



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

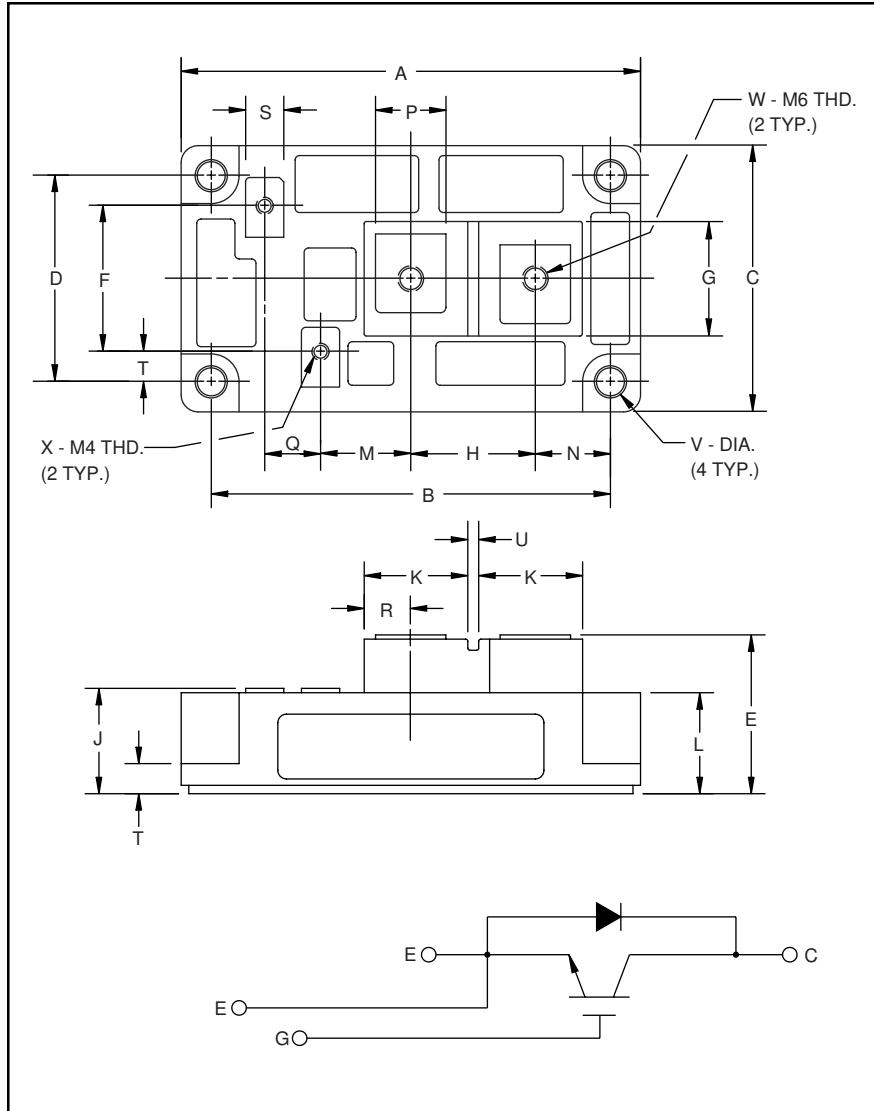
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Single IGBTMOD™ H-Series Module 300 Amperes/600 Volts



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	4.21	107.0
B	3.661±0.01	93.0±0.25
C	2.44	62.0
D	1.89±0.01	48.0±0.25
E	1.42 Max.	36.0 Max.
F	1.34	34.0
G	1.18	30.0
H	1.14	29.0
J	0.98 Max.	25.0 Max.
K	0.94	24.0
L	0.93	23.5

Dimensions	Inches	Millimeters
M	0.83	21.0
N	0.69	17.5
P	0.63	16.0
Q	0.51	13.0
R	0.43	11.0
S	0.35	9.0
T	0.28	7.0
U	0.12	3.0
V	0.26 Dia.	Dia. 6.5
W	M6 Metric	M6
X	M4 Metric	M4



Description:

Powerex IGBTMOD™ Modules are designed for use in switching applications. Each module consists of one IGBT Transistor in a single configuration with 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 (70ns) Free-Wheel Diode
- ☐ High Frequency Operation (20-25kHz)
- ☐ Isolated Baseplate for Easy Heat Sinking

Applications:

- ☐ AC Motor Control
- ☐ Motion/Servo Control
- ☐ UPS
- ☐ Welding Power Supplies
- ☐ Laser Power Supplies

Ordering Information:

Example: Select the complete part module number you desire from the table below -i.e. CM300HA-12H is a 600V (V_{CES}), 300 Ampere Single IGBTMOD™ Power Module.

