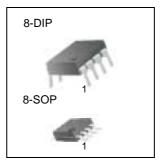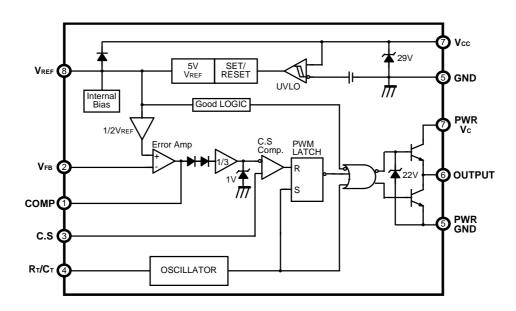# UC3842A/UC3843A
SMPS Controller

Features

- Low Start Current 0.2mA (typ)
- Operating Range Up To 500KHz
- Cycle by Cycle Current Limiting
- Under Voltage Lock Out With Hysteresis
- Short Shutdown Delay Time: typ.100ns
- High Current Totem-pole Output
- Output Swing Limiting: 22V

Description

The UC3842A/UC3843A are fixed PWM controller for Off-Line and DC to DC converter applications. The internal circuits include UVLO, low start up current circuit, temperature compensated reference, high gain error amplifier, current sensing comparator, and high current totem-pole output for driving a POWER MOSFET. Also UC3842A/UC3843A provide low start up current below 0.3mA and short shutdown delay time typ. 100ns. The UC3842A has UVLO threshold of 16V(on) and 10V(off). The UC3843A is 8.4V(on) and 7.6V(off). The UC3842A and UC3843A can operate within 100% duty cycle.

8-DIP

8-SOP

Internal Block Diagram

Rev. 5.0

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	30	V
Output Current	I_O	± 1	A
Analog Inputs (pin 2, 3)	$V_{I(ANA)}$	- 0.3 to 6.3	V
Error Amp. Output Sink Current	$I_{SINK(EA)}$	10	mA
Power Dissipation	P_D	1	W

Electrical Characteristics

(V_{CC} = 15V, R_T = 10KΩ, C_T = 3.3nF, T_A = 0°C to + 70°C ,Unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
REFERENCE SECTION						
Output Voltage	V_{REF}	T_J = 25°C, I_O = 1mA	4.9	5.0	5.1	V
Line Regulation	ΔV_{REF}	V_{CC} = 12V to 25V	-	6	20	mV
Load Regulation	ΔV_{REF}	I_O = 1mA to 20mA	-	6	25	mV
Output Short Circuit	I_{SC}	T_a = 25°C	-	- 100	- 180	mA
OSILLATOR SECTION						
Initial Accuracy	F_{OSC}	T_J = 25°C	47	52	57	KHz
Voltage Stability	ST_V	V_{CC} = 12V to 25V	-	0.2	1	%
Amplitude	V_{OSC}	V_{PIN4}, Peak to Peak	-	1.7	-	V
Discharge Current	I_{DISCHG}	T_J = 25°C, Pin4 = 2V	7.8	8.3	8.8	mA
CURRENT SENSE SECTION						
Gain	G_V	(NOTE 2, 3)	2.85	3	3.15	V/V
Maximum Input Signal	$V_{I(MAX)}$	V_{PIN1} = 5V(NOTE 2)	0.9	1.0	1.1	V
PSRR	PSRR	V_{CC} = 12V to 25V (NOTE 1, 2)	-	70	-	dB
Input Bias Current	I_{BIAS}	-	-	- 2	-10	uA
Delay to Output	T_D	V_{PIN3} = 0 V to 2V (NOTE1)	-	100	200	ns

Electrical Characteristics (Continued)

