

DUAL CHANNEL HIGH SPEED 12V SYNCHRONOUS MOSFET DRIVER

PRELIMINARY DATA SHEET

Pb Free Product

DESCRIPTION

The NX3212 is a two channel low cost MOSFET driver packaged in a thermally efficient 16 lead MLPQ package designed to drive four N-Channel MOSFETs in a synchronous rectified 2 phase Step Down(BUCK) regulator topology. This driver combined with other NEXSEM controllers such as NX2511 or NX2517 2 to 4 phase controller ICs makes a high efficiency high performance Multiphase regulator designed for latest Microprocessor Vcore power as well as other high current regulator applications. The IC is powered by a single 12V supply and its low resistance drivers minimizes switching losses for medium frequency applications. The NX3212 features 1 ohm sink resistance for the lower gate driver capable of holding the lower MOSFET gate off during SW node fast dv/dt rise time, preventing shoot through power loss.

- Two Channel Driver in single Package reduces Size and Cost
- Bus voltage operation from 4V to 26V
- 12V High side and Low side drive capability
- High Peak Current Drive Capability
- 500kHz frequency Operation
- Minimal Propagation Delay
- Non-overlap Adaptive Control
- Output disable(ODB) signal turns both outputs off
- Pb-free and RoHS compliant

FEATURES

APPLICATIONS

- Desktop and Notebook Microprocessor Vcore regulator applications
- High Current Multiphase Converter

TYPICAL APPLICATION

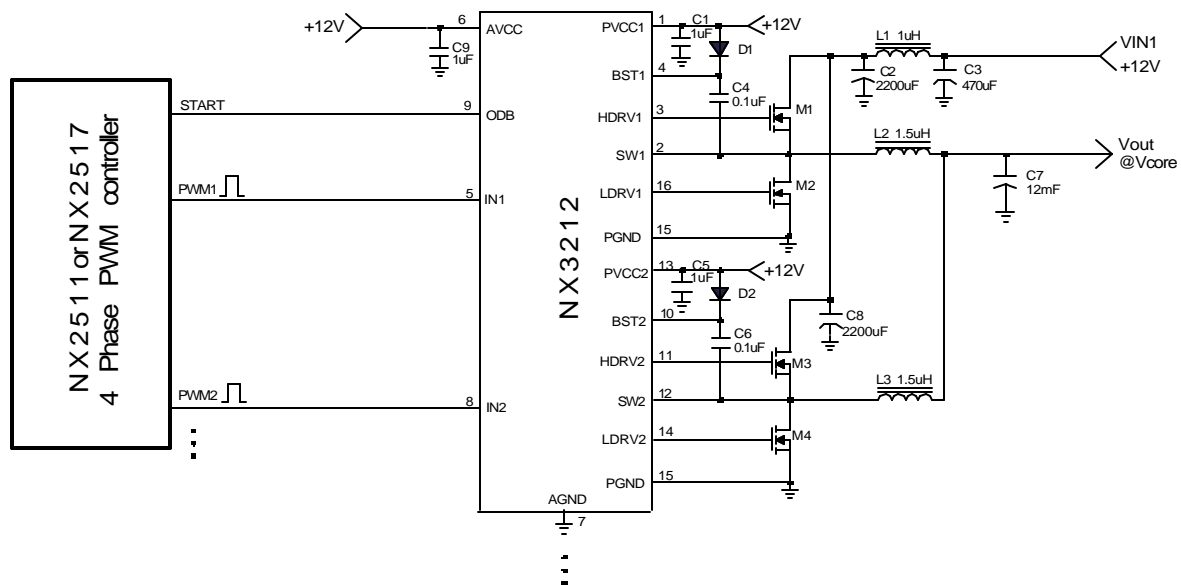


Figure1 - Typical application of NX3212

ORDERING INFORMATION

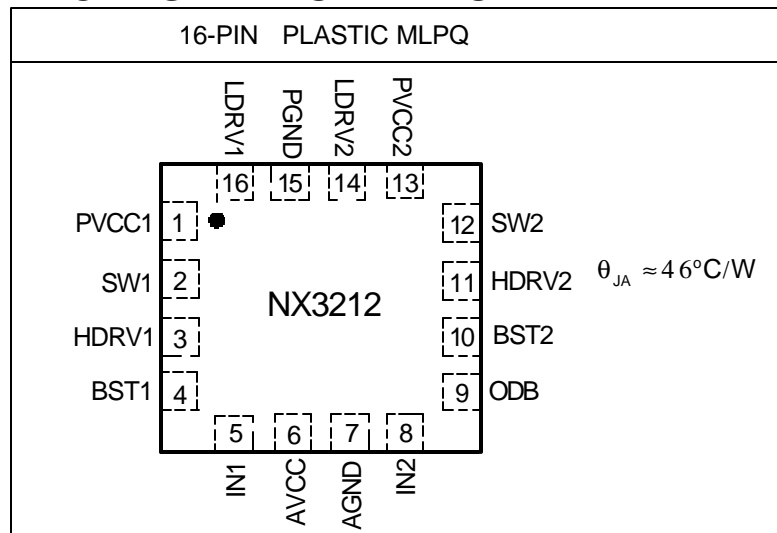
Device	Temperature	Package	Pb-Free
NX3212	0 to 70°C	MLPQ-16L	Yes

