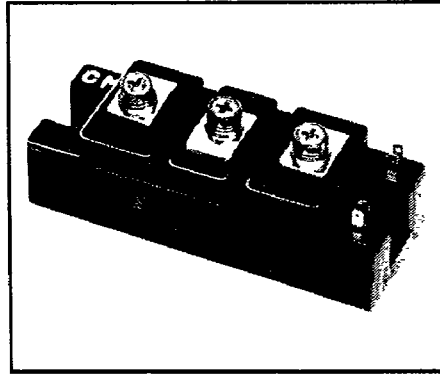
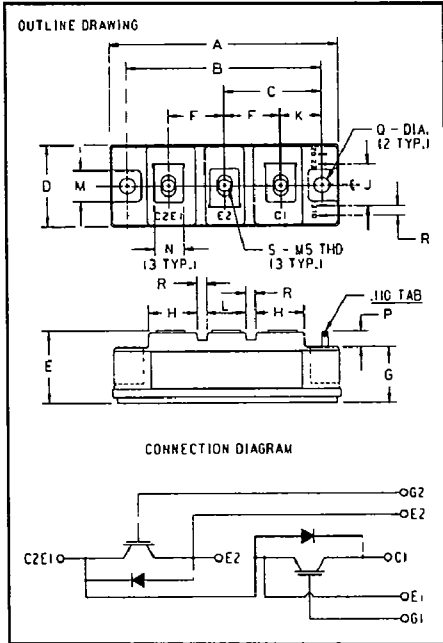


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

## Dual IGBTMOD™ Power Module 25 Amperes/600 Volts



**ID2260A2**  
 Dual IGBTMOD™ Power Module  
 25 Amperes/600 Volts

### ID2260A2 Outline Drawing

Dimension	Inches	Millimeters
A	3.70	94
B	3.150±.010	80±0.25
C	1.57	40
D	1.34	34
E	1.22Max.	31 Max.
F	.90	23
G	.85	21.5
H	.79	20
J	.71	18
K	.67	17
L	.63	16
M	.51	13
N	.47	12
P	.28	7
Q	.256 Dia.	Dia. 6.5
R	.16	4
S	M5 Metric	M5

### Description

Powerex IGBTMOD™ Modules are designed for use in 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 Drive Power
- Low  $V_{CE(sat)}$
- Discrete Super-Fast Recovery (150ns) Free Wheel Diode
- High Frequency Operation (15-20kHz)
- Isolated Base Plate for Easy Heat Sinking

### Applications:

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

### Ordering Information

Example: Select the complete eight digit part module number you desire from the table below -i.e. ID2260A2 is a 600V ( $V_{CES}$ ), 25 Ampere Dual IGBTMOD™ Power Module.

Type	$V_{CES}$ Volts (x10)	Current Rating Amperes (25)
ID22	60	A2



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ID2260A2

Dual IGBTMOD™ Power Module

25 Amperes/600Volts

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

Ratings	Symbol	ID2260A2	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	$I_c$	25	Amperes
Peak Collector Current	$I_{CM}$	50*	Amperes
Diode Forward Current	$I_{FM}$	25	Amperes
Diode Forward Surge Current	$I_{FM}$	50*	Amperes
Power Dissipation	$P_d$	150	Watts
Max. Mounting Torque M5 Terminal Screws	—	17	In.-lb.
Max. Mounting Torque M6 Mounting Screws	—	26	In.-lb.
Module Weight (Typical)	—	190	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	$I_{CES}$	$V_{CE} = V_{CES}, V_{GE} = 0V$	—	—	1.0	mA
Gate Leakage Current	$I_{GES}$	$V_{GE} = V_{GES}, V_{CE} = 0V$	—	—	0.5	$\mu\text{A}$
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$I_c = 2.5\text{mA}, V_{CE} = 10V$	3.0	4.0	6.0	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c = 25A, V_{GE} = 15V$	—	3.0	5.0**	Volts
		$I_c = 25A, V_{GE} = 15V, T_j = 150^\circ\text{C}$	—	3.2	**	Volts
Total Gate Charge	$Q_G$	$V_{CC} = 300V, I_c = 25A, V_{GS} = 15V$	—	80	—	nC
Diode Forward Voltage	$V_{FM}$	$I_c = 25A, V_{GS} = 0V$	—	—	2.5	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	$C_{ies}$	—	—	—	2500	pF
Output Capacitance	$C_{oes}$	$V_{GE} = 0V, V_{CE} = 10V, f = 1\text{MHz}$	—	—	600	pF
Reverse Transfer Capacitance	$C_{res}$	—	—	—	60	pF
Resistive Load	Turn-on Delay Time	$V_{CC} = 300V, I_c = 25A,$	—	—	250	ns
	Rise Time					
Switch Times	Turn-off Delay Time	$V_{GE1} = V_{GE2} = 15V, R_G = 100\Omega$	—	—	600	ns
	Fall Time					
Diode Reverse Recovery Time	$t_{rr}$	$I_E = 25A, di_E/dt = -50A/\mu\text{s}$	—	—	200	ns
Diode Reverse Recovery Charge	$Q_{rr}$	$I_E = 25A, di_E/dt = -50A/\mu\text{s}$	—	0.3	—	$\mu\text{C}$

