



## UD16203

Advance

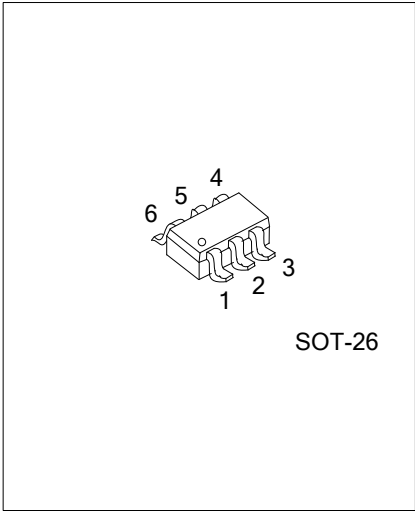
LINEAR INTEGRATED CIRCUIT

# 2A, 16V SYNCHRONOUS FAST RESPONSE BUCK CONVERTER

### DESCRIPTION

The UTC **UD16203** is a monolithic synchronous buck regulator with built-in main switch and synchronous switch power MOSFETs. It operates over a wide input voltage range from 4.5V to 16V and achieves 2A continuous output current.

It adopts PWM architecture to achieve fast transient response and always operates under continuous condition mode. It operates at pseudo-constant frequency of 1.2MHz under heavy load conditions. Internal soft-start minimizes the inrush supply current at initial startup.



### FEATURES

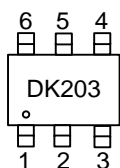
- \* 4.5V~16V Input Voltage Range
- \* Up to 2A Output Current
- \* 130/100mΩ Internal Power MOSFET Switch
- \* PWM Architecture to Achieve Fast Transient Response
- \* Build-in soft start function
- \* 1.2MHz Switching Frequency
- \* Thermal Shutdown Protection

### ORDERING INFORMATION

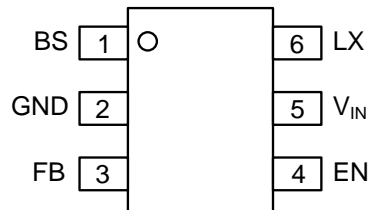
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UD16203L-AG6-R	UD16203G-AG6-R	SOT-26	Tape Reel

<p>UD16203G-AG6-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING



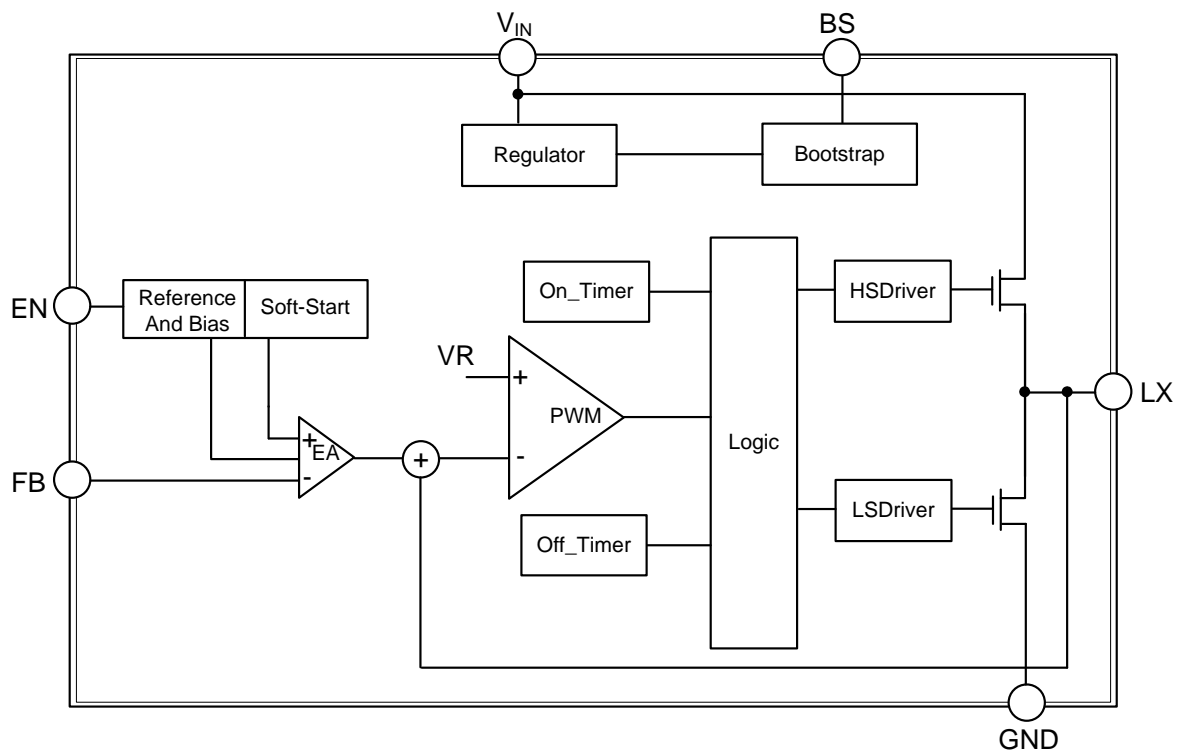
## ■ PIN CONFIGURATION



## ■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	BS	Bootstrap Pin. Decouple this pin to LX with 0.1 $\mu$ F ceramic cap
2	GND	Ground Pin
3	FB	Feedback Pin. Connect this pin to the center of output resistor divider to program the output voltage
4	EN	Enable Pin. Pull high to turn on, do not floating
5	$V_{IN}$	Input Pin. Decouple this pin to GND with at least 1 $\mu$ F ceramic cap
6	LX	Switch Pin. Connect this pin to the inductor

