

600V/200A

2-PACK IGBT MODULE (Half - Bridge)

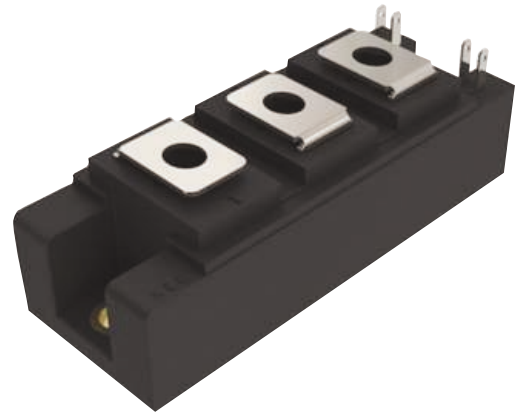
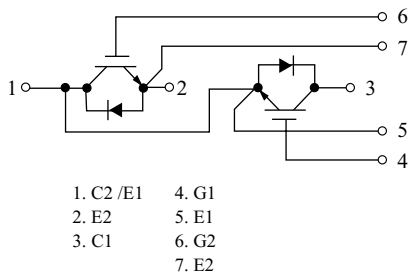
FEATURES

- Trench IGBT Technology
- Low $V_{CE(sat)}$
- Low Turn-off loss
- Short tail current

APPLICATION

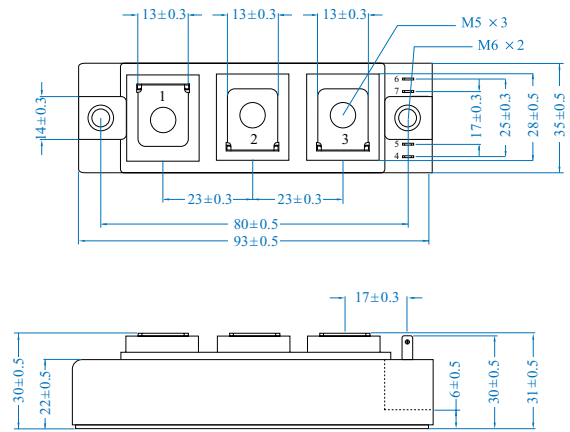
- Motor Controls
- General purpose inverters
- Servo Controls

INTERNAL CIRCUIT



OUTLINE DRAWING

Unit : mm



MAXIMUM RATING (@T_c=25 Per Leg, Unless otherwise noted)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-to-Emitter Voltage	V_{CES}	600	V
Gate-Emitter Voltage	V_{GES}	± 20	V
Continuous Collector Current	I_C	@T _c =25	265
		@T _c =80	200
Pulsed Collector Current *	I_{CP}	400	A
Diode Continuous Forward Current	I_F	@T _c =25	265
		@T _c =80	200
Isolation Voltage test	AC @ 1 minute	V_{iso}	2500
Junction Temperature	T_j	-40 ~ +150	
Storage Temperature	T_{stg}	-40 ~ +125	
Weight	Weight	190 ± 5	g
Mounting Torque (M6)	M	5	N.m
Terminal Connection torque (M5)	M	4	N.m

* Half sine wave at 60Hz, peak value.

GM200HB06BL

ELECTRICAL CHARACTERISTICS (IGBT, @Tc=25 Per Leg, Unless otherwise noted)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Collector-Emitter Breakdown Voltage	BV_{CES}	$I_C = 1\text{mA}, V_{GE}=0\text{V}$	600	-	-	V
Collector Cut-off Current	I_{CES}	$V_{CE}=650\text{V}, V_{GE}=0\text{V}$	-	-	1	mA
Gate Leakage Current	I_{GES}	$V_{GE} = \pm 20\text{V}$	-600	-	600	nA
Gate Threshold Voltage	$V_{GE(th)}$	$V_{CE}=V_{GE}, I_C=6.6\text{mA}$	5.5	-	7.7	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}= 15\text{V}, I_C=200\text{A}$	-	1.6	2.1	V
Internal Gate Resistance	R_G	-	-	2.0	-	
Dynamic						
Turn On Delay Time	$t_{d(on)}$	$V_{CC}= 300\text{V}, I_C=200\text{A},$ $R_G=3.3, V_{GE}= \pm 15\text{V},$ inductive load	-	130	-	ns
Rise Time	t_r		-	320	-	
Turn Off Delay Time	$t_{d(off)}$		-	120	-	
Fall Time	t_f		-	50	-	
Turn-On Switching Loss	E_{ON}		-	8.5	-	mJ
Turn-Off Switching Loss	E_{off}		-	0.7	-	
Gate Charge	Q_{ge}	$I_C = 200\text{A}, V_{CC}=400\text{V}, V_{GE}=15\text{V}$	-	380	-	nC
Input Capacitance	C_{ies}	$V_{CE}= 30\text{V}, V_{GE}=0\text{V},$ $f=1\text{MHz}$	-	12.94	-	nF
Output Capacitance	C_{oes}		-	0.65	-	
Reverse Transfer Capacitance	C_{res}		-	0.34	-	
Short circuit current	I_{SC}	$V_{CC}= 300\text{V}, V_{GE}=15\text{V}$ $t_{psc} 10 \mu\text{s}$	-	1100	-	A

ELECTRICAL CHARACTERISTICS (DIODE, @Tc=25 Per Leg, Unless otherwise noted)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Diode Forward Voltage	V_F	$I_F = 200\text{A}, V_{GE}=0\text{V}$	-	1.9	2.3	V
Diode Reverse Recovery Charge	Q_{rr}	$I_F=200\text{A}, V_R=300\text{V}, di/dt=-900\text{A}/\mu\text{s}$	-	2.2	-	uQ
Diode Peak Reverse Recovery Current	I_{rr}		-	240	-	A

THERMAL CHARACTERISTIC

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX.	UNIT
Junction to Case (IGBT Part, Per 1/2 Module)	$R_{th(j-c)}$	-	0.3	-	/W
Junction to Case (Diode Part, Per 1/2 Module)	$R_{th(j-c)}$	-	0.9	-	