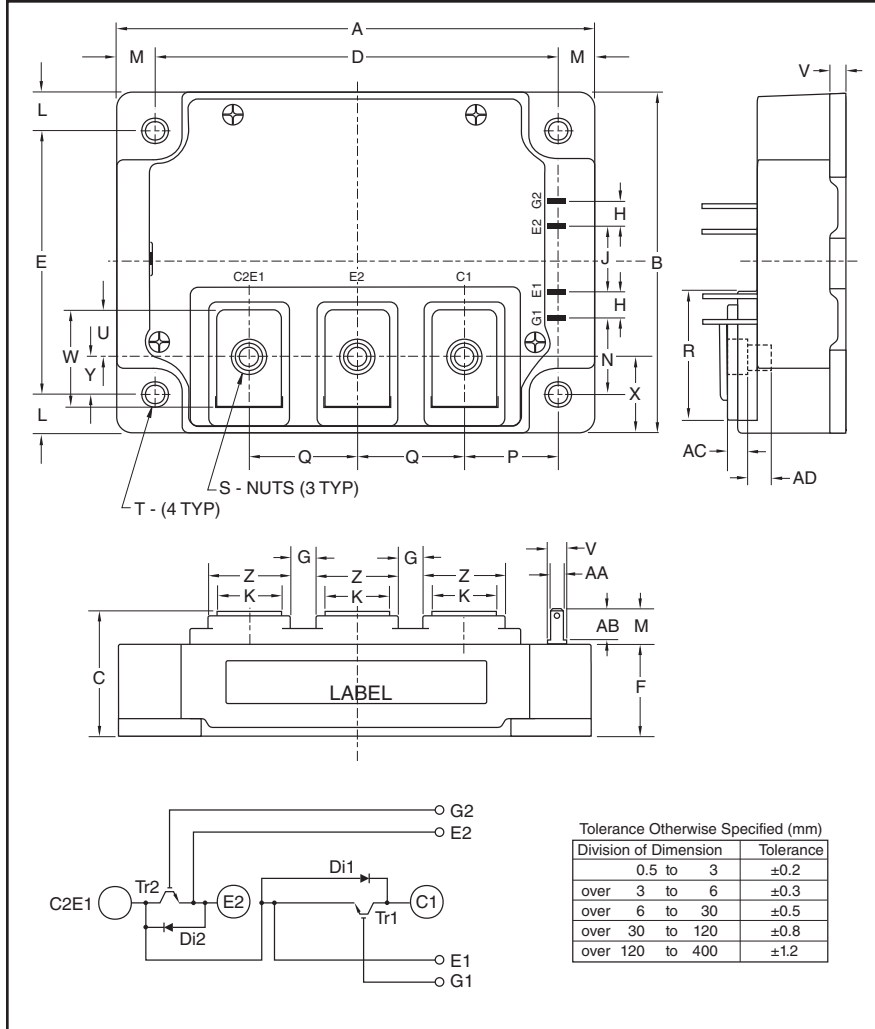


Dual IGBTMOD™ NFH-Series Module 600 Amperes/1200 Volts



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	4.33	110.0
B	3.15	80.0
C	1.14+0.04/-0.01	29.0+1.0/-0.5
D	3.66±0.01	93.0±0.25
E	2.44±0.01	62.0±0.25
F	0.83	21.2
G	0.28	7.0
H	0.24	6.0
J	0.59	15.0
K	0.55	14.0
L	0.35	9.0
M	0.33	8.5
N	0.69	17.5
P	0.85	21.5

Dimensions	Inches	Millimeters
Q	0.98	25.0
R	1.23	31.4
S	M6 Metric	M6
T	0.26 Dia.	6.5 Dia.
U	0.4	10.0
V	0.16	4.0
W	0.87	22.2
X	0.72	18.25
Y	0.36	9.25
Z	0.71	18.0
AA	0.11	2.8
AB	0.29	7.5
AC	0.21	5.3
AD	0.47	12.0



Description:

Powerex IGBTMOD™ Modules are designed for use in high frequency applications; 30 kHz for hard switching applications and 60 to 70 kHz for soft switching applications. Each module consists of two IGBT Transistors in a half-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 ESW(off)
- Discrete Super-Fast Recovery Free-Wheel Diode
- Isolated Baseplate for Easy Heat Sinking

Applications:

- Power Supplies
- Induction Heating
- Welders

Ordering Information:

Example: Select the complete part module number you desire from the table below -i.e. CM600DU-24NFH is a 1200V (V_{CEs}), 600 Ampere Dual IGBTMOD™ Power Module.