## ■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING (NOTE 2)

PARAMETER	SYMBOL	RATINGS	UNIT
IN Pin Voltage	$V_{IN}$	20	V
LX, EN Pins Voltage		$V_{IN}+0.3$	V
FB, BS-LX Voltage		6	V
Junction Temperature	$T_J$	+125	°C
Operating Temperature	$T_{OPR}$	-20 ~ +85	°C
Storage Temperature	$T_{STG}$	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Exceeding these ratings may damage the device.

### ■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	270	°C/W
Junction to Case	$\theta_{JC}$	90	°C/W

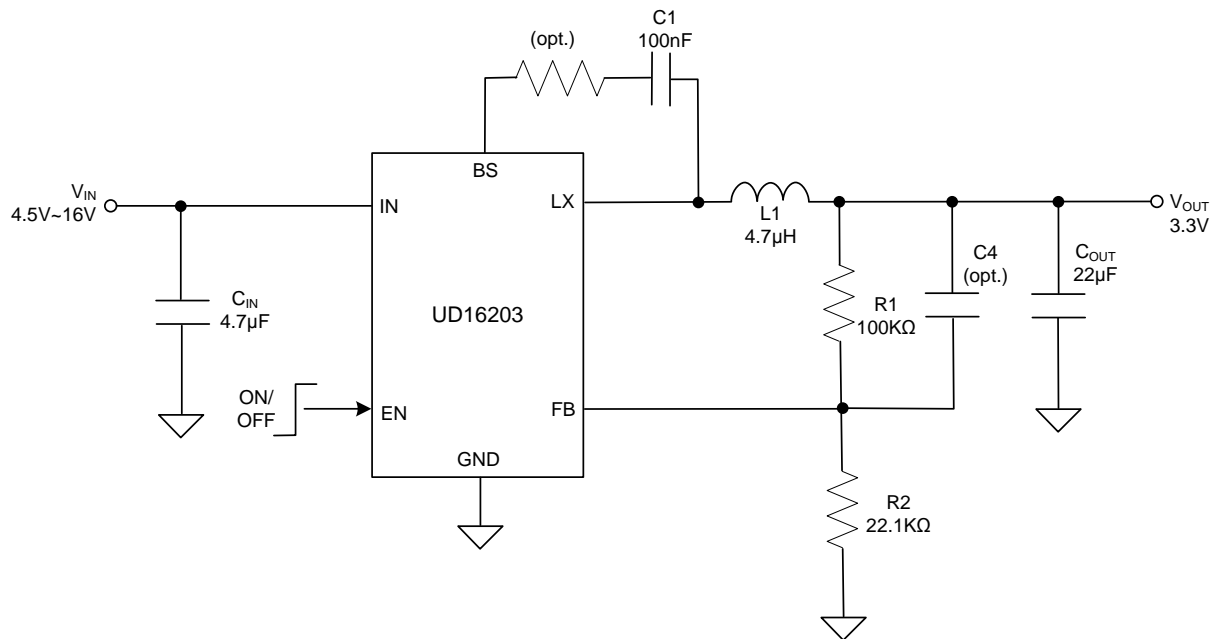
### ■ ELECTRICAL CHARACTERISTICS

( $V_{IN}=12V$ ,  $V_{OUT}=1.2V$ ,  $T_A=25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage Range	$V_{IN}$		4.5		16	V
Input UVLO	UVLO				4.5	V
Shutdown Current	$I_{SD}$	$V_{EN}=0V$		5	10	$\mu A$
FB Pin Voltage	$V_{FB}$			0.6		V
EN Pin Voltage High	$V_{ENH}$		1.5			V
EN Pin Voltage Low	$V_{ENL}$				0.4	V
On Time (Note)	$T_{ON}$	$V_{IN}=12V$ , $V_{OUT}=1.2V$ , $I_{OUT}=1A$		83.3		ns
Valley Current Limit	$I_L$			2.5		A
Top-Switch $R_{DS(ON)}$	$R_{DS(ON) T}$			130		m $\Omega$
Bottom-Switch $R_{DS(ON)}$	$R_{DS(ON) B}$			100		m $\Omega$
Thermal Shutdown	$T_{SD}$			160		°C
Thermal Shutdown Protection hysteresis	$T_{SH}$			15		°C

Note: Guaranteed by design.

### ■ TYPICAL APPLICATION CIRCUIT



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