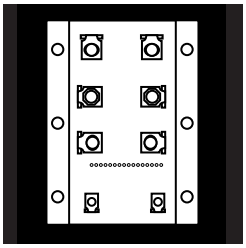
Preliminary Data Sheet **OMD300N06HL OMD120L60HL**
OMD240N10HL OMD100F60HL

HALF-BRIDGE, MULTI-CHIP MODULES IN AN INDUSTRIAL ISOLATED PACKAGE



60 To 600 Volt, 100 To 300 Amp Modules With Internal Gate Drive, Half-Bridge Configuration

FEATURES

- Internal Gate Drive
- Isolated Heat Sink
- Low Inductance Design
- Fast Switching Speed
- Low On Voltage
- Easy-To-Connect To Package

DESCRIPTION

These modules are ideally suited for high density, high reliability switching applications such as Motion Control, UPS and high power SMPS. These multi-chip modules incorporate in one package both the power semiconductors and the gate drive circuitry.

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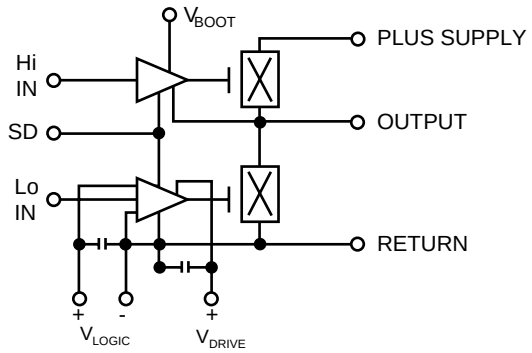
GENERAL CHARACTERISTICS (Per Switch) @ 25°C

Part Number	Power Device	Voltage (V)*	Current (A)	$R_{DS(on)}$ or $V_{CE(sat)}$	Fall Time
OMD300N06HL	MOSFET	60	300	4 m ohms	-
OMD240N10HL	MOSFET	100	240	8 m ohms	-
OMD120L60HL	IGBT	600	150	1.8 Volts	1 µs
OMD100F60HL	IGBT	600	150	2.7 Volts	500 ns

*Other voltages available.

SCHEMATIC



Note: IGBT's have anti-parallel diodes included.

ELECTRICAL CHARACTERISTICS: OMD300N06HL/Per Switch (T_C = 25°C unless otherwise specified)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage, I_D = 1000 µA, V_{GS} = 0		$V_{(BR)DSS}$	60	-	-	V
Zero Gate Voltage Drain Current = V_{GS} , V_{DS} = Max. Rat.		I_{DSS}	-	-	50	µA
V_{DS} = Max. Rat., T_j = 125°C			-	-	500	µA
ON CHARACTERISTICS						
Static Drain-Source On-Resistance, V_{GS} = 10 Vdc, I_D = 150 A		$R_{DS(on)}$	-	-	4	m
T_j = 100°C			-	-	8	m
DYNAMIC CHARACTERISTICS						
Output Capacitance	V_{DS} = 25 V, V_{GS} = 0,	C_{oss}	-	4000	-	pF
Reverse Transfer Capacitance	f = 1.0 mHz	C_{rss}	-	800	-	pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	V_{DD} = 30 V, I_D = 300 A	$t_{d(on)}$	-	1000	-	ns
Rise Time		t_r	-	500	-	ns
Turn-Off Delay Time		$t_{d(off)}$	-	1000	-	ns
Fall Time		t_f	-	250	-	ns
SOURCE DRAIN DIODE CHARACTERISTICS						
Forward On-Voltage	I_{SD} = 300 A, V_{GS} = 0	V_{SD}	-	-	1.1	V
Reverse Recovery Time		t_{rr}	-	50	-	ns
Reverse Recovered Charge		Q_{rr}	-	0.4	-	µC

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ELECTRICAL CHARACTERISTICS: OMD240N10HL/Per Switch (T_C = 25°C unless otherwise specified)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage, I_D = 1000 µA, V_{GS} = 0		$V_{(BR)DSS}$	100	-	-	V
Zero Gate Voltage Drain Current = V_{GS} , V_{DS} = Max. Rat.		I_{DSS}	-	-	1000	µA
V_{DS} = Max. Rat. x 0.8, T_C = 125°C			-	-	4000	µA
ON CHARACTERISTICS						
Static Drain-Source On-Resistance, V_{GS} = 10 Vdc, I_D = 120 A		$R_{DS(on)}$	-	-	8	m
T_C = 100°C			-	-	16	m
DYNAMIC CHARACTERISTICS						
Output Capacitance	V_{DS} = 25 V, V_{GS} = 0,	C_{oss}	-	4800	-	pF
Reverse Transfer Capacitance	f = 1.0 mHz	C_{rss}	-	1200	-	pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	V_{DD} = 80 V, I_D = 120 A	$t_{d(on)}$	-	1000	-	ns
Rise Time	R_{GS} = 50 , V_{GS} = 10 V	t_r	-	300	-	ns
Turn-Off Delay Time		$t_{d(off)}$	-	1000	-	ns
Fall Time		t_f	-	250	-	ns
SOURCE DRAIN DIODE CHARACTERISTICS						
Forward On-Voltage	I_{SD} = 240 A, V_{GS} = 0,	V_{SD}	-	-	1.6	V
Reverse Recovery Time	di/dt = 100 A/µSec	t_{rr}	-	180	-	ns
Reverse Recovered Charge		Q_{rr}	-	8	-	µC