Type	Current Rating Amperes	V _{CEs} Volts (x 50)
CM	600	24



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

CM600DU-24NFH
Dual IGBTMOD™ NFH-Series Module
 600 Amperes/1200 Volts

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

Ratings	Symbol	CM600DU-24NFH	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}	1200	Volts
Gate-Emitter Voltage (C-E Short)	V_{GES}	± 20	Volts
Collector Current ($T_C = 25^\circ\text{C}$)	I_C	600*	Amperes
Peak Collector Current	I_{CM}	1200*	Amperes
Emitter Current** ($T_C = 25^\circ\text{C}$)	I_E	600*	Amperes
Peak Emitter Current**	I_{EM}	1200*	Amperes
Maximum Collector Dissipation ($T_C = 25^\circ\text{C}, T_j \leq 150^\circ\text{C}$)	P_C	1550	Watts
Maximum Collector Dissipation ($T_C = 25^\circ\text{C}, T_j \leq 150^\circ\text{C}$)	P_C	3700	Watts
Mounting Torque, M6 Main Terminal	—	40	in-lb
Mounting Torque, M6 Mounting	—	40	in-lb
Weight	—	580	Grams
Isolation Voltage (Main Terminal to Baseplate, AC 1 min.)	V_{ISO}	2500	Volts

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}	$V_{GE} = V_{GES}, V_{CE} = 0V$	—	—	2.0	μA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$I_C = 60\text{mA}, V_{CE} = 10V$	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 600\text{A}, V_{GE} = 15V, T_j = 25^\circ\text{C}$	—	5.0	6.5	Volts
		$I_C = 600\text{A}, V_{GE} = 15V, T_j = 125^\circ\text{C}$	—	5.0	—	Volts
Total Gate Charge	Q_G	$V_{CC} = 600V, I_C = 600\text{A}, V_{GE} = 15V$	—	2700	—	nC
Emitter-Collector Voltage**	V_{EC}	$I_E = 600\text{A}, V_{GE} = 0V$	—	—	3.5	Volts

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}		—	—	95	nF
Output Capacitance	C_{oes}	$V_{CE} = 10V, V_{GE} = 0V$	—	—	8.0	nF
Reverse Transfer Capacitance	C_{res}		—	—	1.8	nF
Inductive Load	Turn-on Delay Time	$V_{CC} = 600V, I_C = 600\text{A},$ $V_{GE1} = V_{GE2} = 15V, R_G = 0.52\Omega,$	—	—	400	ns
	Rise Time					
Switch Time	Turn-off Delay Time	Inductive Load	—	—	700	ns
	Fall Time					
Diode Reverse Recovery Time**	t_{rr}	Switching Operation,	—	—	250	ns
Diode Reverse Recovery Charge**	Q_{rr}	$I_E = 600\text{A}$	—	28	—	μC