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

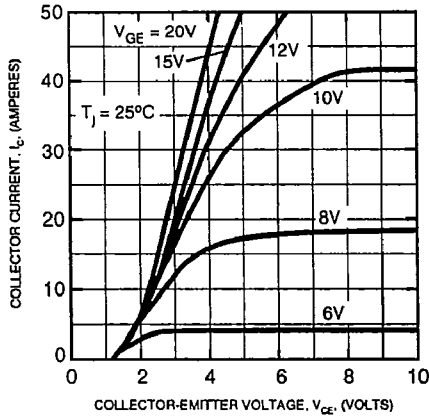
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per IGBT	—	—	0.80	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	Per Free Wheel Diode	—	—	2.00	$^\circ\text{C}/\text{W}$
Contact Thermal Resistance	$R_{th(c-l)}$	Per Half Module	—	—	0.15	$^\circ\text{C}/\text{W}$



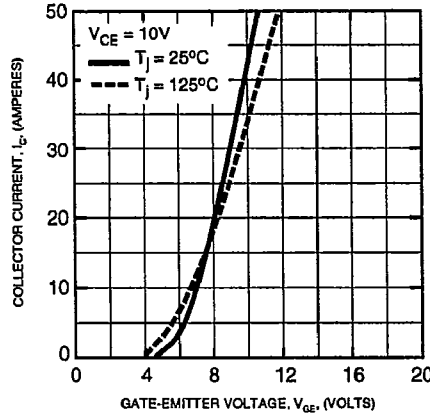
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ID2260A2  
 Dual IGBTMOD™ Power Module  
 25 Amperes/600 Volts

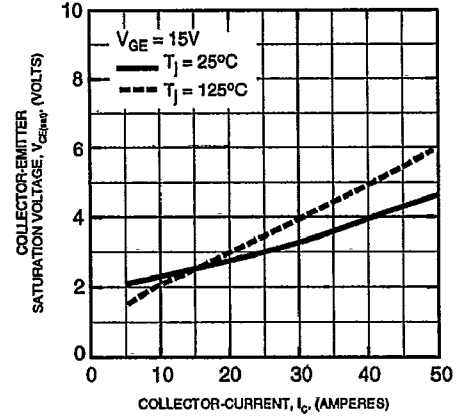
OUTPUT CHARACTERISTICS (TYPICAL)



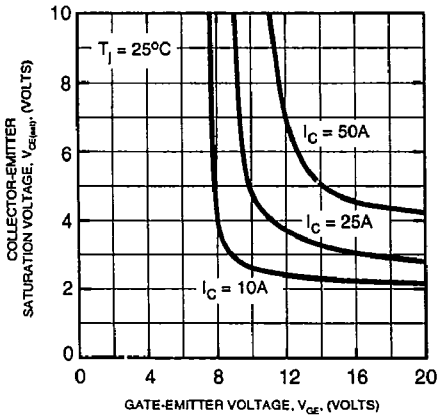
TRANSFER CHARACTERISTICS (TYPICAL)



