



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

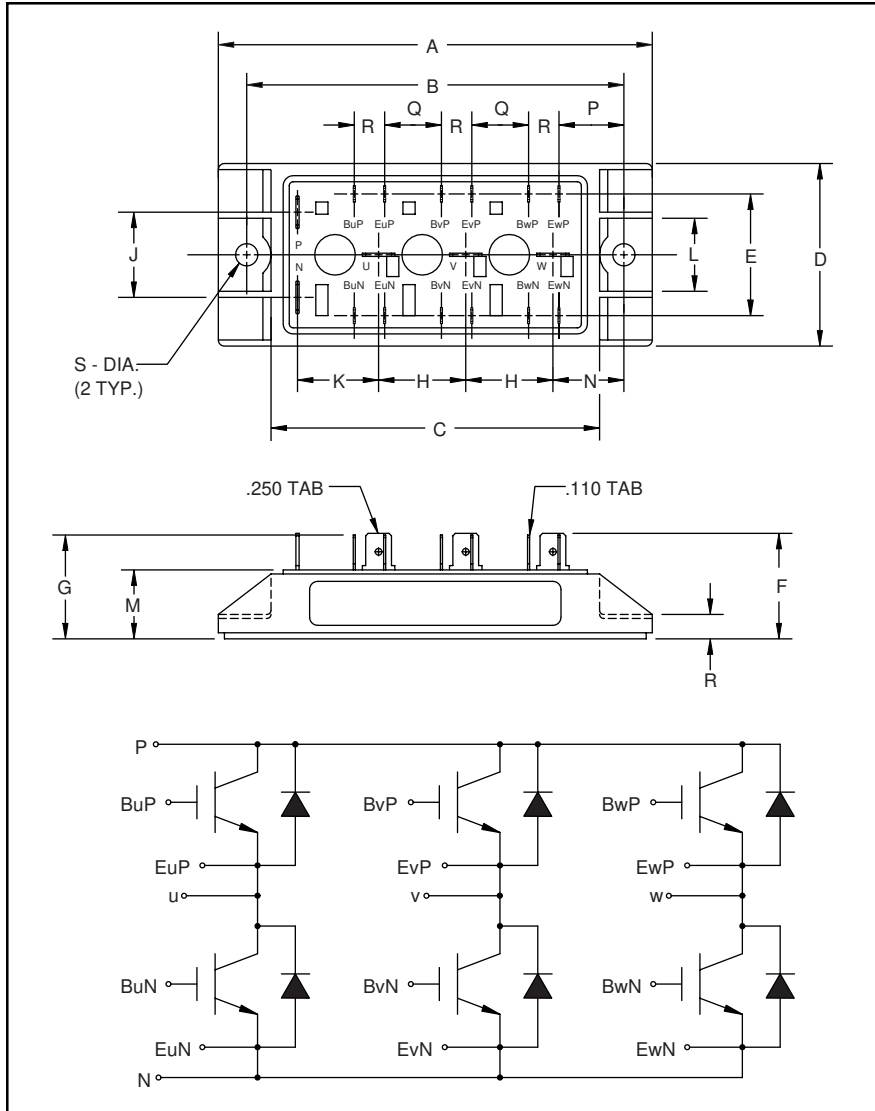
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### Six-IGBT IGBTMOD™ H-Series Module 30 Amperes/600 Volts



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	4.21	107.0
B	3.66±0.01	93.0±0.3
C	3.19	81.0
D	1.77	45.0
E	1.18	30.0
F	1.04	26.5
G	1.01	25.6
H	0.85	21.5
J	0.83	21.0

Dimensions	Inches	Millimeters
K	0.79	20.0
L	0.71	18.0
M	0.69±0.02	17.5±0.5
N	0.69	17.5
P	0.63	16.0
Q	0.55	14.0
R	0.30	7.5
S	0.22 Dia.	Dia. 5.5



#### 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 (150ns) Free-Wheel Diode
- High Frequency Operation (15-20kHz)
- 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. CM30TF-12H is a 600V ( $V_{CES}$ ), 30 Ampere Six-IGBT IGBTMOD™ Power Module.

