

# DC-DC Regulators and Controllers

Microsemi's growing DC-to-DC product family supports up to 40-volt input voltages across a wide range of current output, up to 40 amps. The family includes switching regulators with built-in power field effect transistors (FETs), as well as controllers that use external power FETs and can operate at frequencies up to 2MHz. Microsemi also is an expert in ASIC and PMU development and offers advanced solutions for demanding HDD and smart metering applications



# NX7101/7102<sup>TM</sup> NX4108<sup>TM</sup>

## 18V Synchronous Switching Regulators

The NX7101 and NX7102 are 340kHz fixed frequency, current mode, PWM synchronous buck (step-down) DCDC converters. They are capable of driving 2A or 3A loads respectively with high efficiency, and excellent line and load regulation for set-top box, LCD TV, notebook, netbook and PoE powered device applications.

### Key Features

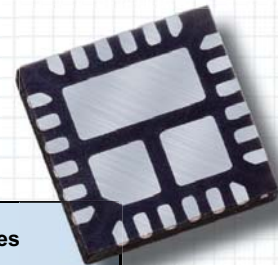
- 2A / 3A synchronous step-down regulator
- Operational input supply voltage range: 4.75V-18V
- 340kHz switching frequency
- Under voltage lock-out (UVLO)
- Over voltage protection (OVP)
- Programmable external soft-start
- Cycle-by-cycle over-current protection
- Frequency fold back under short condition

## 1 Amp, 1MHz Synchronous Switching Regulator

The NX4108 is a current mode PWM buck switcher with internal compensation and can provide up to 1A output current with FET on board. It operates from 2.8V to 5.5V input and provides output as low as 0.6V which is ideal for the applications using single cell Li-Ion batteries as well as other 3.3V input bus supply applications.

### Key Features

- Internal digital soft start
- Internally-compensated Current Mode Controller
- <1uA shut-down current
- Peak current limit with hiccup feature and over temperature protection
- Prebias start-up operation
- Enable available



## DC-DC Switching Regulator Selector Guide

Part Number Package	Description	Iout	Vin Range	Vref	Features
<b>NX4108</b> SOT23-5L	1Amp , 1MHz Synchronous Switching Regulator	1A	2.7V to 5.5V	0.6V	Enable
<b>NX4110</b> SOT23-5L	1Amp, 1MHz Synchronous Switching Regulator	1A	2.7V to 5.5V	0.6V	Power good
<b>LX13088</b> 3x3 DFN-10L	Dual 1 Amp, 1.3MHz Synchronous Switching Regulator	1A	4V to 5.5V	1.0V	Power good, PFM mode
<b>LX1918</b> 3x3 MLP-8L	1.8Amp Step Down Synchronous Converter	1.8A	2.7V to 6V	0.6V	PFM, external sync
<b>LX13045A</b> 3x3 -MLP-6L	2 Amp, 1.3MHz Synchronous Switching Regulator	2A	4V to 5.5V	0.5V	Power good
<b>LX3005</b> SOIC-8	2 Amp, 420kHz, Non-synchronous Switching Regulator	2A	6V to 25V	0.8V	Enable
<b>NX7101</b> SOIC-8	2 Amp, 340kHz, 18V Synchronous Switching Regulator	2A	5V to 18V	0.8V	Enable, adjustable soft start
<b>NX7102</b> SOIC-8, EXP	3 Amp, 340kHz, 18V Synchronous Switching Regulator	3A	5V to 18V	0.8V	Enable, adjustable soft start
<b>NX9415</b> 4x4 QFN-24L	5 Amp, 2MHz, 22V Synchronous Switching Regulator	5A	8V to 22V	0.8V	Power good, adjustable frequency
<b>NX9511B</b> 5x5 QFN-32L	8 Amp, 1MHz Synchronous Switching Regulator	8A	4.5V to 24V	0.8V	Enable, latched ocp
<b>NX9548</b> 5X5 QFN-32L	8 Amp, PFM Mode Notebook Switching Regulator	8A	4V to 22V	0.75V	Enable, PFM mode with Constant On-Time Approach