ABSOLUTE MAXIMUM RATINGS

Vcc to GND & BST to SW Voltage	16V
BST to GND Voltage	35V
SW to GND Voltage	35V
ODB & IN to GND Voltage	16V
Storage Temperature Range	-65°C to 150°C
Operating Junction Temperature Range	-40°C to 125°C

CAUTION: Stresses above those listed in "ABSOLUTE MAXIMUM RATINGS", may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

PACKAGE INFORMATION



ELECTRICAL SPECIFICATIONS

Unless otherwise specified, these specifications apply over VCC =BST= 12V, SW=GND=0V, ODB=VCC, and T_A = 0 to 125°C. Typical values refer to T_A = 25°C.

PARAMETERS	SYM	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Vcc Supply						
Under Voltage Lockout, VCC Supply	UVLO, Vcc	Vcc ramping up		3		V
VCC Supply Current		50% DC, fsw=200kHz		2		mA
PVcc Supply						
PVcc Quiescent Current Operating Mode	Iq	VBST=12V, IN=0V		0.5	2	mA
		IN=Swch at 200Khz, 50% DC, CL=0		3		
		IN=Swch at 200Khz, 50% DC, CL=3nF		32		
Quiescent Current shutdown Mode	Iqsd	ODB=0V IN=0V		2.8		mA
ODB						
ODB Threshold (High)	ODB(H)		2.4			V
ODB Threshold (Low)	ODB(L)				0.8	V

PARAMETERS	SYM	TEST CONDITIONS	MIN	TYP	MAX	UNITS
ODB Current	I _{enb}		-2		2	uA
Propagation delay time	T _{prop}			15		ns
IN						
Input voltage High	IN (H)		2.4			V
Input Voltage low	IN(L)				0.8	V
Input Current	I _{bias-ODB}		-2		2	uA
High Side driver(CL=3300pF)						
Output Impedance, Sourcing Current	R _{source} (Hdrv)	VBST-VSW=12V		1.7		Ohm
Output Impedance , Sinking Current	R _{sink} (Hdrv)	VBST-VSW=12V		1		Ohm
Rise Time	THDrv(Rise)	VBST-VSW=12V		25		ns
Fall Time	THDrv(Fall)	VBST-VSW=12V		20		ns
Deadband Time	T _{dead} (L to H)	LDRV going Low to HDRV going HI, 10% to 10%		30		ns
Propagation Delay	T _{delay} (H)	IN going HI to LDRV going Low		10		ns
Low Side Driver(CL=3300pF)						
Output Impedance, Sourcing Current	R _{source} (Ldrv)			1.7		Ohm
Output Impedance , Sinking Current	R _{source} (Ldrv)			1		Ohm
Rise Time	TLDrv(Rise)	10% to 90%		40		ns
Fall Time	TLDrv(Fall)	90% to 10%		20		ns
Deadband Time	T _{dead} (H to L)	SW going Low to LDRV going HI, 10% to 10%		30		ns
Propagation Delay	T _{delay} (L)	IN going Low to LDRV going HI		65		ns

PIN DESCRIPTIONS

Pin#	Pin Symbol	Pin Description
4, 10	BST1, BST2	Bootstrap Pin. A capacitor is connected between BST and SW pins to generate the floating bootstrap voltage for High-side Driver. The capacitor value is typically between 0.1uf to 1uF.
5,8	IN1,IN2	PWM input signal to the MOSFET drivers
9	ODB	Output disable pin. When high the internal circuitry is enabled. When low both high side and low side drivers are turned off.
4	AVCC	Biasing supply for the IC, a minimum of 1uF ceramic cap should be connected between this pin and AGND.
1, 13	PVCC1, PVCC2	Biasing supply for the low side driver, a minimum of 1uF ceramic cap should be connected between this pin and PGND.
16, 14	LDRV1, LDRV2	Output driver for low side MOSFET
7	AGND	Analog ground
15	PGND	Power ground
2, 12	SW1, SW2	Switching point, this pin connects to the junction of external high-side and low-side MOSFETs.
3, 11	HDRV1, HDRV2	Output drive for high-side MOSFET