Type	Current Rating Amperes (30)	$V_{CES}$ Volts (x 50)
CM	30	12

**CM30TF-12H**  
**Six-IGBT IGBTMOD™ H-Series Module**  
 30 Amperes/600 Volts

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

Ratings	Symbol	CM30TF-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	$V_{GES}$	$\pm 20$	Volts
Collector Current	$I_C$	30	Amperes
Peak Collector Current	$I_{CM}$	60*	Amperes
Diode Forward Current	$I_F$	30	Amperes
Diode Forward Surge Current	$I_{FM}$	60*	Amperes
Power Dissipation	$P_d$	150	Watts
Max. Mounting Torque M5 Mounting Screws	-	17	in-lb
Module Weight (Typical)	-	260	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,  $T_j = 25\text{ }^\circ\text{C}$  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	$I_{GES}$	$V_{GE} = V_{GES}, V_{CE} = 0V$	-	-	0.5	$\mu\text{A}$
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$I_C = 3\text{mA}, V_{CE} = 10V$	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 30\text{A}, V_{GE} = 15V$	-	2.1	2.8**	Volts
		$I_C = 30\text{A}, V_{GE} = 15V, T_j = 150^\circ\text{C}$	-	2.15	-	Volts
Total Gate Charge	$Q_G$	$V_{CC} = 300V, I_C = 30\text{A}, V_{GS} = 15V$	-	90	-	nC
Diode Forward Voltage	$V_{FM}$	$I_E = 30\text{A}, V_{GS} = 0V$	-	-	2.8	Volts

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

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

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	$C_{ies}$		-	-	3.0	nF
Output Capacitance	$C_{oes}$	$V_{GE} = 0V, V_{CE} = 10V, f = 1\text{MHz}$	-	-	1.1	nF
Reverse Transfer Capacitance	$C_{res}$		-	-	0.6	nF
Resistive	Turn-on Delay Time	$V_{CC} = 300V, I_C = 30\text{A},$	-	-	120	ns
Load	Rise Time					
Switching	Turn-off Delay Time	$V_{GE1} = V_{GE2} = 15V, R_G = 21\Omega$	-	-	200	ns
	Times					
Diode Reverse Recovery Time	$t_{rr}$	$I_E = 30\text{A}, di_E/dt = -60\text{A}/\mu\text{s}$	-	-	110	ns
Diode Reverse Recovery Charge	$Q_{rr}$	$I_E = 30\text{A}, di_E/dt = -60\text{A}/\mu\text{s}$	-	0.08	-	$\mu\text{C}$

