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

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

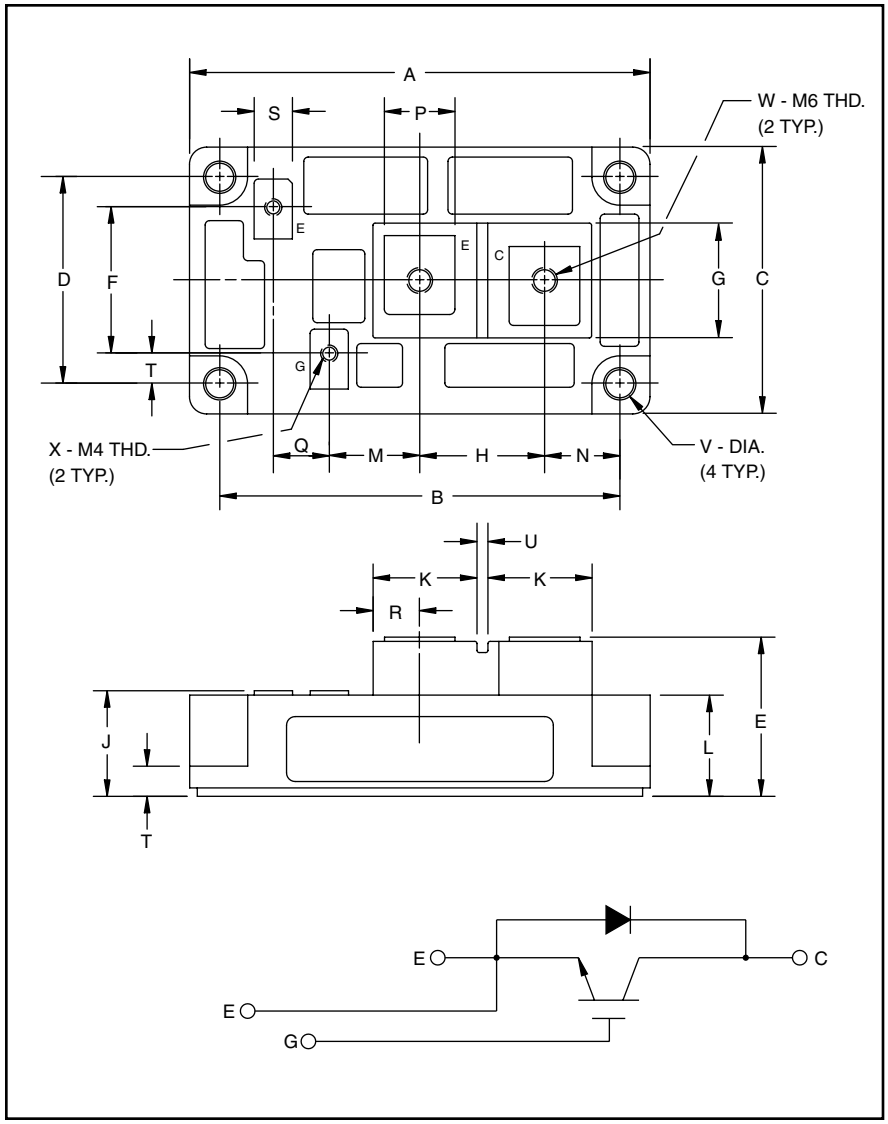
POWEREX

CM300HA-28H

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

Single IGBTMOD™ H-Series Module

300 Amperes/1400 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-28H is a 1400V (V_{CES}), 300 Ampere Single IGBTMOD™ Power Module.

Type	Current Rating Amperes	V_{CES} Volts (x 50)
CM	300	28

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

CM300HA-28H
Single IGBTMOD™ H-Series Module
300 Amperes/1400 Volts

Absolute Maximum Ratings, T_j = 25 °C unless otherwise specified

Ratings	Symbol	CM300HA-28H	Units
Junction Temperature	T_j	–40 to 150	°C
Storage Temperature	T_{stg}	–40 to 125	°C
Collector-Emitter Voltage (G-E SHORT)	V_{CES}	1400	Volts
Gate-Emitter Voltage (C-E SHORT)	V_{GES}	±20	Volts
Collector Current (T_c = 25°C)	I_C	300	Amperes
Peak Collector Current (T_j ≤ 150°C)	I_{CM}	600	Amperes
Emitter Current* (T_c = 25°C)	I_E	300	Amperes
Peak Emitter Current* (T_j ≤ 150°C)	I_{EM}	600	Amperes
Maximum Collector Dissipation (T_c = 25°C)	P_c	2100	Watts
Max. Mounting Torque M6 Main Terminal Screws	–	26	in-lb
Max. Mounting Torque M6 Mounting Screws	–	26	in-lb
Max. Mounting Torque M4 Terminal Screws	–	13	in-lb
Module Weight (Typical)	–	400	Grams
V Isolation (Main Terminal to Baseplate, AC 1 min.)	V_{RMS}	2500	Volts

