

XC6376/XC6377 Series

PWM Controlled, PWM/PFM Switchable Step-down DC/DC Converter

General Description

The XC6376, XC6377 series are step-down DC/DC converters with built-in P channel power MOSFETs. A highly efficient DC/DC converter with output currents of 500mA can be realised using only four peripherals - a coil, a diode and 2 capacitors.

Output voltage can be internally set-up in 0.1V increments ($\pm 2.5\%$) between 1.5V and 6.0V (VOUT type). Alternatively, output voltage can be set-up at will using a 1.0V internal reference voltage source and peripherals (FB type).

It is possible to reduce the size of the peripherals used since the switching frequency is 300kHz.

The PWM/PFM switchable XC6377 operates in PFM mode during light loads and is highly efficient from light loads to large output currents.

Required values for soft start time can be regulated via the external capacitor and the stand-by function reduces supply current to less than 2.5 μ A.

U.V.L.O and protection are built-in.

Features

Input voltage range: 1.8V to 10V

Output voltage range:

1.5V to 6.0V programmable in 0.1V steps ($\pm 2.5\%$)

Oscillator frequency: 300kHz ($\pm 15\%$)

Custom products for 180, 500kHz

Max. Output current: 500mA (min) $V_{IN}=3.6V, V_{OUT}=3.0V$

High Efficiency: 95% (typ.)

Stand-by capability: $I_{STB}=2.5\mu A$ (max.)

Soft-start time set-up externally type

U.V.L.O, Pch boost, VOUT reset functions available

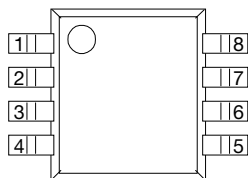
Internally set-up output voltage type (VOUT)

Externally set-up output voltage type (FB)

P channel Power MOSFET built-in

Package: SOP-8

Pin Configuration



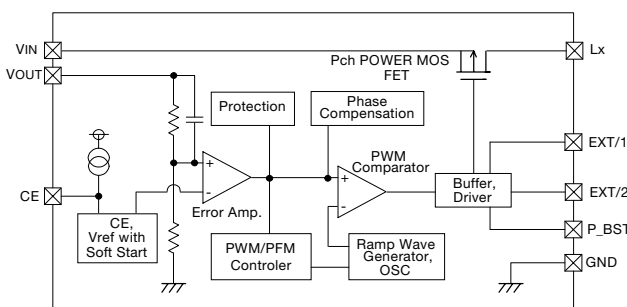
SOP-8

Pin Assignment

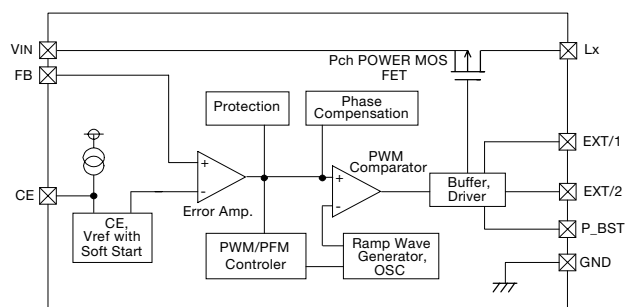
PIN NUMBER	PIN NAME	FUNCTION
1	VIN	Power supply input
2	EXT/2	External drive pin 2 ("L" when Pch MOSFET ON)
3	P_BST	Pch gate boost
4	CE	Chip Enable Soft - start capacitor connection
5	VOUT (FB)	Output voltage monitor (FB=externally set-up type)
6	GND	Ground
7	EXT/1	External drive pin 1 ("L" when Pch MOSFET ON)
8	Lx	Pch power MOSFET switch

Block Diagram

(1) XC6376, XC6377 series A, C types (VOUT)