ELECTRICAL CHARACTERISTICS: OMD120L60HL/Per Switch (T_C = 25°C unless otherwise specified)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Collector Emitter Breakdown Voltage, I_C = 500 µA, V_{CE} = 0		$V_{(BR)DSS}$	600	-	-	V
Zero Gate Voltage Drain Current, V_{CE} = Max. Rat., V_{GE} = 0		I_{CES}	-	-	.50	mA
V_{CE} = 0.8 Max. Rat., V_{GE} = 0, T_J = 125°C			-	-	2.0	mA
ON CHARACTERISTICS						
Collector Emitter Saturation Voltage, V_{GE} = 15 V, I_C = 120 A, T_C = 25°C		$V_{CE(sat)}$	-	-	1.8	V
DYNAMIC CHARACTERISTICS						
Output Capacitance	V_{GE} = 0 V, V_{CE} = 25 V,	C_{oss}	-	700	-	pF
Reverse Transfer Capacitance	f = 1.0 mHz	C_{rss}	-	200	-	pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time		$t_{d(on)}$	-	1000	-	ns
Rise Time	V_{CC} = 480 V, I_C = 120 A	t_r	-	250	-	ns
Turn-Off Delay Time	V_{GE} = 15 V	$t_{d(off)}$	-	1000	-	ns
Fall Time		t_f	-	500	-	ns
SOURCE DRAIN DIODE CHARACTERISTICS						
Maximum Forward Voltage	I_F = 120 A, T_C = 25°C	V_f	-	-	1.85	V
	I_F = 120 A, T_j = 125°C		-	-	1.5	
Maximum Reverse Current	V_R = 600 V, T_C = 25°C	I_r	-	-	400	µA
	V_R = 480 V, T_j = 125°C		-	-	28	mA
Reverse Recovery Time	I_F = 1 A, di/dt = 200 A µ/S V_R = 30 V, T_j = 25°C	t_{rr}	-	-	50	nS

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ELECTRICAL CHARACTERISTICS: OMD100F60HL/Per Switch (T_C = 25°C unless otherwise specified)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Collector Emitter Breakdown Voltage, I_C = 500 µA, V_{CE} = 0		$V_{(BR)DSS}$	600	-	-	V
Zero Gate Voltage Drain Current, V_{CE} = Max. Rat., V_{GE} = 0		I_{CES}	-	-	.50	mA
V_{CE} = 0.8 Max. Rat., V_{GE} = 0, T_J = 125°C			-	-	2.0	mA
ON CHARACTERISTICS						
Collector Emitter Saturation Voltage, V_{GE} = 15 V, I_C = 100 A, T_j = 25°C		$V_{CE(sat)}$	-	-	2.7	V
DYNAMIC CHARACTERISTICS						
Output Capacitance	V_{GE} = 0 V, V_{CE} = 25 V,	C_{oss}	-	700	-	pF
Reverse Transfer Capacitance	f = 1.0 mHz	C_{rss}	-	200	-	pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time		$t_{d(on)}$	-	1000	-	ns
Rise Time	V_{CC} = 480 V, I_C = 100 A	t_r	-	200	-	ns
Turn-Off Delay Time	V_{GE} = 15 V	$t_{d(off)}$	-	1000	-	ns
Fall Time		t_f	-	300	-	ns
SOURCE DRAIN DIODE CHARACTERISTICS						
Maximum Forward Voltage	I_F = 120 A, T_C = 25°C	V_f	-	-	1.85	V
	I_F = 120 A, T_j = 125°C		-	-	1.5	
Maximum Reverse Current	V_R = 600 V, T_C = 25°C	I_r	-	-	400	µA
	V_R = 480 V, T_j = 125°C		-	-	28	mA
Reverse Recovery Time	I_F = 1 A, di/dt = 200 A µ/S V_R = 30 V, T_j = 25°C	t_{rr}	-	-	50	nS

ABSOLUTE MAXIMUM RATINGS Per Switch (T_C = 25°C unless otherwise noted)

IGBT / MOSFET

Parameters		300N06HL	240N10HL	120L60HL	100F60HL	Units
	Plus Supply	60	100	600	600	V
I_C @ T_C = 25°C	Continuous Drain Current	300	240	150	150	A
I_C @ T_J = 100°C	Continuous Drain Current	260	180	120	100	A
I_C Pulsed	Pulsed Drain Current[1]	900	900	400	400	A
Junction-To-Case	Linear Derating Factor	2.0	3.3	3.3	3.3	W/°C
Junction-To-Ambient	Linear Derating Factor	.02	.02	.02	.02	W/°C
R_{thJC}	Junction-To-Case	.50	.30	.30	.30	°C/W
R_{thJA}	Junction-To-Ambient	50	50	50	50	°C/W

Rectifier

PIV		60	100	600	600	V
I_O		300	240	120	100	A
t_{rr}		50	180	35	35	nsec

Gate Driver

V_{DD}	Either Chip	18	18	18	18	V
V_{LSD} to V_{HSD}		75	100	500	500	V
Logic Input Voltage		-0.3 to V_L	-0.3 to V_L	-0.3 to V_L	-0.3 to V_L	V
T_j		150	150	150	150	°C

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MECHANICAL OUTLINE (LP-8)