(V_{CC} = 15V, R_T = 10KΩ, C_T = 3.3nF, T_A = 0°C to + 70°C, Unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
ERROR AMPLIFIER SECTION						
Input Voltage	V_I	T_{PIN1} = 2.5V	2.42	2.50	2.58	V
Input Bias Current	I_{BIAS}	-	-	-0.3	- 2	uA
Open Loop Gain	G_{VO}	V_O = 2V to 4V (NOTE 1)	65	90	-	dB
Unity Gain Bandwidth	GBW	T_J= 25°C (NOTE 1)	0.7	1	-	MHz
PSRR	PSRR	V_{CC} = 12V to 25V (NOTE 1)	60	70	-	dB
Output Sink Current	I_{SINK}	V_{PIN2} = 2.7V V_{PIN1} = 1.1V	2	6	-	mA
Output Source Current	I_{SOURCE}	V_{PIN2} = 2.3V V_{PIN1} = 5.0V	-0.5	-0.8	-	mA
Output High Voltage	V_{OH}	V_{PIN2} = 2.3V R1 = 15KΩ to GND	5	6	-	V
Output Low Voltage	V_{OL}	V_{PIN2} = 2.7V R1 = 15KΩ to Pin8	-	0.8	1.1	V
OUTPUT SECTION						
Output Low Level	V_{OL}	I_{SINK} = 20mA	-	0.1	0.4	V
		I_{SINK} = 200mA	-	1.5	2.2	V
Output High Level	V_{OH}	I_{SOURCE} = 20mA	13	13.5	-	V
		I_{SOURCE} = 200mA	12	13.5	-	V
Rise Time	t_R	T_J = 25°C, C1 = 1nF (NOTE 1)	-	40	100	ns
Fall Time	t_F	T_J = 25°C, C1 = 1nF (NOTE 1)	-	40	100	ns
Output Voltage Swing Limit	V_{OLIM}	V_{CC} = 27V, C1 = 1nF	-	22	-	V
UNDER VOLTAGE LOCKOUT SECTION						
Start Threshold	V_{TH}	UC3842A	15	16	17	V
		UC3843A	7.8	8.4	9.0	V
Min. Operating Voltage (After turn on)	V_{TL}	UC3842A	9	10	11	V
		UC3843A	7.0	7.6	8.2	V
PWM SECTION						
Maximum Duty Cycle	D_{MAX}	UC3842A/UC3843A	94	96	100	%
Minimum Duty Cycle	D_{MIN}	**-**	-	-	0	%
TOTAL STANDBY CURRENT						
Start-Up Current	I_{ST}	**-**	-	0.2	0.4	mA
Operating Supply Current	I_{CC}	V_{PIN2} = V_{PIN3} = 0V	-	11	17	mA
V_{CC} Zener Voltage	V_Z	I_{CC} = 25mA	-	29	-	V

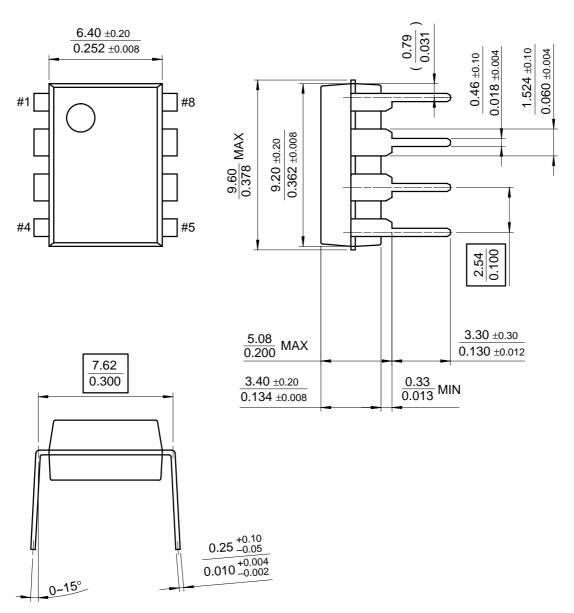* Adjust V_{CC} above the start threshold before setting at 15V

Notes :
1. These parameters, although guaranteed, are not 100% tested in production.
2. Parameter measured at trip point of latch with V2 = 0V.
3. Gain defined as: $G_V = \Delta V_{PIN1} \Delta V_{PIN3} (V_{PIN3}$ = 0 to 0.8V)
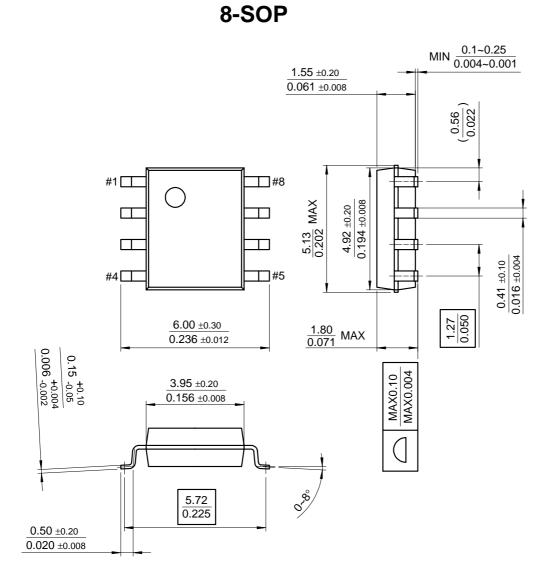
Mechanical Dimensions

Package

8-DIP

Mechanical Dimensions (Continued)