## DC-DC Switching Controller Selector Guide

Part #	Description	Package	Vin min	Vin max	Single Supply Operation (Note 1)	Freq (Each CH)	PFM	Pgood
LX1675	Triple Synchronous Controller with LDO Controller	QFN 5x7-38L	4.5	24	Yes	Fix 300KHz 600KHz	No	No
LX1752	Dual Synchronous Controller	QFN 4x5-28L	4.5	24	Yes	Adj 800KHz	No	No
NX2114/NX2114A	Single Synchronous Controller	SO8	3	24	No*	Fix 300KHz 600KHz	No	No
NX2116B	High Frequency Single Synchronous Controller	QFN 3x3-16L	3	24	No*	Fix 1MHz	No	Yes
NX2124/NX2124A	Single Synchronous Controller	SO8	3	24	No*	Fix 300KHz	No	No
NX2138	Single PFM Synchronous Controller	QFN 4x4-16L	5.5	22	No*	Adj 500KHz	Yes	Yes
NX2139A	Single PFM Synchronous Controller and LDO Controller	QFN 3x3-16L	5.5	22	No*	Adj 500KHz	Yes	Yes
NX2147	Single PFM Synchronous Controller with Dynamic Voltage Adj	QFN 3x3-16L	5.5	22	No*	Adj 500KHz	Yes	Yes
NX2154	Single High Voltage Synchronous Controller	SO8	3	40	No*	Fix 300KHz	No	No
NX2155H	Adjustable High Frequency Single Synchronous Controller	MSOP-10L	8	22	Yes	Adj 2MHz	No	No
NX2305	Single Synchronous Controller and LDO Controller with Independent Soft Start	SOIC-16L	7	15	Yes	Fix 300KHz	No	Yes
NX2423	Two Phase High Frequency Synchronous Controller	QFN 4x4-24L	3	24	Yes	Adj 800KHz	No	Yes
NX2601	Dual Synchronous Controller and LDO Controller	QFN 5x5-32L	7	24	Yes	Adj 800KHz	No	No
LX2749	Single Synchronous Controller with Adj Frequency and LDO Controller	SOIC-14L	10	16	Yes	Adj 1.5MHz	Yes	No
LX2750	Single Synchronous Controller with Adj Frequency, Adj OCP, Pgood and LDO Controller	QFN 3x3-16L	10	16	Yes	Adj 1.5MHz	Yes	Yes For SW Reg
NX2837	Fixed 5V Single Synchronous Controller + 3.3V/500mA LDO	MSOP-10L	9	22	Yes	Fix 350KHz	No	Yes For LDO
NX2838	Adj HF Single Synchronous Controller + 3.3V/500mA LDO	QFN 3x3-16L	8	30	Yes	Adj 1MHz	No	Yes For LDO

Note 1: \* No means product requires a separate 5V biasing supply

### NX2155H™ Synchronous PWM Controller

The NX2155H controller IC is a single input supply synchronous buck controller IC designed for step down DC to DC converter applications. The NX2155H is optimized to convert bus voltages from 8V to 22V to an output voltage as low as 0.8V. It is ideal for LCD TV, Hard Disk Drive, Set Top Box applications.

#### Key Features

- Single supply voltage from 8V to 22V
- Internal 5V regulator
- Programmable operational frequency of 2MHz
- Internal digital soft start function
- Less than 50 nS adaptive deadband
- Current limit hiccup triggering

### NX2423™ 2-Phase, Synchronous PWM Controller

The NX2423 is a two-phase PWM controller with an integrated FET driver designed for low voltage, high current applications such as graphic cards with high current Vcore supplies, and high current on-board DC to DC converters.

#### Key Features

- Low impedance on-board drivers
- Hiccup current limit and IOOUT indication
- Power good for power sequencing
- Programmable frequency
- Prebias start up
- OVP without negative spike at output
- Selectable between internal and external reference
- Internal Schottky diode from PVCC to BST