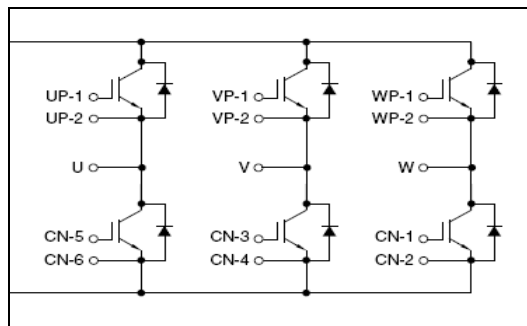
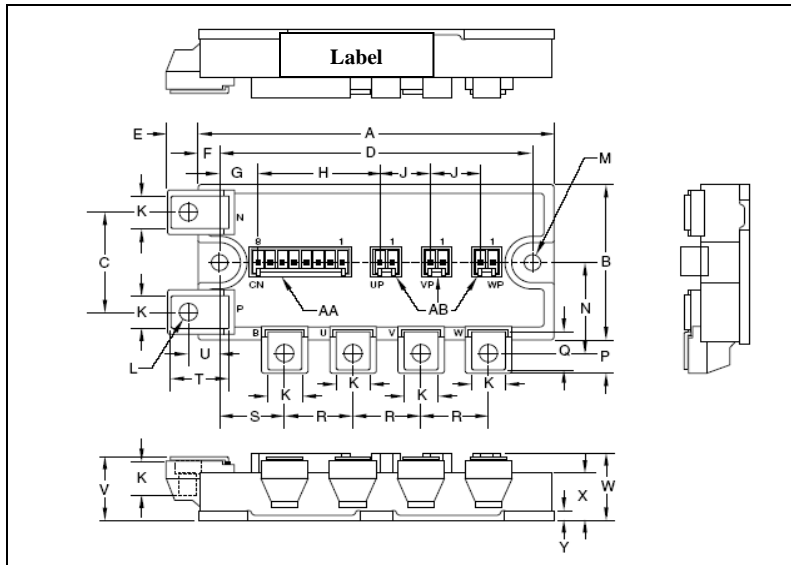


Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272  
www.pwr.com

Trench Gate Design  
Six IGBTMOD™  
200 Amperes/250Volts



**CONNECTION DIAGRAM**

**Description:**

Powerex IGBTMOD™ Modules are designed for use in switching applications. Each module consists of six IGBT Transistors in a three phase bridge configuration, with each transistor having a reverse-connected super-fast recovery free-wheel diode. All components and interconnects are isolated from the heat sinking baseplate, offering simplified system assembly and thermal management.

**Features:**

- Low Drive Power
- Low  $V_{CE(sat)}$
- Discrete Super-Fast Recovery Free-Wheel Diode
- Isolated Baseplate for Easy Heat Sinking

**Applications:**

- AC Motor Control
- UPS
- Battery Powered Supplies

**Outline Drawing and Circuit Diagram**

Dimensions	Inches	Millimeters
A	4.72	120.0
B	2.17	55.0
C	1.39	35.0
D	4.17±0.02	106.0±0.5
E	0.43	11.0
F	0.28	7.0
G	0.54	13.62
H	1.61	40.78
J	0.67	17.0
K	0.47	12.0
L	M5	M5
M	0.27 Dia.	Dia. 5.5

Dimensions	Inches	Millimeters
N	1.23	32.0
P	0.47	11.75
Q	0.53	13.5
R	0.91	23.0
S	0.87	22.0
T	0.76	19.75
U	0.42	10.75
V	0.87+0.04/-0.02	22.0+1.0/-0.5
W	0.91	23.2
X	0.63	16.0
Y	0.12	3.0

Housing Types (J.S.T. Mfg. Co. Ltd.)

