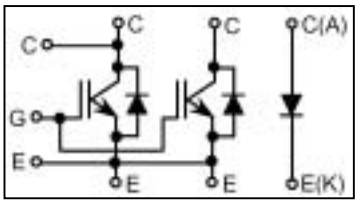
MBL800D33C

Silicon N-channel IGBT

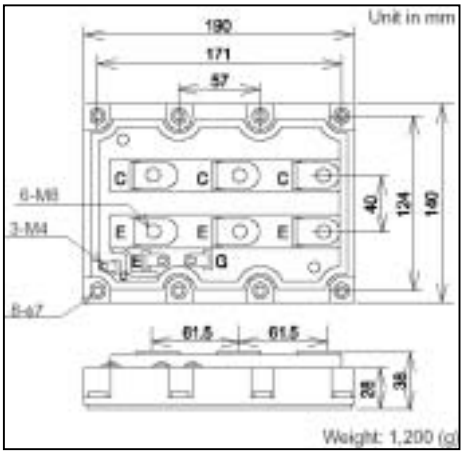
FEATURES

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

CIRCUIT DIAGRAM



OUTLINE DRAWING



ABSOLUTE MAXIMUM RATINGS (Tc=25°C)

Item		Symbol	Unit	MBL800D33C
Collector Emitter Voltage		V_{CES}	V	3,300
Gate Emitter Voltage		V_{GES}	V	±20
Collector Current	DC	I_C	A	800
	1ms	I_{Cp}		1,600
Forward Current	DC	I_F	A	800
	1ms	I_{FM}		1,600
Collector Power Dissipation		Pc	W	8,000
Junction Temperature		T_j	°C	-40 ~ +125
Storage Temperature		T_{stg}	°C	-40 ~ +125
Isolation Voltage		V_{ISO}	V_{RMS}	6,000(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

CHARECTERISTICS (Tc=25 °C)

1) IGBT + FWD

Item		Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Collector Emitter Cut-Off Current		I_{CES}	mA	-	-	12.0	V_{CE}=3,300V, V_{GE}=0V
Gate Emitter Leakage Current		I_{GES}	nA	-	-	±500	V_{GE}=±20V, V_{CE}=0V
Collector Emitter Saturation Voltage		$V_{CE(sat)}$	V	-	4.1	5.0	I_C=800A, V_{GE}=15V
Gate Emitter Threshold Voltage		$V_{GE(TO)}$	V	4.5	5.5	6.5	V_{CE}=5V, Ic=800mA
Input Capacitance		C_{ies}	nF	-	100	-	V_{CE}=10V, V_{GE}=0V,f=100KHz
Switching Times	Rise Time	t_r	μs	-	2.0	3.2	V_{CC}=1,650V, Ic=800A
	Turn On Time	t_{on}		-	2.9	3.8	L=120nH
	Fall Time	t_f		-	1.7	3.2	R_G=4.7Ω (3)
	Turn Off Time	t_{off}		-	3.5	5.6	V_{GE}=±15V, Tc=125°C
Peak Forward Voltage Drop		V_{FM}	V	-	2.2	2.8	-Ic=800A, V_{GE}=0V
Reverse Recovery Time		t_{rr}	μs	-	0.8	1.4	V_{CC}=1,650V, I_F =800A (4) L=120nH, Tc=125°C
Thermal Impedance	IGBT	Rth(j-c)	°C/W	-	-	0.012	Junction to case
	FWD	Rth(j-c)		-	-	0.024	

2) DIODE

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Collector Emitter Cut-Off Current	I_{AKS}	mA	-	-	12.0	VAK=3,300V
Peak Forward Voltage Drop	V_F	V	-	2.4	3.0	I_F =800A
Reverse Recovery Time	trr	μs	-	0.8	1.4	I_F =800A, V_{CC}=1,650V (4) L=120nH, Tc=125°C
Thermal Impedance	Rth(j-c)	°C/W			0.024	Junction to case

Notes: (3) R_G value is the test condition's value for decision of the swiching times, not recommended value. Determine the suitable R_G value after the measurement of switching waveforms(overshoot voltage,etc.)with appliance mounted.
(4)Counter arm IGBT V_{GE}=-15V

HITACHI POWER SEMICONDUCTORS

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