onsemi

A i e P e MOSFET M d le

NXV08H400XT2

Features

- 2 Phase MOSFET Module At Customer Side this Module Can Be Used as 1/2 Bridge MOSFET Module by Combining 2 Phase Out Power Terminals
- Electrically Isolated DBC Substrate for Low Rthjc
- Compact Design for Low Total Module Resistance
- Module Serialization for Full Traceability
- Module Level AQG324 Qualified. Components Inside are AEC Q101 (MOSFET) & AEC Q200 (Passives) Qualified
- UL 94 V-0 Compliant
- This Device is Pb-Free and is RoHS Compliant

Applications

• 48 V Inverter, 48 V Traction

Benefits

- Enable Design of Small, Efficient and Reliable System for Reduced Vehicle Fuel Consumption and CO₂ Emission
- Simplified Vehicle Assembly
- Low Thermal Resistance to Junction to Heat Sink by Direct Mounting via Thermal Interface Material between Module Case and Heat Sink
- Low Inductance

ORDERING INFORMATION

= Work Week

= Serial Number

See detailed ordering and shipping information on page 2 of this data sheet.



APM17–MDA CASE MODHU

MARKING DIAGRAM

NXV08H400XT2

= Lot ID

= Year

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= Specific Device Code

= Assembly & Test Location

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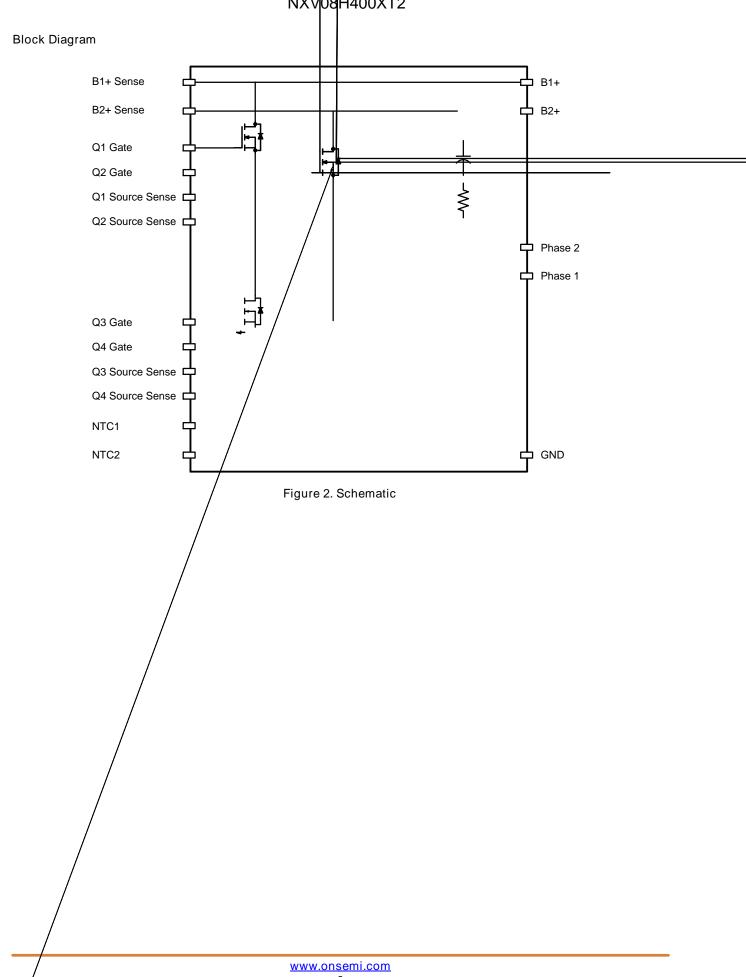
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ORDERING INFORMATION

Part Number	Package	Pb-Free and RoHS Compliant	Operating Ambient Temperature Range	Packing Method
NXV08H400XT2	APM17 MDA	yes	40~125°C	Tube



ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}C$, unless otherwise noted)