Type	Current Rating Amperes	V_{CES} Volts (x 50)
CM	300	12

CM300HA-12H
Single IGBTMOD™ H-Series Module
 300 Amperes/600 Volts

Absolute Maximum Ratings, $T_j = 25^\circ\text{C}$ unless otherwise specified

Ratings	Symbol	CM300HA-12H	Units
Junction Temperature	T_j	-40 to 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to 125	$^\circ\text{C}$
Collector-Emitter Voltage (G-E SHORT)	V_{CES}	600	Volts
Gate-Emitter Voltage	V_{GES}	± 20	Volts
Collector Current	I_C	300	Amperes
Peak Collector Current	I_{CM}	600*	Amperes
Diode Forward Current	I_F	300	Amperes
Diode Forward Surge Current	I_{FM}	600*	Amperes
Power Dissipation	P_d	1100	Watts
Max. Mounting Torque M6 Terminal Screws	—	26	in-lb
Max. Mounting Torque M6 Mounting Screws	—	26	in-lb
Module Weight (Typical)	—	400	Grams
V Isolation	V_{RMS}	2500	Volts

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

Static Electrical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector-Cutoff Current	I_{CES}	$V_{\text{CE}} = V_{\text{CES}}, V_{\text{GE}} = 0\text{V}$	—	—	1.0	mA
Gate Leakage Current	I_{GES}	$V_{\text{GE}} = V_{\text{GES}}, V_{\text{CE}} = 0\text{V}$	—	—	0.5	μA
Gate-Emitter Threshold Voltage	$V_{\text{GE(th)}}$	$I_C = 30\text{mA}, V_{\text{CE}} = 10\text{V}$	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{\text{CE(sat)}}$	$I_C = 300\text{A}, V_{\text{GE}} = 15\text{V}$	—	2.1	2.8**	Volts
		$I_C = 300\text{A}, V_{\text{GE}} = 15\text{V}, T_j = 150^\circ\text{C}$	—	2.15	—	Volts
Total Gate Charge	Q_G	$V_{\text{CC}} = 300\text{V}, I_C = 300\text{A}, V_{\text{GS}} = 15\text{V}$	—	900	—	nC
Diode Forward Voltage	V_{FM}	$I_E = 300\text{A}, V_{\text{GS}} = 0\text{V}$	—	—	2.8	Volts