Package

8-SOP

MIN $\dfrac{0.1 \sim 0.25}{0.004 \sim 0.001}$

$\dfrac{1.55 \pm 0.20}{0.061 \pm 0.008}$

$\left(\dfrac{0.56}{0.022}\right)$

$\dfrac{5.13}{0.202}$ MAX

$\dfrac{4.92 \pm 0.20}{0.194 \pm 0.008}$

$\dfrac{0.41 \pm 0.10}{0.016 \pm 0.004}$

#1 #8

#4 #5

$\dfrac{6.00 \pm 0.30}{0.236 \pm 0.012}$

$\dfrac{1.80}{0.071}$ MAX

$\dfrac{1.27}{0.050}$

$\dfrac{0.15 \, {}^{+0.10}_{-0.05}}{0.006 \, {}^{+0.004}_{-0.002}}$

$\dfrac{3.95 \pm 0.20}{0.156 \pm 0.008}$

$\dfrac{\text{MAX0.10}}{\text{MAX0.004}}$

$\dfrac{5.72}{0.225}$

0~8°

$\dfrac{0.50 \pm 0.20}{0.020 \pm 0.008}$

Ordering Information

Product Number	Package	Operating Temperature
UC3842AN	8 DIP	
UC3842AD	8 SOP	0 ~ + 70°C
UC3843AN	8 DIP	
UC3843AD	8 SOP	

Fairchild Semiconductor

space   Product Folders and   Applica

find products

- Products groups
  - Analog and Mixed Signal
  - Discrete
  - Interface
  - Logic
  - Microcontrollers
  - Non-Volatile Memory
  - Optoelectronics
- Markets and applications
- New products
- Product selection and parametric search
- Cross-reference search

technical information

buy products

technical support

my Fairchild

company

UC3842A
SMPS Controller

Contents

General description | Features | Product status/pricing/packaging

General description

The UC3842A/UC3843A are fixed PWM controller for Off-Line and DC to DC converter applications. The internal circuits include UVLO, low start up current circuit, temperature compensated reference, high gain error amplifier, current sensing comparator, and high current totem-pole out-put for driving a POWER MOSFET. Also UC3842A/ UC3843A provide low start up current below 0.3mA and short shutdown delay time typ. 100ns. The UC3842A has UVLO threshold of 16V(on) and 10V(off). The UC3843A is 8.4V(on) and 7.6V(off). The UC3842A and UC3843A can operate within 100% duty cycle.

Datasheet
Download this datasheet

PDF

e-mail this datasheet
[E-

This page Print version

Related Links

Request samples

Dotted line

How to order products

Dotted line

Product Change Notices (PCNs)

Dotted line

Support

Dotted line

Distributor and field sales representatives

Dotted line

Quality and reliability

Dotted line

Design tools

back to top

Features

- Low Start Current 0.2mA (typ)
- Operating Range Up To 500KHz
- Cycle by Cycle Current Limiting
- Under Voltage Lock Out With Hysteresis
- Short Shutdown Delay Time: typ.100ns
- High Current Totem-pole Output
- Output Swing Limiting: 22V

back to top

Product status/pricing/packaging

Product	Product status	Package type	Leads	Packing method
UC3842AN	Full Production	DIP	8	RAIL
UC3842AD	Full Production	SOIC	8	RAIL
UC3842ADX	Full Production	SOIC	8	TAPE REEL

back to top

Home | Find products | Technical information | Buy products |
Support | Company | Contact us | Site index | Privacy policy

© Copyright 2002 Fairchild Semiconductor

Fairchild Semiconductor

Home >> Find products >>

find products

- Products groups
  - Analog and Mixed Signal
  - Discrete
  - Interface
  - Logic
  - Microcontrollers
  - Non-Volatile Memory
  - Optoelectronics
- Markets and applications
- New products
- Product selection and parametric search
- Cross-reference search

technical information

buy products

technical support

my Fairchild

company

UC3843A
SMPS Controller

Contents
General description | Features | Product status/pricing/packaging

General description

The UC3842A/UC3843A are fixed PWM controller for Off-Line and DC to DC converter applications. The internal circuits include UVLO, low start up current circuit, temperature compensated reference, high gain error amplifier, current sensing comparator, and high current totem-pole out-put for driving a POWER MOSFET. Also UC3842A/ UC3843A provide low start up current below 0.3mA and short shutdown delay time typ. 100ns. The UC3842A has UVLO threshold of 16V(on) and 10V(off). The UC3843A is 8.4V(on) and 7.6V(off). The UC3842A and UC3843A can operate within 100% duty cycle.

Datasheet
Download this datasheet

PDF

e-mail this datasheet

[E-

This page Print version

Related Links

Request samples

Dotted line
How to order products

Dotted line
Product Change Notices (PCNs)

Dotted line
Support

Dotted line
Distributor and field sales representatives

Dotted line
Quality and reliability

Dotted line
Design tools

back to top

Features

- Low Start Current 0.2mA (typ)
- Operating Range Up To 500KHz
- Cycle by Cycle Current Limiting
- Under Voltage Lock Out With Hysteresis
- Short Shutdown Delay Time: typ.100ns
- High Current Totem-pole Output
- Output Swing Limiting: 22V

back to top

Product status/pricing/packaging

Product	Product status	Package type	Leads	Packing method
UC3843AD	Full Production	SOIC	8	RAIL
UC3843ADX	Full Production	SOIC	8	TAPE REEL
UC3843AN	Full Production	DIP	8	RAIL

back to top