	Characteristic	Condition	Min	Тур	Max	Unit	
BVDSS	Drain to Source Breakdown Voltage	$I_{D} = 1 \text{ mA}, V_{GS} = 0 \text{ V}$	80				
VGS(th)	Gate to Source Threshold Voltage	$V_{GS} = V_{DS}, I_D = 1 \text{ mA}$	2		4.6	V	
VSD	Source to Drain Diode Voltage	I _{SD} = 160 A, V _{GS} = 0 V		0.79 0.65 0.60 0.46	1.1 0.765 0.71 0.58	V	
Measured RDS(ON) Q1, Q2	Q1, Q2 (High Side) MOSFET (Note 2) (Note 3)	V_{GS} = 12 V, I _D = 160 A, T _J = 25°C				mΩ	
Measured RDS(ON) Q3, Q4	Q3, Q4 (Low Side) MOSFET (Note 2) (Note 3)	V_{GS} = 12 V, I _D = 160 A, T _J = 25°C				mΩ	
Pure RDS(ON) Q1, Q2, Q3, Q4	Rdson Measurement with Kelvin pin with min impact of measurement path (Note 2)	V_{GS} = 12 V, I _D = 160 A, T _J = 25°C				mΩ	
IGSS	Gate to Source Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V, T_{J} = $25^{\circ}C$	100		+100	nA	
IDSS	Drain to Source Leakage Current	V_{DS} = 80 V, V_{GS} = 0 V, T_{J} = 25°C			2	μΑ	
Module RDS(ON) for Q1 From B+1 (or B+2), via Q (Note 3)	and Q2: 1 (or Q2), to Phase Out 1 (Phase Out 2)	V_{GS} = 12 V, I _D = 160 A, T _J = 25°C		0.96	1.32	mΩ	
Module RDS(ON) for Q3 From Phase Out 1 (Phas (Note 3)	and Q4: e Out 2), via Q3 (Q4), to GND PINs	V_{GS} = 12 V, I _D = 160 A, T _J = 25°C		0.9	1.25	mΩ	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. All bare die MOSFETs have same die size and same level of Rdson value. However the different Rdson values listed in the datasheet are due to the different access points available inside the module for Rdson measurement. Q3 and Q4 (Low side FETs) has the shortest Rdson measurement path in the layout. For exact FET rdson, it is recommended to use the Rdson value of Q3 or Q4 for the Kelvin pin with min impact of measurement path. Here Pure Rdson values of Q1,Q2,Q3,Q4 are from Q3 and Q4 measurement from NXV08H400XT1 datasheet. This value to be used for the actual MOSFET Rdson for Power loss and Temperature simulations.

3. Module Rdson means total resistance of the measurement path btw Power terminals, referring to the resistance measurement methods table.

ISOLATION VOLTAGE (Isolation voltage between the Base plate and to control pins or power terminals.)

Test	Test Condition	Test Time	Min	Max	Unit
Leakage @ Isolation Voltage (Hi Pot)	VAC = 3 kV	Time = 1 s		250	μΑ

DYNAMIC AND SWITCHING CHARACTERISTICS (T_J = 25° C unless otherwise noted)

TYPICAL CHARACTERISTICS

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TYPICAL CHARACTERISTICS (CONTINUED)

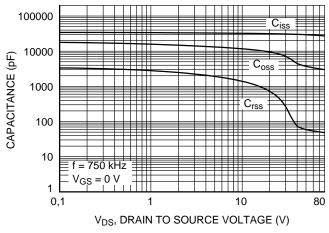
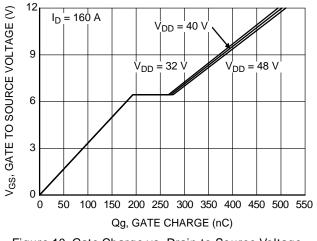
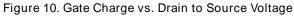
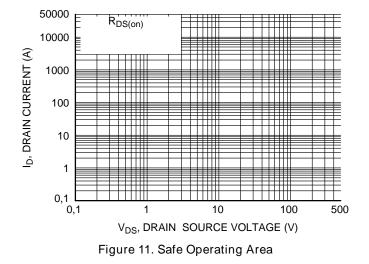


Figure 9. Capacitance vs. Drain to Source Voltage







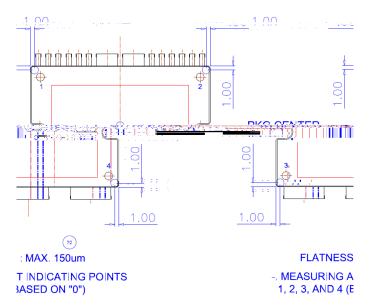


Figure 14. Flatness Measurement Position

MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Test Conditions	Min	Тур	Max	Units
Device Flatness	Device Flatness Refer to the package dimensions			150	um
Mounting Torque	Mounting screw: M3, recommended 0.7 N•m	0.4		1.4 (Note 5)	N∙m
Weight			21.2		g

5. Max Torque rating can be different by the type of screw, such as the screw head diameter, use or without use of Washer. In case of special screw mounting method is applied, contact to onsemi for the proper information of mounding condition.

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