

XC6381 Series

PFM Controlled, Step-up DC/DC Converters (Duty Ratio 58%)

General Description

The XC6381 series is a group of PFM controlled step-up DC/DC converters. The XC6381 series employs CMOS process and laser trimming technologies so as to attain low power and high accuracy.

Max. oscillator frequency is trimmed to 155kHz (accuracy : $\pm 15\%$).

Every built-in switching transistor type enables a step-up circuit to be configured using only three external components ; a coil, a diode, and a capacitor. External transistor versions are available to accommodate high output current applications.

Both built-in and external transistor types include 5-pin and 3-pin packages, which are provided with either a CE (chip enable) function that reduces power consumption during shut-down mode, or a VDD pin function (separated power and voltage detect pins).

SOT-23, SOT-25, and SOT-89-5 super mini-mold packages.

Features

Operating (start-up) voltage range: 0.9V ~ 10V

Output voltage range: 2.0V ~ 7.0V in 0.1V increments

Highly accurate: Set-up voltage $\pm 2.5\%$

Maximum oscillator frequency: 155kHz ($\pm 15\%$)

Duty Ratio: 58% ($\pm 5\%$)

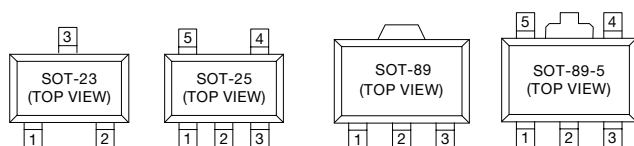
Both built-in switching transistor and external types are available.

Five-lead packaged units offer either Chip Enable or independent VOUT pin option.

Small package: SOT-23, 25 mini-mold (3-pin, 5-pin)

SOT-89, 89-5 mini-power mold (3-pin, 5-pin)

Pin Configuration



Pin Assignment

(1) XC6381A, XC6381B

PIN NUMBER				PIN NAME	FUNCTION
XC6381A		XC6381B			
SOT-23	SOT-89	SOT-23	SOT-89		
1	1	1	1	VSS	Ground
2	2	3	2	VOUT	Output voltage monitor / IC internal power supply
3	3	-	-	LX	Switch
-	-	2	3	EXT	External switch transistor drive

Pin Assignment

(2) XC6381C, XC6381D

PIN NUMBER				PIN NAME	FUNCTION
XC6381C		XC6381D			
SOT-25	SOT-89-5	SOT-25	SOT-89-5		
4	5	4	5	VSS	Ground
2	2	2	2	VOUT	Output voltage monitor / IC internal power supply
5	4	-	-	LX	Switch
-	-	5	4	EXT	External switch transistor drive
1	3	1	3	CE	Chip enable
3	1	3	1	NC	No Connection

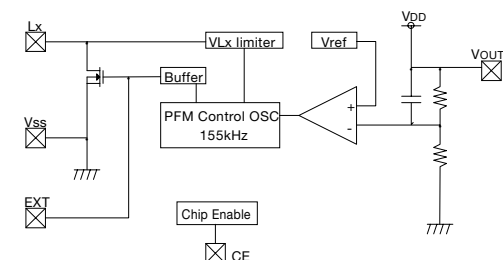
(3) XC6381E, XC6381F

PIN NUMBER				PIN NAME	FUNCTION
XC6381E		XC6381F			
SOT-25	SOT-89-5	SOT-25	SOT-89-5		
4	5	4	5	VSS	Ground
2	2	2	2	VDD	IC internal power supply
5	4	-	-	LX	Switch
-	-	5	4	EXT	External switch transistor drive
1	3	1	3	VOUT	Output voltage monitor
3	1	3	1	NC	No Connection

Block Diagram

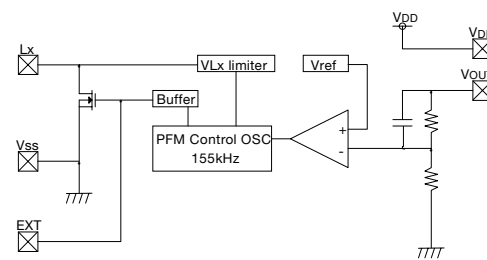
(1) XC6381A ~ XC6381D

(VOUT pin can also be used for VDD pin.)



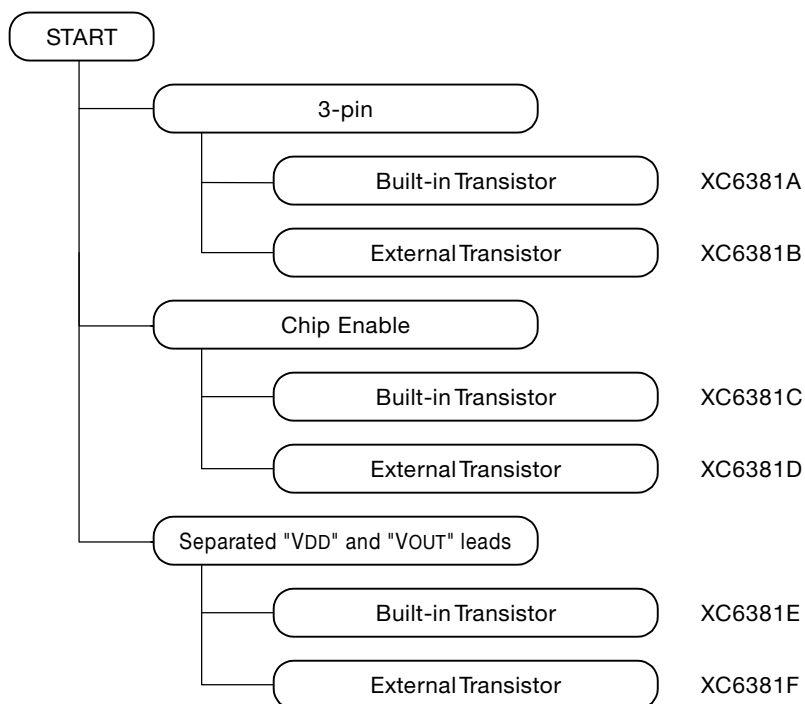
Note : Built-in Tr types use the LX pin, external Tr.types use the EXT pin.
The CE pin is only used with the XC6381C and XC6381D.

(2) XC6381E and XC6381F



Note : The VDD pin is only used with the XC6381E and XC6381F.
Built-in Tr.types use the LX pin, external Tr.types use the EXT pin.

Selection Guide



Ordering Information

XC6381①②③④⑤⑥

XC6381series PFM control Duty Ratio 58%

①	A	3-pin, Built-in switching transistor
	B	3-pin, External switching transistor
	C	Stand-by capability, (5-pin) Built-in switching transistor
	D	Stand-by capability, (5-pin) External switching transistor
	E	Separated VDD and VOUT, (5-pin) Built-in switching transistor
	F	Separated VDD and VOUT, (5-pin) External switching transistor
②	Output Voltage	
③	e.g., VOUT=3.5V → ②=3, ③=5	
④	1	OSC Frequency 155kHz
⑤	M	Package A ~ B → SOT-23 C ~ F → SOT-25
	P	Package A ~ B → SOT-89 C ~ F → SOT-89-5
⑥	R	Embossed tape. Orientation of device : Right
	L	Embossed tape. Orientation of device : Left