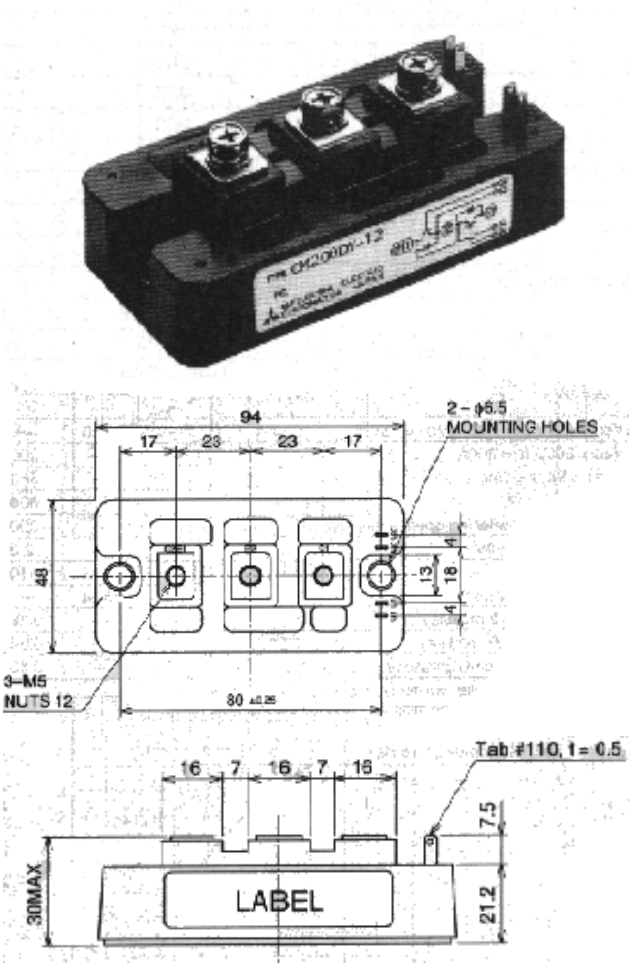
Powerex Inc., 173 Pavilion Lane, Youngwood, PA 15697 (724) 925-7272
www.pwrx.com

IGBT H-Series
Chopper Module
200/300 Amperes/600 Volts



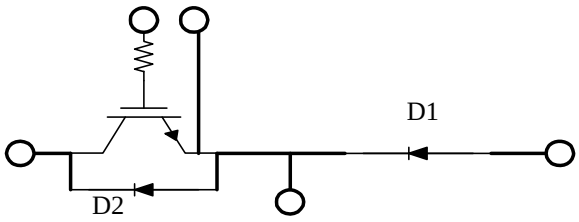
Description:

Powerex IGBT modules are designed for use in switching applications. Each Module consists of one IGBT transistor and one super fast recovery diode in a chopper configuration. All components are encapsulated in a plastic package are electrically isolated from the heat sinking base plate, offering simplified system assembly and thermal management.

Features:

- Low Drive Power
- Low $V_{CE(sat)}$
- Discrete Super-Fast Recovery (70ns) Diodes
- High Frequency Operation (20-25kHz)
- Isolated Base plate for Easy Heat sinking

Schematic:



Applications:

- DC Motor Control
- Power Supplies

Ordering Information:

Contact Powerex Custom Modules

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Maximum Ratings, Tj=25°C unless otherwise specified

Ratings	Symbol		Units
Collector Emitter Voltage	V_{CES}	600	Volts
Gate Emitter Voltage	V_{GES}	±20	Volts
Collector Current	I_C	200	Amperes
Peak Collector Current	I_{CM}	400*	Amperes
Diode Forward Current (D1)	I_{FM}	300	Amperes
Diode Forward Surge Current (D1)	I_{FM}	600*	Amperes
Power Dissipation	P_d	1100	Watts
V Isolation	V_{RMS}	2500	Volts

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Collector Cutoff Current	I_{CES}	$V_{CE}=V_{CES}$			1.0	mA
Gate Leakage Current	I_{GES}	$V_{CE}=0V$			0.5	μA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$I_C=20mA$, $V_{CE}=10V$	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=200A$, $V_{GE}=15V$		2.1	2.8	Volts
	$V_{CE(sat)}$	$I_C=200A$, $V_{GE}=15V$, $T_j=150°C$		2.15		Volts
Total Gate Charge	Q_G	$V_{CC}=300V$, $I_C=200A$, $V_{GS}=15V$		600		nC
Diode Forward Voltage (D1)	V_{FM}	$I_E=300A$, $V_{GS}=0V$			2.8	Volts

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Input Capacitance	C_{ies}	$V_{GE}=0V$			20	nF
Output Capacitance	C_{oes}	$V_{CE}=10V$			7	nF
Reverse Transfer Capacitance	C_{res}	f=1MHz			4	nF
Turn on Delay time	$t_{d(on)}$	$V_{CC}=300V$			200	nS
Rise Time	t_r	$I_C=200A$			550	nS
Turn off delay time	$t_{d(off)}$	$V_{GE1}=V_{GE2}=15$ V			300	nS
Fall Time	t_f	$R_G=3.1Ω$			300	nS
Diode Reverse Recovery Time	trr	$I_E=200A$			110	nS
Diode reverse Recovery Charge	Qrr	$di_E/dt=-400A/μS$		0.54		μC

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Thermal Resistance, Junction to Case	$R_{θJC}$	Per IGBT			0.16	°C/W