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

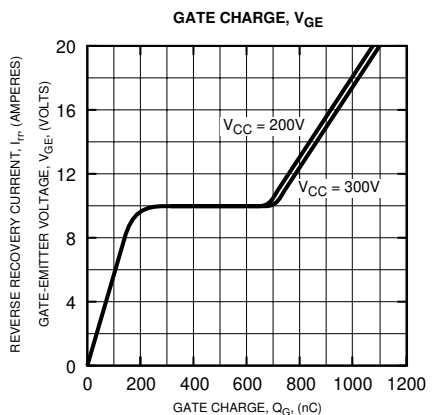
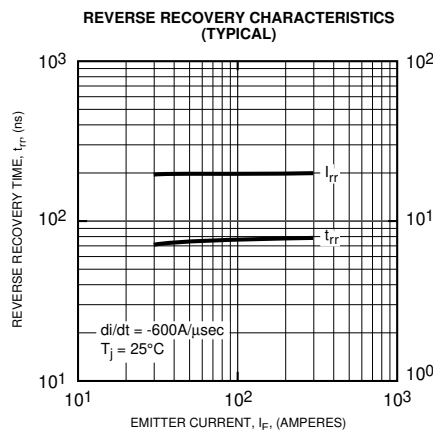
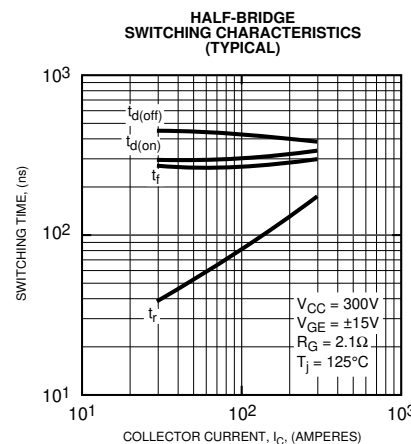
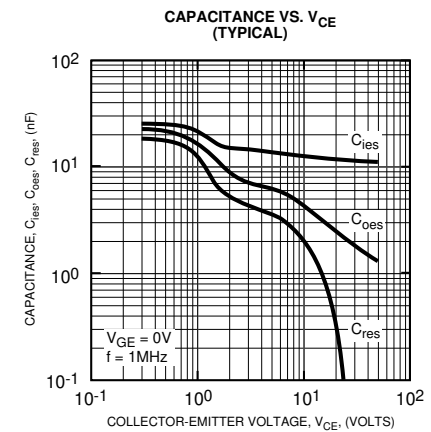
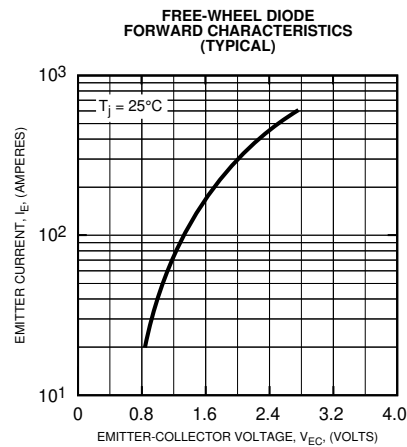
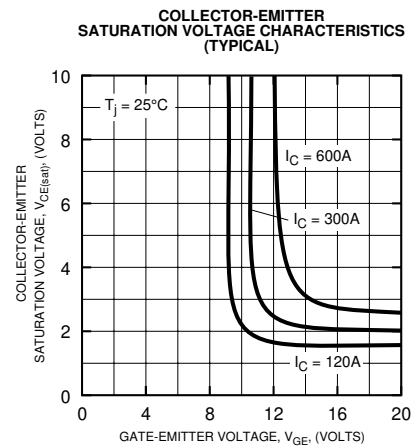
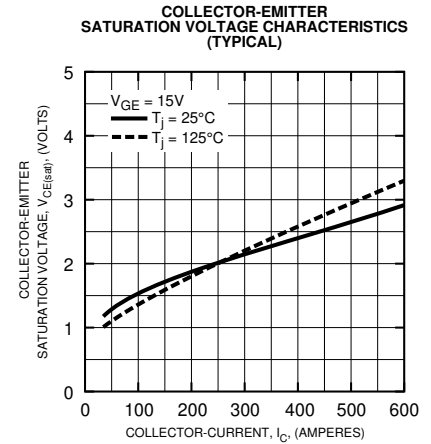
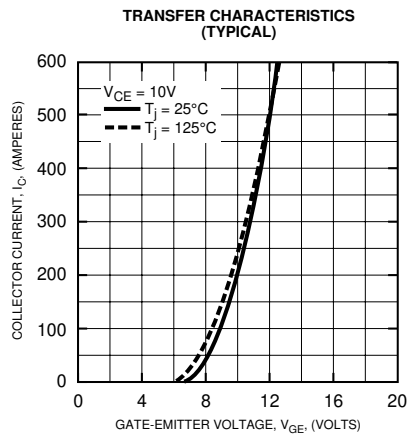
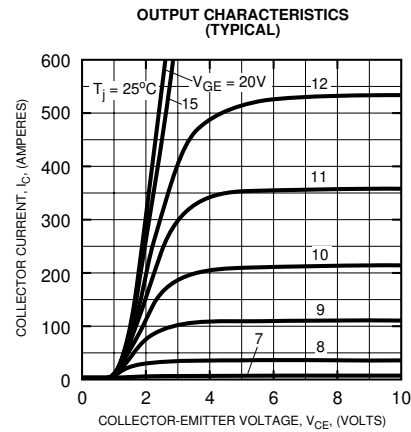
Dynamic Electrical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	C_{ies}	$V_{\text{GE}} = 0\text{V}, V_{\text{CE}} = 10\text{V}, f = 1\text{MHz}$	—	—	30	nF
Output Capacitance	C_{oes}		—	—	10.5	nF
Reverse Transfer Capacitance	C_{res}		—	—	6	nF
Resistive	Turn-on Delay Time	$V_{\text{CC}} = 300\text{V}, I_C = 300\text{A}, V_{\text{GE1}} = V_{\text{GE2}} = 15\text{V}, R_G = 2.1\Omega$	—	—	350	ns
Load	Rise Time		—	—	600	ns
Switching	Turn-off Delay Time		—	—	350	ns
Times	Fall Time		—	—	300	ns
Diode Reverse Recovery Time	t_{rr}	$I_E = 300\text{A}, di_E/dt = -600\text{A}/\mu\text{s}$	—	—	110	ns
Diode Reverse Recovery Charge	Q_{rr}	$I_E = 300\text{A}, di_E/dt = -600\text{A}/\mu\text{s}$	—	0.81	—	μC

Thermal and Mechanical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{\text{th(j-c)}}$	Per IGBT	—	—	0.11	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\text{th(j-c)}}$	Per FWDi	—	—	0.24	$^\circ\text{C}/\text{W}$
Contact Thermal Resistance	$R_{\text{th(c-f)}}$	Per Module, Thermal Grease Applied	—	—	0.040	$^\circ\text{C}/\text{W}$

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