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

Characteristics	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}	$V_{GE} = V_{CES}$, V_{CE} = 0V	–	–	0.5	µA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	I_C = 30mA, V_{CE} = 10V	5.0	6.5	8.0	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 300A, V_{GE} = 15V, T_j = 25°C	–	3.1	4.2	Volts
		I_C = 300A, V_{GE} = 15V, T_j = 125°C	–	2.95	–	Volts
Total Gate Charge	Q_G	V_{CC} = 800V, I_C = 300A, V_{GE} = 15V	–	1530	–	nC
Emitter-Collector Voltage*	V_{EC}	I_E = 300A, V_{GE} = 0V	–	–	3.8	Volts

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

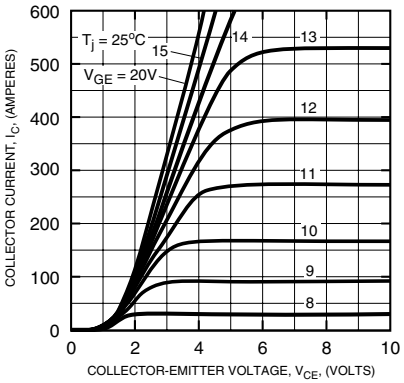
Characteristics		Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance		C_{ies}	V_{GE} = 0V, V_{CE} = 10V, f = 1MHz	–	–	60	nF
Output Capacitance		C_{oes}		–	–	21	nF
Reverse Transfer Capacitance		C_{res}		–	–	12	nF
Resistive	Turn-on Delay Time	$t_{d(on)}$	V_{CC} = 800V, I_C = 300A, $V_{GE1} = V_{GE2}$ = 15V, R_G = 1.0Ω	–	–	250	ns
Load	Rise Time	t_r		–	–	500	ns
Switching	Turn-off Delay Time	$t_{d(off)}$		–	–	350	ns
Times	Fall Time	t_f		–	–	500	ns
Diode Reverse Recovery Time*		t_{rr}	I_E = 300A, di_E/dt = –600A/µs	–	–	300	ns
Diode Reverse Recovery Charge*		Q_{rr}	I_E = 300A, di_E/dt = –600A/µs	–	3.0	–	µC

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

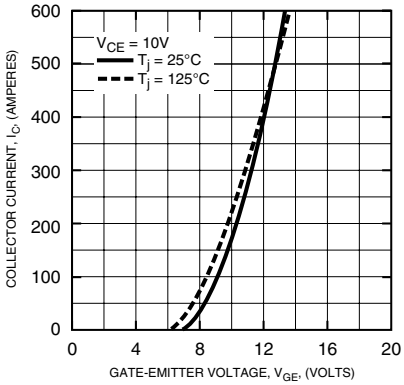
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per IGBT	–	–	0.06	°C/W
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per FWDi	–	–	0.12	°C/W
Contact Thermal Resistance	$R_{th(c-f)}$	Per Module, Thermal Grease Applied	–	–	0.04	°C/W

* Represents characteristics of the anti-parallel, emitter-to-collector free-wheel diode.

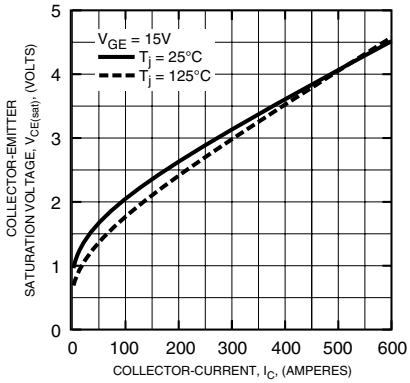
OUTPUT CHARACTERISTICS (TYPICAL)



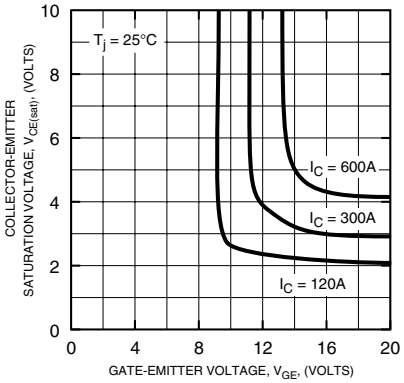
TRANSFER CHARACTERISTICS (TYPICAL)