- AA – B8P-VH-FB-B
- AB – B2P-VH-FB-B

**Maximum Ratings, T<sub>j</sub>=25°C unless otherwise specified**

Ratings	Symbol	QIE0220001	Units
Junction Temperature	T <sub>j</sub>	-40 to 150	°C
Storage Temperature	T <sub>stg</sub>	-40 to 125	°C
Collector Emitter Voltage (G-E SHORT)	V <sub>CEs</sub>	250	Volts
Gate Emitter Voltage (C-E SHORT)	V <sub>GES</sub>	±20	Volts
Collector Current (T <sub>C</sub> = 25°C)	I <sub>C</sub>	200	Amperes
Peak Collector Current (T <sub>j</sub> ≤ 150°C)	I <sub>CM</sub>	400*	Amperes
Emitter Current**	I <sub>E</sub>	200	Amperes
Peak Emitter Current**	I <sub>EM</sub>	400*	Amperes
Maximum Collector dissipation (T <sub>j</sub> ≤ 150 °C)	P <sub>C</sub>	600	Watts
Mounting Torque, M5 Main Terminal	-	31	In-lb
Mounting Torque, M5 Mounting	-	31	In-lb
Weight	-	680	Grams
Isolation voltage (Main Terminal to Baseplate, AC 1 min.)	V <sub>ISO</sub>	2500	Volts

**Static Electrical Characteristics, T<sub>j</sub>=25°C unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Cutoff Current	I <sub>CEs</sub>	V <sub>CE</sub> =250V V <sub>GE</sub> =0V	-	-	1	mA
Gate Leakage Current	I <sub>GES</sub>	V <sub>GE</sub> =V <sub>CEs</sub> , V <sub>CE</sub> =0V	-	-	0.5	μA
Gate-Emitter Threshold Voltage	V <sub>GE(th)</sub>	I <sub>C</sub> =20mA, V <sub>CE</sub> =10V	3.0	4.0	5.0	Volts
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =200A V <sub>GE</sub> =10V T <sub>j</sub> =25°C	-	1.2	1.7	Volts
	V <sub>CE(sat)</sub>	I <sub>C</sub> =200A V <sub>GE</sub> =10V T <sub>j</sub> =125°C	-	1.1	-	Volts
Total Gate Charge	Q <sub>G</sub>	V <sub>CC</sub> =100V, I <sub>C</sub> =200A, V <sub>GE</sub> =10V	-	-	-	nC
Emitter-Collector Voltage**	V <sub>EC</sub>	I <sub>E</sub> =200A, V <sub>GS</sub> =0V	-	-	2.0	Volts

**Dynamic Electrical Characteristics, T<sub>j</sub>=25°C unless otherwise specified**

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	C <sub>ies</sub>		-	-	66	nf
Output Capacitance	C <sub>oes</sub>	V <sub>CE</sub> = 10V, V <sub>GE</sub> =0V	-	-	3.0	nf
Reverse Transfer Capacitance	C <sub>res</sub>		-	-	2.3	nf
Turn on Delay time	t <sub>d(on)</sub>	V <sub>CC</sub> =100V I <sub>C</sub> =200A	-	-	700	ns
Rise Time	t <sub>r</sub>	V <sub>GE1</sub> =V <sub>GE2</sub> =10V R <sub>G</sub> =13Ω	-	-	1800	ns
Turn- off Delay Time	t <sub>d(off)</sub>	Resistive Load	-	-	700	ns
Fall Time	t <sub>f</sub>		-	-	500	ns
Diode Reverse Recovery Time**	t <sub>rr</sub>	I <sub>E</sub> = 200A, di <sub>E</sub> /dt= -400A/μs	-	-	300	ns
Diode Reverse Recovery Charge**	Q <sub>rr</sub>		-	-	-	μC

**Thermal and Mechanical Characteristics, T<sub>j</sub>=25°C unless otherwise specified**

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case*	R <sub>θ(J-C)</sub> Q	Per IGBT 1/6 Module	-	-	0.21	°C/W
Thermal Resistance, Junction to Case*	R <sub>θ(J-C)</sub> R	Per Diode 1/6 Module	-	-	0.47	°C/W
Contact Thermal Resistance	R <sub>θ(c-f)</sub>	Per 1/6 Module, Thermal Grease Applied	-	0.09	-	°C/W

\*\*Pulse width and repetition rate should be such that device junction temperature does not exceed device rating.

 \*T<sub>C</sub>, T<sub>r</sub> measured point is just under the chips.

