

600V/100A

2-PACK IGBT MODULE (Half - Bridge)

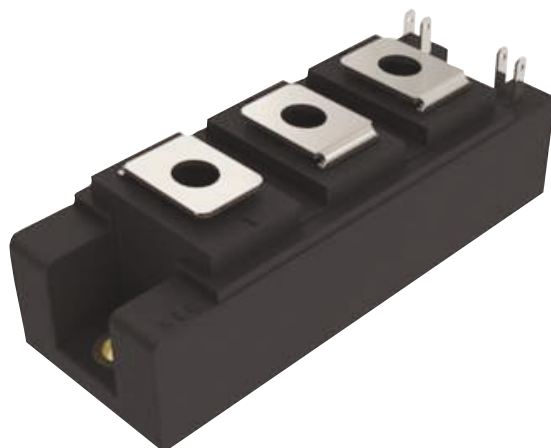
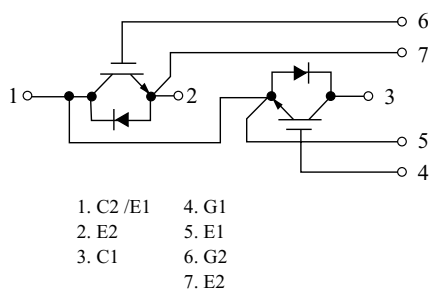
FEATURES

- Trench NPT Technology
- Low $V_{CE(sat)}$
- Low Turn-off loss
- Short tail current
- Positive temperature coefficient
- 10us Short Circuit Capability

APPLICATION

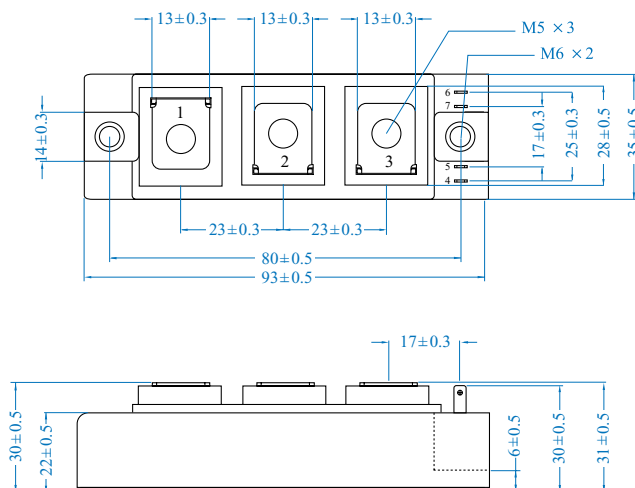
- Motor Controls
- General purpose inverters
- Servo Controls

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	@T _c =25	I_C	130	A
	@T _c =80		100	
Pulsed Collector Current		I_{CP}	200	A
Diode Continuous Forward Current	@T _c =25	I_F	130	A
	@T _c =80		100	
Isolation Voltage test	AC @ 1 minute	V_{iso}	2500	V
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

GM100HB06BLA

ELECTRICAL CHARACTERISTICS (IGBT, @Tc=25 °C 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}	$V_{CE}=600\text{V}$, $V_{GE}=0\text{V}$	-	-	1	mA
Gate Leakage Current	I_{GES}	$V_{GE} = \pm 20\text{V}$	-200	-	200	nA
Gate Threshold Voltage	$V_{GE(th)}$	$V_{CE}=V_{GE}$, $I_C=1\text{mA}$	4.5	-	7.0	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE} = 15\text{V}$, $I_C=100\text{A}$	-	2.1	2.5	V
Dynamic						
Turn On Delay Time	$t_{d(on)}$	$V_{CC}=300\text{V}$, $I_C=100\text{A}$, $R_G=3.3\Omega$, $V_{GE} = \pm 15\text{V}$, inductive load $L = 100\mu\text{H}$	-	126	-	ns
Rise Time	t_r		-	45	-	
Turn Off Delay Time	$t_{d(off)}$		-	204	-	
Fall Time	t_f		-	41.5	-	
Turn-On Switching Loss	E_{ON}		-	3.6	-	mJ
Turn-Off Switching Loss	E_{off}		-	0.74	-	
Gate Charge	Q_{ge}	$I_C = 100\text{A}$, $V_{CC}=300\text{V}$, $V_{GE}=15\text{V}$	-	60	-	nC
Input Capacitance	C_{ies}	$V_{CE}=25\text{V}$, $V_{GE}=0\text{V}$, $f=1\text{MHz}$	-	8	-	nF
Output Capacitance	C_{oes}		-	0.38	-	
Reverse Transfer Capacitance	C_{res}		-	0.61	-	
Short circuit current	I_{SC}	$V_{CC}=300\text{V}$, $V_{GE}=15\text{V}$ $t_{psc} \leq 10\mu\text{s}$	-	400	-	A

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Diode Forward Voltage	V_F	$I_F = 100\text{A}$, $V_{GE}=0\text{V}$	-	1.35	1.6	V
Diode Reverse Recovery Charge	Q_{rr}	$I_F=100\text{A}$, $V_R=300\text{V}$, $di/dt = -900\text{A}/\mu\text{s}$	-	3	-	uQ
Diode Peak Reverse Recovery Current	I_{rr}		-	64	-	A

THERMAL CHARACTERISTIC

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX.	UNIT
Junction to Case (IGBT Part, Per 1/2 Module)	$R_{th(j-c)}$	-	0.46	-	/W
Junction to Case (Diode Part, Per 1/2 Module)	$R_{th(j-c)}$	-	0.42	-	