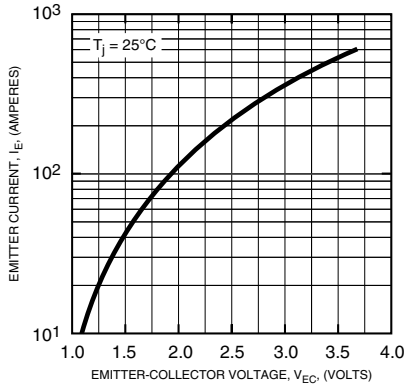
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



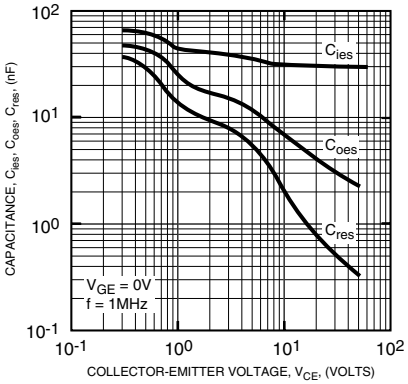
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



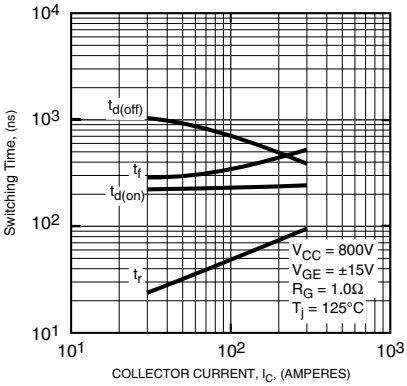
FREE-WHEEL DIODE FORWARD CHARACTERISTICS (TYPICAL)



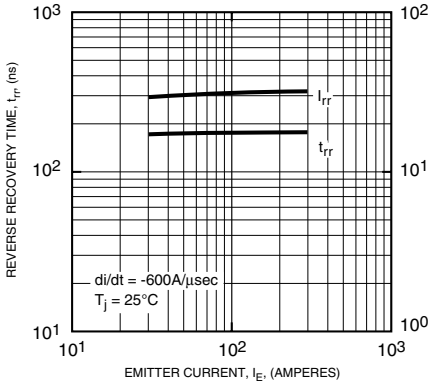
CAPACITANCE VS. V_{CE} (TYPICAL)



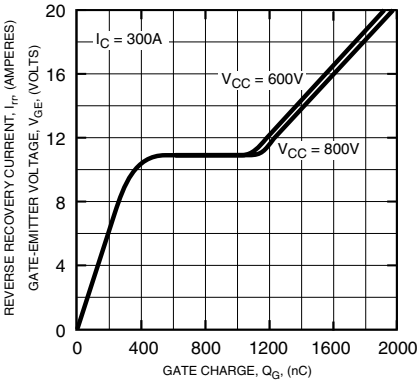
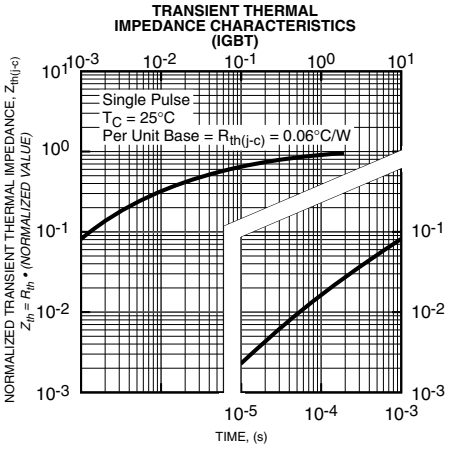
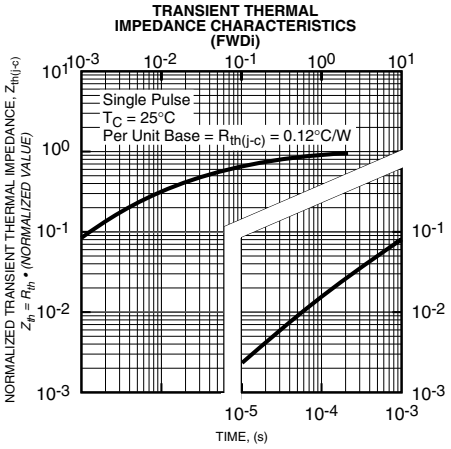
HALF-BRIDGE SWITCHING CHARACTERISTICS (TYPICAL)



REVERSE RECOVERY CHARACTERISTICS (TYPICAL)



GATE CHARGE, V_{GE}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