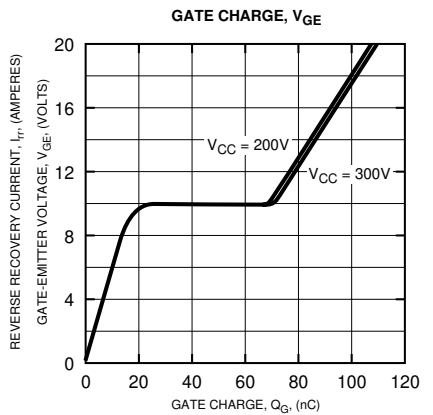
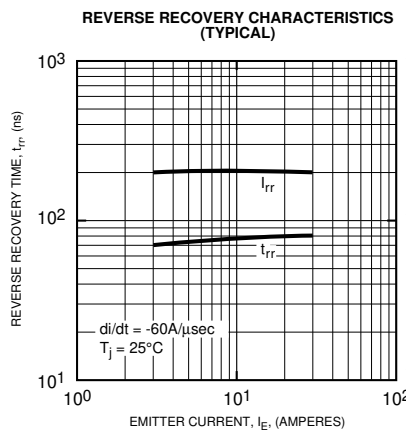
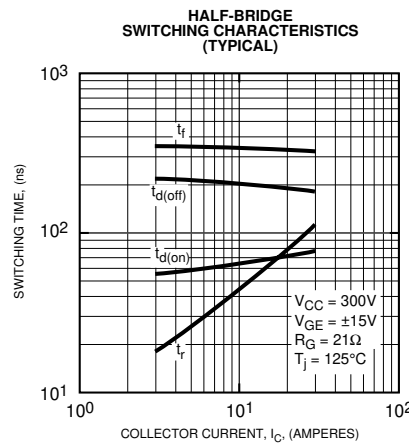
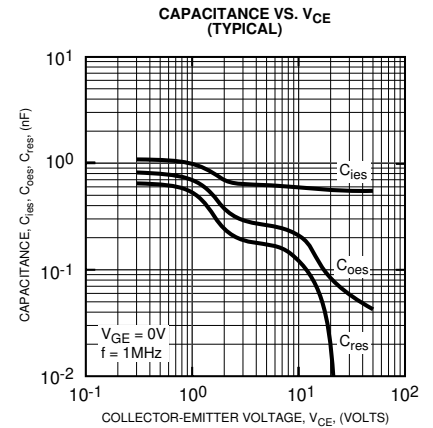
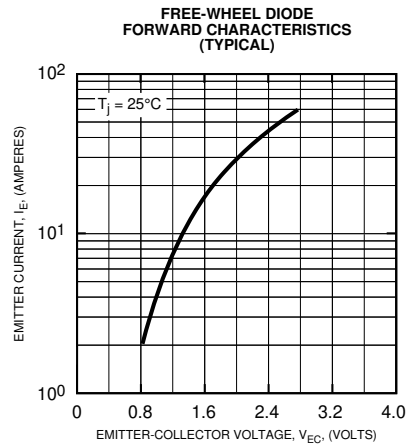
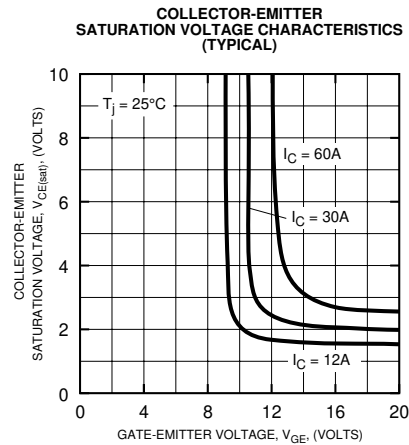
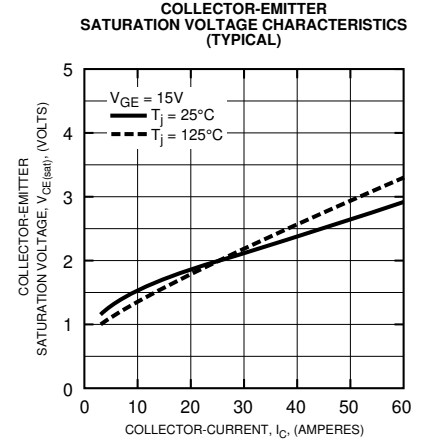
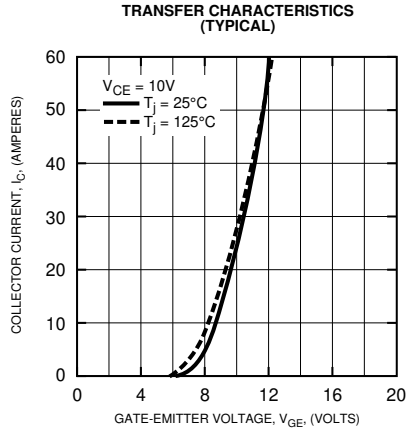
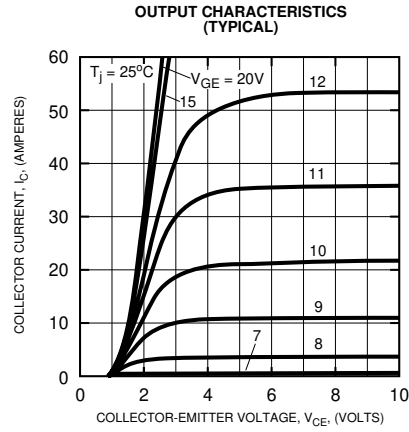
**Thermal and Mechanical Characteristics,  $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per IGBT	-	-	0.80	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per FWDi	-	-	2.00	$^\circ\text{C}/\text{W}$
Contact Thermal Resistance	$R_{th(c-f)}$	Per Module, Thermal Grease Applied	-	-	0.058	$^\circ\text{C}/\text{W}$



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