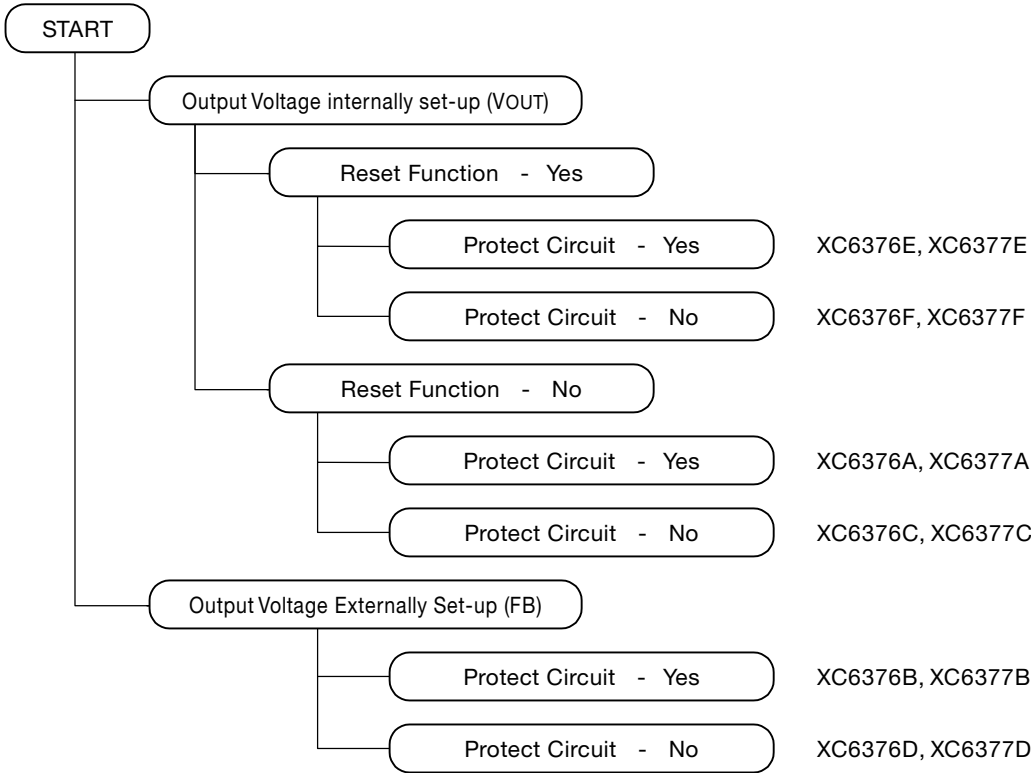


(2) XC6376, XC6377 series B, D types (FB)



4. DC/DC Converters

Selection Guide



Ordering Information

XC6376^{①②③④⑤⑥}

XC6376series PWM control

SYMBOL	VOUT/FB	VOUT RESET FUNCTION	INTEGRAL CIRCUIT PROTECTION
①	A VOUT	NO	YES
	B FB	-	YES
	C VOUT	NO	NO
	D FB	-	NO
	E VOUT	YES	YES
	F VOUT	YES	NO
② ③	Output voltage value : e.g. 3.0V output : ② = 3, ③ = 0 FB products (B,D types) : ② = 1, ③ = 0		
④	3	Oscillator frequency 300kHz	
	5	Oscillator frequency 500kHz	
	2	Oscillator frequency 180kHz	
⑤	S	Package : SOP-8	
⑥	R	Embossed tape : standard loading	
	L	: reverse loading	

XC6377^{①②③④⑤⑥}

XC6377 series PWM/PFM switching control
(same as the XC6376 series)

SYMBOL	VOUT/FB	VOUT RESET FUNCTION	INTEGRAL CIRCUIT PROTECTION
①	A VOUT	NO	YES
	B FB	-	YES
	C VOUT	NO	NO
	D FB	-	NO
	E VOUT	YES	YES
	F VOUT	YES	NO
② ③	Output voltage value : e.g. 3.0V output : ② = 3, ③ = 0 FB products (B,D types) : ② = 1, ③ = 0		
④	3	Oscillator frequency 300kHz	
	5	Oscillator frequency 500kHz	
	2	Oscillator frequency 180kHz	
⑤	S	Package : SOP-8	
⑥	R	Embossed tape : standard loading	
	L	: reverse loading	