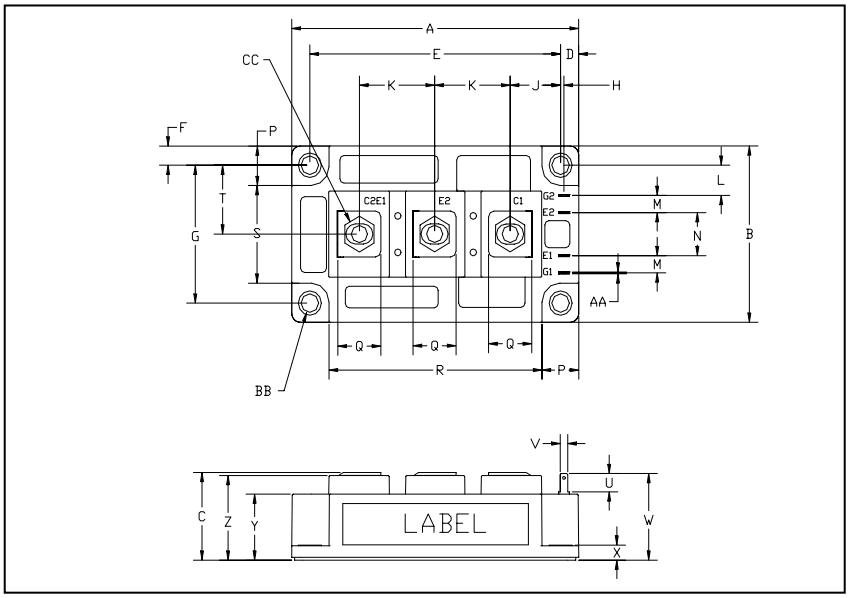
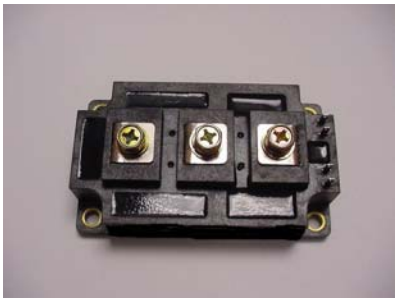
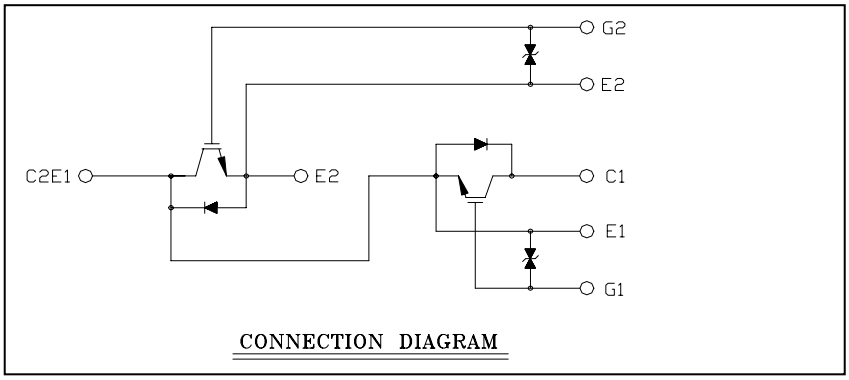
Powerex, Inc., 200 Hillis St., Youngwood 15697 (724) 925-7272

Dual IGBT Module
600 Amperes / 600 Volts





Description:
Powerex Dual IGBT Module is designed specially for customer applications.



CONNECTION DIAGRAM

Features:
- Low Drive Requirement
- Low $V_{CE(sat)}$
- Super Fast Diode
- (4) H Series 150A 600V Chips per IGBT Switch
- (6) H Series 100A 600V Chips per Diode
- Copper Base Plate
- Low Thermal Resistance
- Aluminum Nitride DBC Ceramic

Dim	Inches	Millimeters
A	4.19	106.4
B	2.42	61.4
C	1.30	33.0
D	0.26	6.6
E	3.66	93.0
F	0.26	6.7
G	1.89	48.0
H	0.05	1.20
J	0.74	18.7
K	1.10	27.9
L	0.41	10.5
M	0.24	6.0
N	0.59	15.0
P	0.54	13.6

Dim	Inches	Millimeters
Q	0.63	16.0
R	3.11	79.0
S	1.34	34.0
T	0.94	24.0
U	0.25	6.4
V	0.11	2.8
W	1.29	32.7
X	0.31	7.8
Y	1.00	25.5
Z	1.26	32.0
AA	0.20	0.5
BB	0.256 Dia.	6.5 Dia.
CC	6 Hex Nut	6 Hex Nut

Maximum Ratings, Tj=25°C unless otherwise specified

Ratings	Symbol	QID0660009	Units
Collector Emitter Voltage	V_{CES}	600	Volts
Gate Emitter Voltage	V_{GES}	±20	Volts
Collector Current	I_C	600	Amperes
Peak Collector Current	I_{CM}	1200*	Amperes
Diode Forward Current	I_F	600	Amperes
Diode Forward Surge Current	I_{FM}	1200*	Amperes
Power Dissipation	P_d	1670	Watts
Junction Temperature	T_j	-55 to 150	°C
Storage Temperature	T_{stg}	-55 to 125	°C
Mounting Torque, M6 Terminal Screws	-	26	In-lb
Mounting Torque, M6 Mounting Screws	-	26	In-lb
Module Weight (Typical)	-	460	Grams
V Isolation	V_{RMS}	1800	Volts

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

Static Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector Cutoff Current	I_{CES}	$V_{CE}=V_{CES}$ $V_{GE}=0V$	-	-	1.0	mA
Gate Leakage Current	I_{GES}	$V_{GE}=V_{GES}$ $V_{CE}=0V$	-	-	0.5	μA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	I_C=60mA, V_{CE}=10V	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=600A, V_{GE}=15V	-	2.1	2.8*	Volts
		I_C=600A, V_{GE}=15V, T_j=150°C	-	2.15	-	Volts
Total Gate Charge	Q_G	V_{CC}=600V, I_C=600A, V_{GS}=15V	-	1800	-	nC
Diode Forward Voltage	V_{FM}	I_E=600A, V_{GS}=0V	-	-	2.8	Volts

*Pulse width and repetition rate should be such that device junction temperature rise is negligible.

Dynamic Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	C_{ies}	V_{GE}=0V, V_{CE}=10V, f=1MHz	-	-	60	nF
Output Capacitance	C_{oes}		-	-	21	nF
Reverse Transfer Capacitance	C_{res}		-	-	12	ns
Turn on Delay time	$t_{d(on)}$	V_{CC}=300V, I_C=600A, $V_{GE1}=V_{GE2}$=15V, R_G=1.0Ω	-	-	350	ns
Rise Time	t_r		-	-	700	ns
Turn- off Delay Time	$t_{d(off)}$		-	-	350	ns
Fall Time	t_f		-	-	300	ns
Diode Reverse Recovery Time	t_{rr}	I_F=600A, di_F/dt=-1200A/μS	-	-	110	ns
Diode Reverse Recovery Charge	Q_{rr}		-	1.62	-	μC

Thermal and Mechanical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per IGBT	-	-	0.06	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Diode	-	-	0.12	°C/W
Contact Thermal Resistance (Thermal Grease Applied)	$R_{\theta CF}$	Per Module	-	-	0.04	°C/W