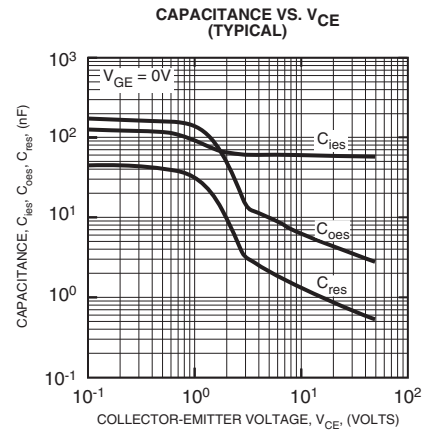
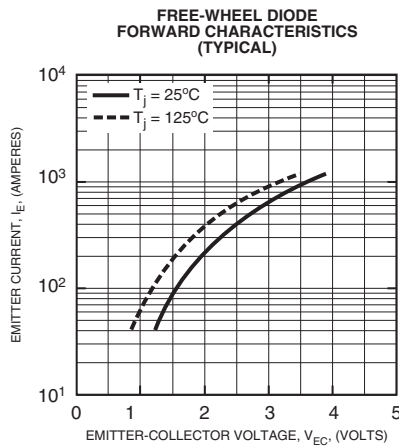
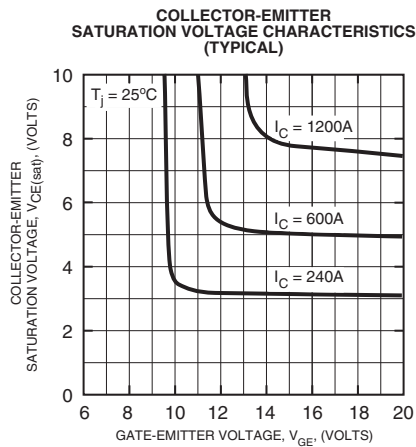
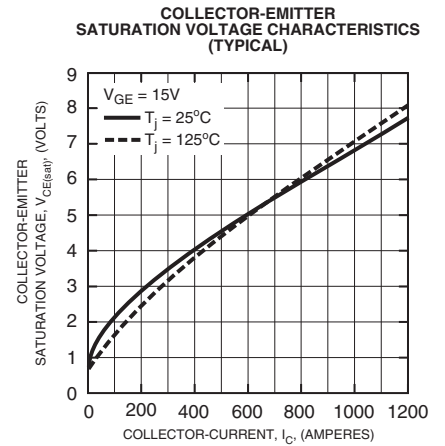
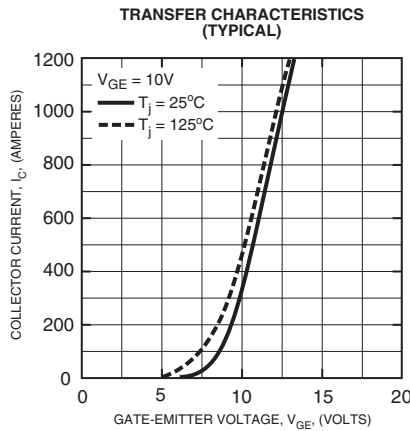
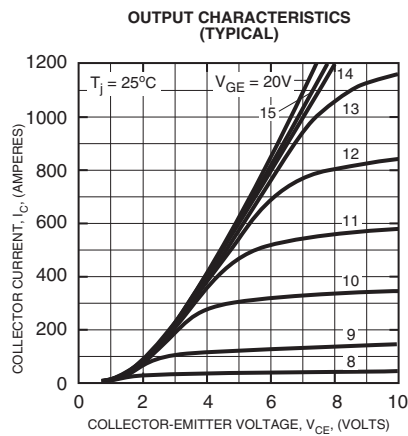
* Pulse width and repetition rate should be such that device junction temperature (T_j) does not exceed $T_{j(max)}$ rating.

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

CM600DU-24NFH
Dual IGBTMOD™ NFH-Series Module
 600 Amperes/1200 Volts

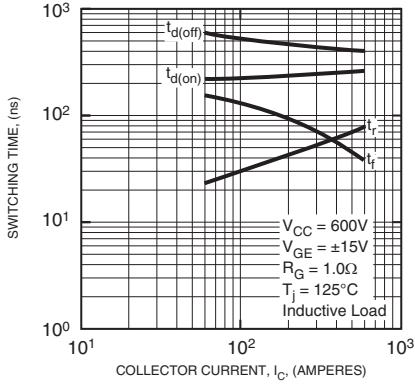
Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)Q}$	Per IGBT 1/2 Module, T_C Reference Point per Outline Drawing	—	—	0.083	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)D}$	Per FWDi 1/2 Module, T_C Reference Point per Outline Drawing	—	—	0.15	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)'Q}$	Per IGBT 1/2 Module, T_C Reference Point Under Chips	—	—	0.034	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)'D}$	Per FWDi 1/2 Module, T_C Reference Point Under Chips	—	—	0.06	$^\circ\text{C/W}$
Contact Thermal Resistance	$R_{th(c-f)}$	Per 1/2 Module, Thermal Grease Applied	—	0.02	—	$^\circ\text{C/W}$
External Gate Resistance	R_G		0.52	—	5.2	Ω

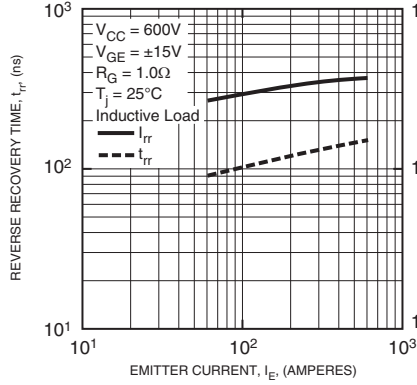


CM600DU-24NFH
Dual IGBTMOD™ NFH-Series Module
 600 Amperes/1200 Volts

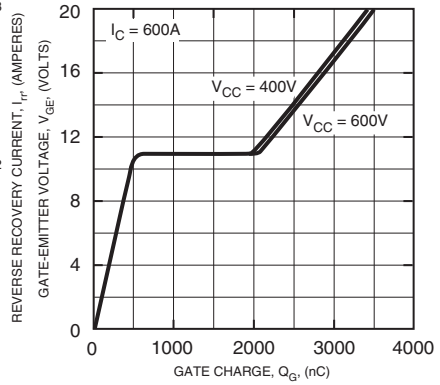
HALF-BRIDGE SWITCHING CHARACTERISTICS (TYPICAL)