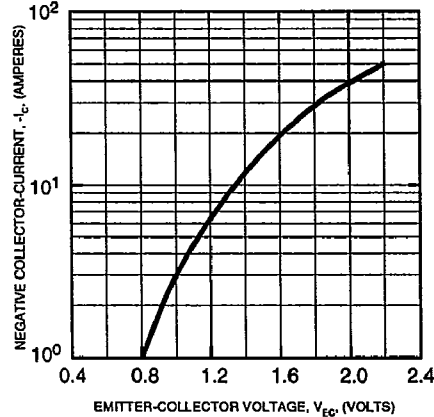
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



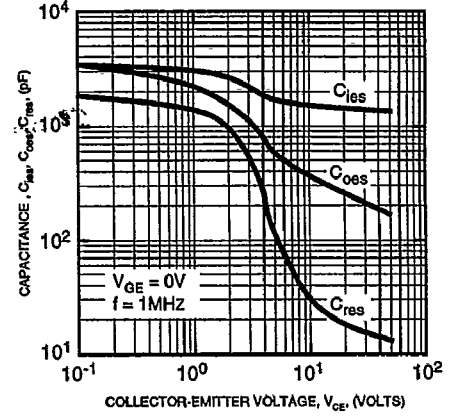
COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



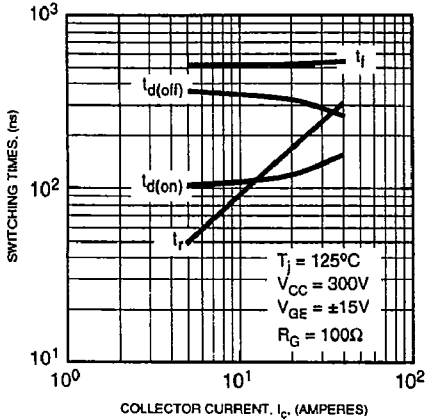
FREE-WHEEL DIODE FORWARD CHARACTERISTICS (TYPICAL)



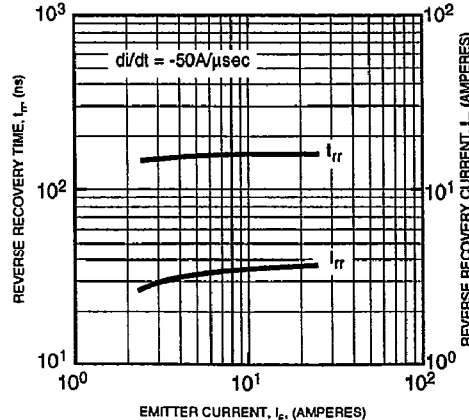
CAPACITANCE VS.  $V_{CE}$  (TYPICAL)



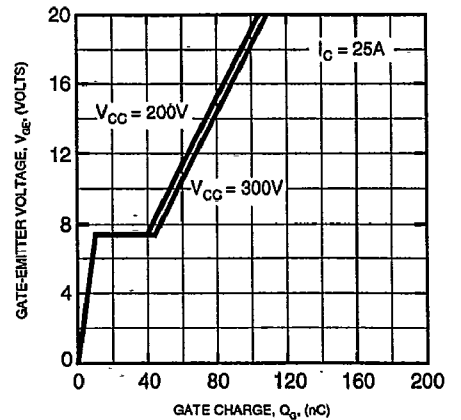
HALF-BRIDGE SWITCHING CHARACTERISTICS (TYPICAL)



