

# XC6385

## Series



PFM (Frequency) Controlled, Step-Up DC/DC Converters

- ◆ **Pager Use** : Low Noise
- ◆ **Duty Ratio** : 75%
- ◆ **CMOS Structure** : Small Supply Current
- ◆ **Operating Voltage Range** : 0.9~10.0V
- ◆ **Output Voltage Range** : 2.0~7.0V
- ◆ **Output Voltage Accuracy** :  $\pm 2.5\%$

### General Description

The XC6385 series are a group of PFM (frequency) controlled step-up DC/DC converters.

The XC6385 series employs CMOS process and laser trimming technologies to attain low power and high accuracy.

A common problem among pagers is one of noise, but with the XC6385, high frequency noise that occurs during switching is reduced.

Output voltage is selectable in 0.1V steps within 2.0V ~ 7.0V and maximum frequency is 100kHz (Typ.)

With a built-in switching transistor, a step-up circuit can be configured using a coil, diode and capacitor connected externally.

Also available is a CE (chip enable) function that reduces power consumption during shut-down mode, and an independent V<sub>DD</sub> pin function (separated power supply and voltage detect pins) for fly-back circuits.

SOT-89-5 and SOT-23/25 small packages.

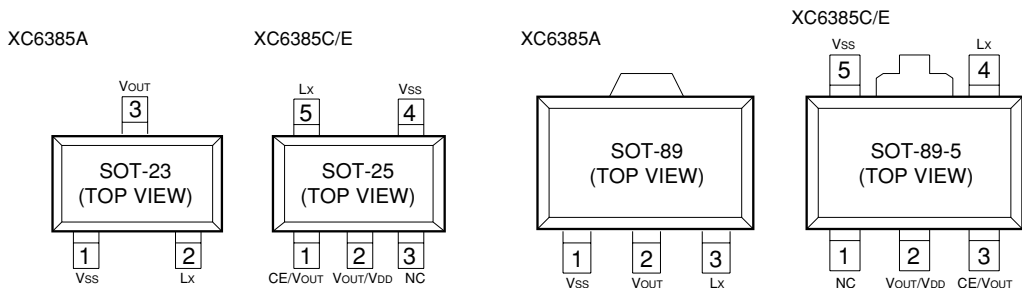
### Typical Application Circuit

### Electrical Characteristics

For typical application circuit and electrical characteristics of XC6385 series, please refer to that of XC6382 series.

For more detail, please contact Torex sales offices or sales person.

### Pin Configuration



### Applications

- Pagers
- Palmtops
- Cameras, Video cameras
- Various portable products

### Features

**Low noise**

**Operating voltage range** : 0.9V~10V

**Output voltage range** : 2.0V~7.0V (programmable in 0.1V steps)

**Output voltage accuracy** :  $\pm 2.5\%$

**Maximum oscillator frequency** : 100kHz ( $\pm 15\%$ )

**Built-in switching transistor**

**CE function and/or separated V<sub>DD</sub>/V<sub>OUT</sub> types selectable with 5 pin packages**

**Small package** : SOT-23/25 mini-mold (3pin, 5pin)  
SOT-89/89-5 mini-power mold (3 pin, 5 pin)

## Product Classification

### Selection Guide

PARAT TYPE	DUTY RATIO	PACKAGE	SWITCHING TRANSISTOR	CE FUNCTION	V <sub>DD</sub> PIN	FEATURES
XC6385A	75%	SOT-23 SOT-89	Built-in	NO	NO	Duty Ratio 75%
XC6385C	75%	SOT-23 SOT-89-5	Built-in	YES	NO	Stand-by (CE) function During stand-by (CE pin "Low"), Supply current = 0.50μA (max)
XC6385E	75%	SOT-23 SOT-89-5	Built-in	NO	YES	Since the power supply (V <sub>DD</sub> ) pin and the voltage sensor (V <sub>OUT</sub> ) pin are separated, use as a PFM controller is possible.