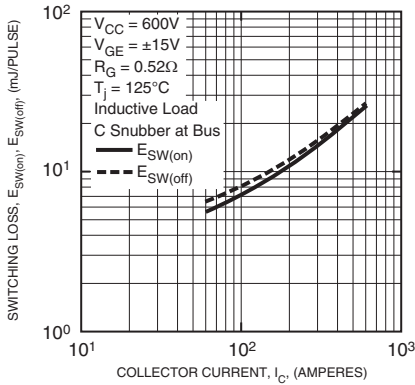
REVERSE RECOVERY CHARACTERISTICS (TYPICAL)



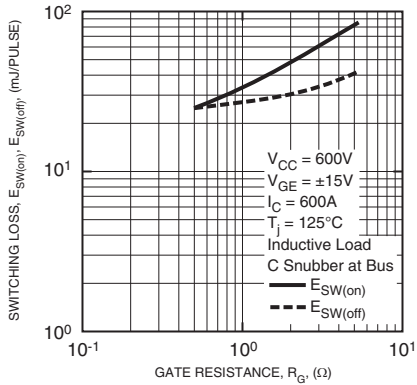
GATE CHARGE VS. V_GE



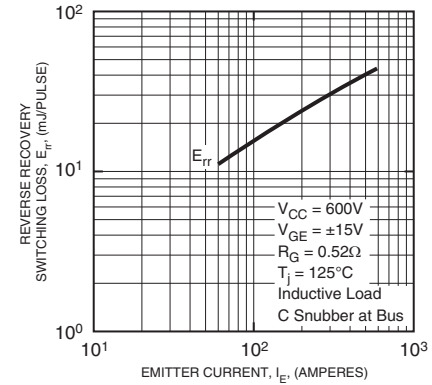
SWITCHING LOSS VS. COLLECTOR CURRENT (TYPICAL)



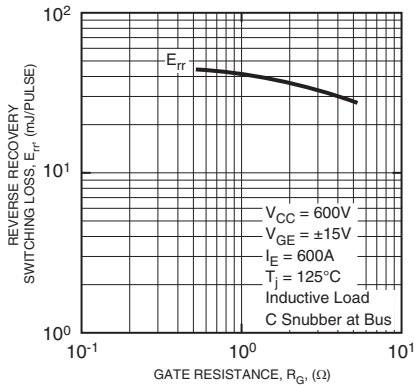
SWITCHING LOSS VS. GATE RESISTANCE (TYPICAL)



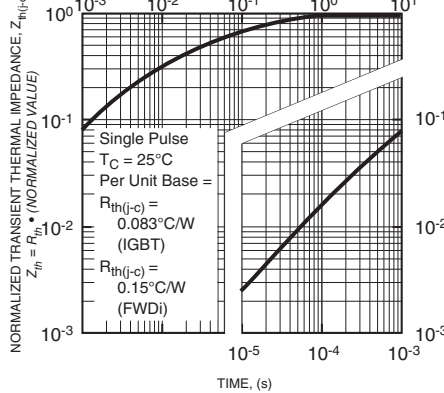
REVERSE RECOVERY SWITCHING LOSS VS. EMITTER CURRENT (TYPICAL)



REVERSE RECOVERY SWITCHING LOSS VS. GATE RESISTANCE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (IGBT & FWDI)



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [powerex manufacturer](#):

Other Similar products are found below :

[R7013003XXUA](#) [R9G01212XX](#) [VLA541-01R](#) [QRD0630T30](#) [CM400DY-24NF](#) [CM100TX-24S1](#) [CM600HA-24A](#) [NLD422PB](#)
[PSM03S93E5-A](#) [BP2B-V](#) [ND431625](#) [R5031213LSWS](#) [BG2B](#) [BG2C-5015](#) [ND431825](#) [T9G0121203DH](#) [CD611616C](#) [BG1A-PX](#)
[TCS4402802DH](#) [CD421690C](#) [PM600DVA060](#) [CD411899C](#) [CD631615B](#) [C601PB](#) [R5021213LSWS](#) [BG2A-NFH](#) [C180PB](#) [CD431690B](#)
[NLR425CM](#) [HARDWARE KIT 50](#) [CD410899C](#) [CM400HA-24A](#) [CD411699C](#) [LEAD KIT #NK](#) [HARDWARE KIT 49](#) [VLA500-01](#)
[HARDWARE KIT 87](#) [VLA106-24154](#) [VLA502-01](#) [VLA106-15242](#)