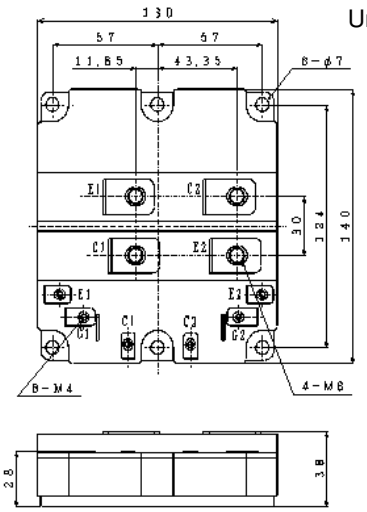
1.FEATURES

- 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 (Al-SiC base plate.) (delta Tc=70°C, N>30,000cycles)

CIRCUIT DIAGRAM



OUTLINE DRAWING



Weight : 900(g)

3. ABSOLUTE MAXIMUM RATINGS (Tc=25°C)

Item		Symbol	Unit	MBM 1200E17D	
Collector Emitter Voltage		V_{CES}	V	1,700	
Gate Emitter Voltage		V_{GES}	V	±20	
Collector Current	DC	I_C	A	1,200	
	1ms	I_{Cp}		2,400	
Forward Current	DC	I_F	A	1,200	
	1ms	I_{FM}		2,400	
Junction Temperature		T_j	°C	-40 ~ +125	
Storage Temperature		T_{stg}	°C	-40 ~ +125	
Isolation Voltage		V_{ISO}	V_{RMS}	4,000 (AC 50Hz, 1 minute)	
Screw Torque	Terminals (M4)	-	N·m	2	(1)
	Terminals (M8)			15	(2)
	Mounting (M6)	-		6	(3)

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

4. ELECTRICAL 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	-	2.7	3.3	I_C=1200A, 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=120mA, Tj=25°C
Input Capacitance		C_{ies}	nF	-	110	-	V_{CE}=10V, V_{GE}=0V, f=100kHz, Tj=25°C
Internal Gate Resistance		Rg(int)	Ω	-	1.3	-	
Switching Times	Rise Time	t_r	μs	-	0.5	1.0	V_{CC}=900V, Ic=1200A
	Turn On Time	t_{on}		-	0.9	1.8	L=100nH,CGE=120nF(TBD) (4)
	Fall Time	t_f		-	0.3	0.6	R_G=1.5Ω(TBD) (4)
	Turn Off Time	t_{off}		-	1.6	3.2	V_{GE}=±15V, Tj=125°C
Peak Forward Voltage Drop		V_{FM}	V	-	1.9	2.3	Ic=1200A, V_{GE}=0V, Tj=125°C
Reverse Recovery Time		t_{rr}	μs	-	0.5	1.0	V_{CC}=900V, Ic=1200A,
Turn On Loss		$E_{on(10\%)}$	J/P	-	0.13	1.7	L=100nH,CGE=120nF(TBD) (4)
Turn Off Loss		$E_{off(10\%)}$	J/P	-	0.43	0.56	R_G=1.5Ω(TBD) (4)
Reverse Recovery Loss		$E_{rr(10\%)}$	J/P	-	0.35	0.46	V_{GE}=±15V, Tj=125°C
Thermal Resistance	IGBT	Rth(j-c)	K/W	-	-	0.023	Junction to case
	FWD	Rth(j-c)		-	-	0.035	
Contact Thermal Resistance		Rth(c-f)	K/W	-	0.008	-	Case to fin

Notes:(4) 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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