

MBM600E17E

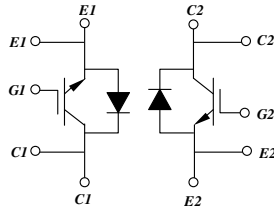
TARGET SPEC.

Silicon N-channel IGBT 1700V E version

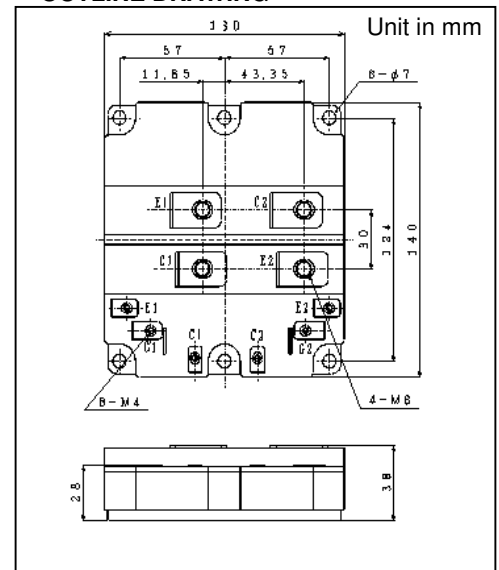
FEATURES

- * Soft switching behavior & low conduction loss:
Soft low-injection punch-through with trench gate IGBT.
- * Low driving power: Low input capacitance advanced trench gate.
- * Low noise recovery: Ultra soft fast recovery diode.
- * High thermal fatigue durability
:($\Delta T_c=70K$, $N > 30,000$ cycles).
- * AlSiC base-plate/AlN substrate.

CIRCUIT DIAGRAM



OUTLINE DRAWING



Weight: 900(g)

ABSOLUTE MAXIMUM RATINGS (Tc=25°C)

Item	Symbol	Unit	MBM600E17E
Collector Emitter Voltage	V _{CES}	V	1,700
Gate Emitter Voltage	V _{GES}	V	±20
Collector Current	DC	I _c	600
	1ms	I _{Cp}	1,200
Forward Current	DC	I _F	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)	-	2/15 (1)
	Mounting (M6)	-	6 (2)

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

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, T _j =25°C
Gate Emitter Leakage Current	I _{GES}	nA	-	5	17	V _{CE} =1,700V, V _{GE} =0V, T _j =25°C
Collector Emitter Saturation Voltage	V _{CE(sat)}	V	-	2.2	2.7	I _C =600A, V _{GE} =15V, T _j =125°C
Gate Emitter Threshold Voltage	V _{GE(TO)}	V	5.0	6.5	8.0	V _{CE} =10V, I _C =60mA, T _j =25°C
Input Capacitance	C _{ies}	nF	-	50	-	V _{CE} =10V, V _{GE} =0V, f=100kHz, T _j =25°C
Internal Gate Resistance	R _{g(int)}	Ω	-	3.0	-	
Switching Times	Rise Time	t _r	-	0.6	1.2	V _{CC} =900V, I _C =600A, L _s =100nH, R _{g(on/off)} =6.8/1.5Ω (3) V _{GE} =±15V, T _j =125°C
	Turn On Time	t _{on}	-	1.4	2.8	
	Fall Time	t _f	-	1.1	2.2	
	Turn Off Time	t _{off}	-	1.9	3.8	
Peak Forward Voltage Drop	V _{FM}	V	-	1.9	2.5	I _F =600A, V _{GE} =0V, T _j =125°C
Reverse Recovery Time	t _{rr}	μs	-	0.4	0.8	V _{CC} =900V, I _C =600A, L _s =100nH, R _{g(on/off)} =6.8/1.5Ω (3) V _{GE} =±15V, T _j =125°C
Turn On Loss	E _{on(10%)}	J/P	-	0.12	0.18	
Turn Off Loss	E _{off(10%)}	J/P	-	0.32	0.48	
Reverse Recovery Loss	E _{rr(10%)}	J/P	-	0.20	0.30	
Thermal Resistance	IGBT	R _{th(j-c)}			0.038	Junction to case
	FWD	R _{th(j-c)}			0.060	
Contact Thermal Resistance		R _{th(c-f)}	K/W	-	0.016	Case to fin (per 1 arm)

Notes: (3) R_g value is the test condition's value for decision of the switching times, not recommended value. Please, determine the suitable R_g value after the measurement of switching waveforms (overshoot voltage, etc.)with appliance mounted.

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