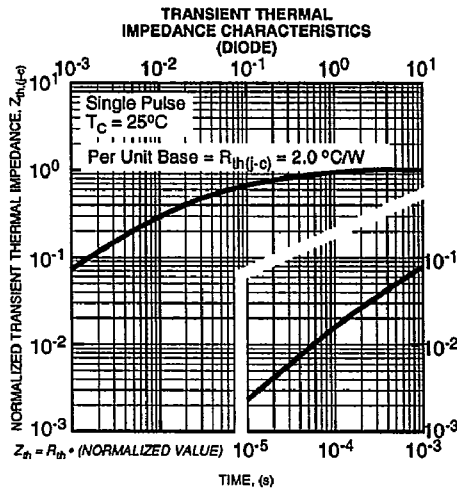
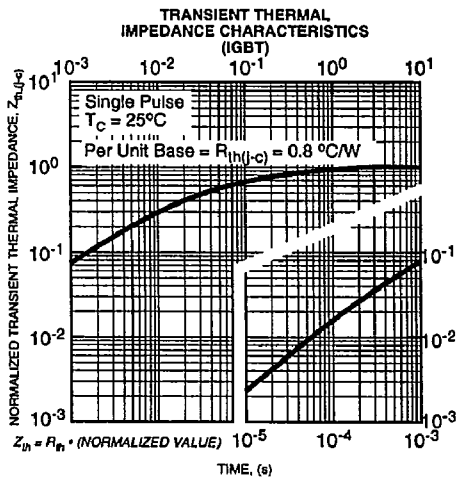
REVERSE RECOVERY CHARACTERISTICS (TYPICAL)



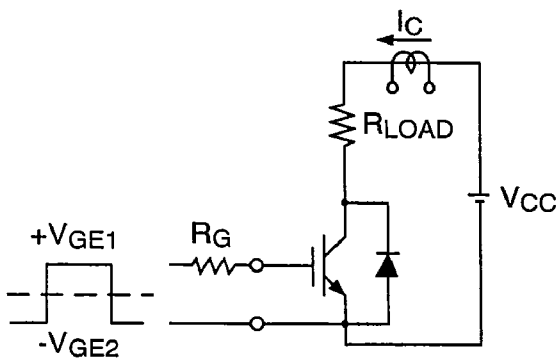
GATE CHARGE,  $V_{GE}$



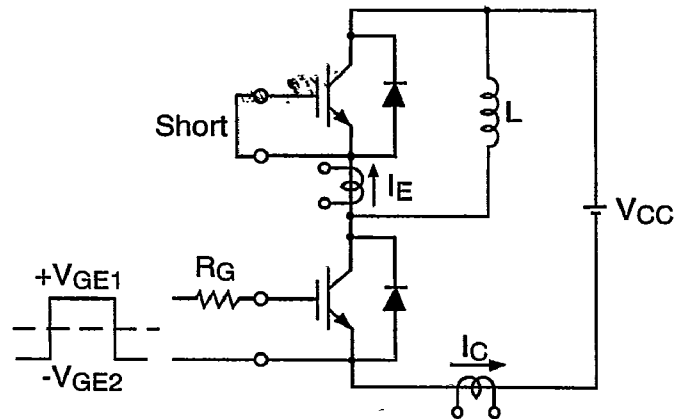
ID2260A2  
 Dual IGBTMOD™ Power Module  
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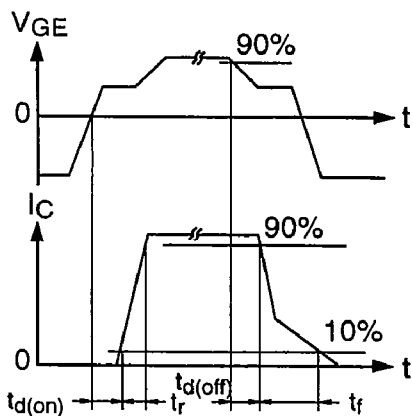
## SWITCHING TIME TEST CIRCUITS & WAVEFORMS



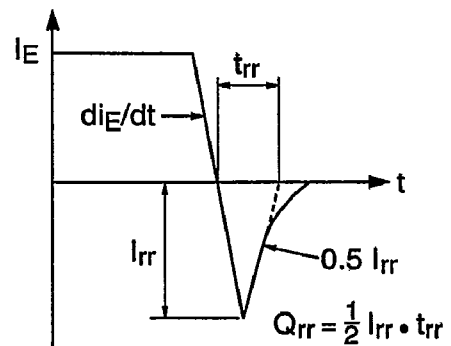
Resistance Load Switching Test Circuit



Half-Bridge Switching Test Circuit



Switching Time Test Waveforms



$t_{rr}$ ,  $Q_{rr}$  Waveforms