MBN400H65E

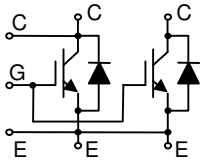
TARGET SPEC.

Silicon N-channel IGBT

FEATURES

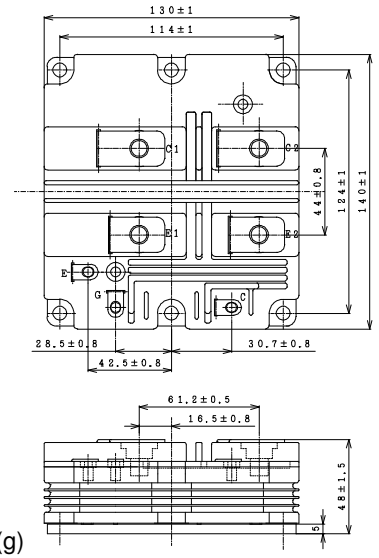
- High speed, low loss IGBT module.
- Low driving power due to low input capacitance MOS gate.
- Low noise due to ultra soft fast recovery diode.
- High reliability, high durability module.
- High thermal fatigue durability. (delta Tc=70°C, N>30,000cycles)
- Isolated head sink (terminal to base).

CIRCUIT DIAGRAM



TERMINALS

OUTLINE DRAWING Unit in mm



Weight : 1050(g)

ABSOLUTE MAXIMUM RATINGS (Tc=25°C)

Item		Symbol	Unit	MB400H65E
Collector Emitter Voltage		V_{CES}	V	6,500
Gate Emitter Voltage		V_{GES}	V	±20
Collector Current	DC	I_C	A	400
	1ms	I_{Cp}		800
Forward Current	DC	I_F	A	400
	1ms	I_{FM}		800
Junction Temperature		T_j	°C	-40 ~ +125
Storage Temperature		T_{stg}	°C	-40 ~ +125
Isolation Voltage		V_{ISO}	V_{RMS}	10,200 (AC 1 minute)
Screw Torque	Terminals (M4/M8)	-	N·m	2 / 10 (1)
	Mounting (M6)	-		6 (2)

Notes: (1) Recommended Value 1.8±0.2/9±1N·m (2) Recommended Value 5.5±0.5N·m

ELECTRICAL CHARACTERISTICS

Item		Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Collector Emitter Cut-Off Current		I_{CES}	mA	-	-	8	V_{CE}=6,500V, V_{GE}=0V, Tj=25°C
				-	40	tbd	V_{CE}=6,500V, 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	-	5.7	tbd	I_C=400A, V_{GE}=15V, Tj=125°C
Gate Emitter Threshold Voltage		$V_{GE(TO)}$	V	4.5	6.0	7.5	V_{CE}=10V, I_C=400mA, Tj=25°C
Input Capacitance		C_{ies}	nF	-	60	-	V_{CE}=10V,V_{GE}=0V, f=100kHz, Tj=25°C
Internal Gate Resistance		Rge	Ω	-	0.6	-	V_{CE}=10V,V_{GE}=0V, f=100kHz, Tj=25°C
Switching Times	Rise Time	t_r	µs	-	2.9	tbd	V_{CC}=3,600V, Ic=400A
	Turn On Time	t_{on}		-	3.5	tbd	L=220nH
	Fall Time	t_f		-	3.8	tbd	R_G=15Ω (3)
	Turn Off Time	t_{off}		-	7.2	tbd	V_{GE}=±15V, Tj=125°C
Peak Forward Voltage Drop		V_{FM}	V	-	4.2	tbd	Ic=400A, V_{GE}=0V, Tj=125°C
Reverse Recovery Time		t_{rr}	µs	-	0.9	tbd	Vcc=3600V, Ic=400A, L=220nH Tj=125°C
Turn On Loss		$E_{on(10\%)}$	J/P		2.9	tbd	V_{CC}=3600V, Ic=400A, L=220nH
Turn Off Loss		$E_{off(10\%)}$	J/P		2.1	tbd	R_G=15Ω (3)
Reverse Recovery Loss		$E_{rr(10\%)}$	J/P		1.2	tbd	V_{GE}=±15V, Tj=125°C
Thermal Impedance	IGBT	Rth(j-c)	K/W	-	-	0.0135	Junction to case
	FWD	Rth(j-c)		-	-	0.027	
Contact Thermal Impedance		Rth(c-f)	K/W	-	0.008	-	Case to fin

Notes:(3) R_G value is the test condition's value for evaluation 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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