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### Ordering Information

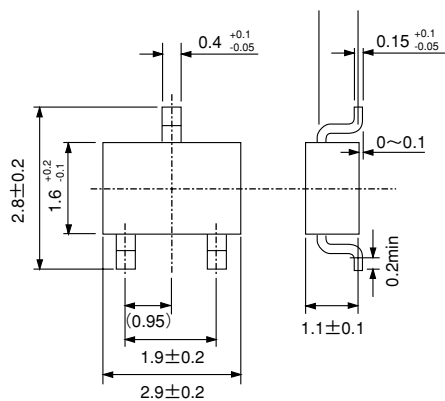
**XC6385**①②③④⑤⑥

XC6385 Series PFM Controlled Duty 75%

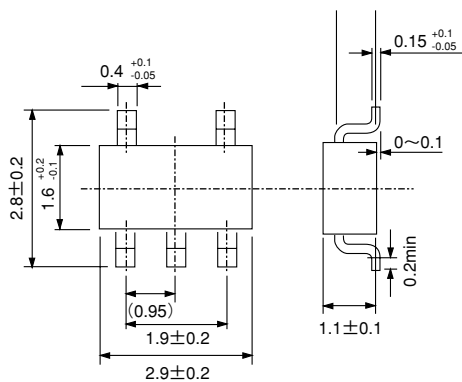
①	A	3-pin. Built-in switching transistor	
	C	Stand-by capability. (5-pin) Built-in switching transistor	
	E	Stand-by capability. (5-pin) Built-in switching transistor	
② ③	Output Voltage e.g. V <sub>OUT</sub> =3.5V → ②=3, ③=5		
④	1	Maximum Oscillator Frequency	100kHz
⑤	M	Package	①=A SOT-23 ①=C, E SOT-25
	P	Package	①=A SOT-89 ①=C, E SOT-89-5
⑥	R	Embossed tape: Standard Feed	
	L	Embossed tape: Reverse Feed	

## ■ Packaging Information

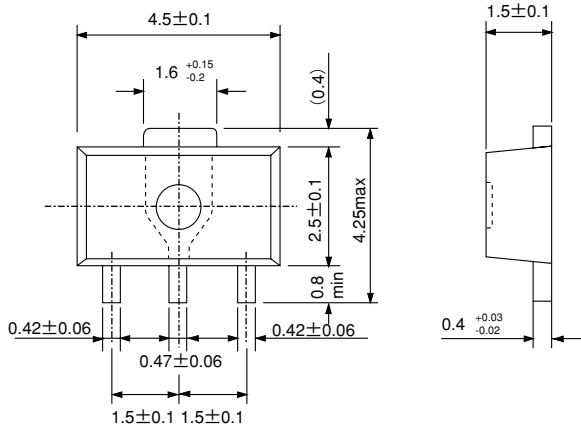
### ● SOT-23



### ● SOT-25

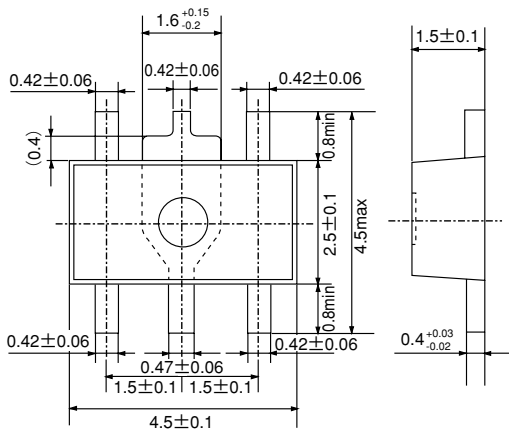


●SOT-89

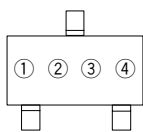


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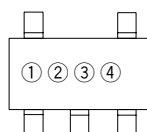
●SOT-89-5



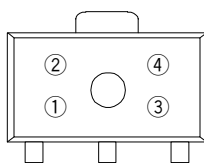
## ■ Marking



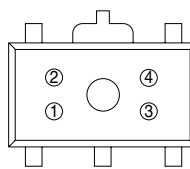
SOT-23  
(TOP VIEW)



SOT-25  
(TOP VIEW)



SOT-89  
(TOP VIEW)



SOT-89-5  
(TOP VIEW)

① Represents the Product Classification

DESIGNATOR	FUNCTION	PRODUCT NAME
E	—	Built-in Transistor
L	CE	Built-in Transistor
N	VDD/VIN	Built-in Transistor

② Represents the integer of the Output Voltage and Oscillator Frequency

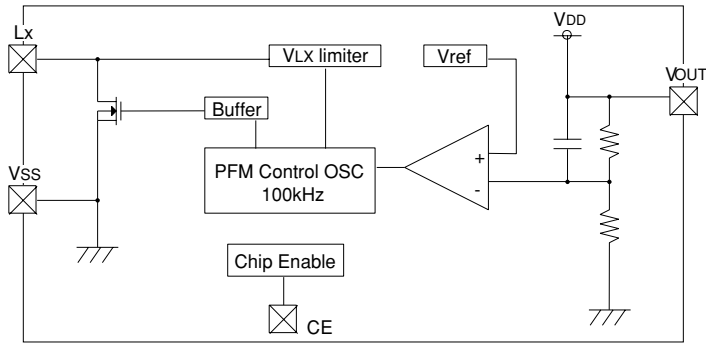
INTEGER OF THE OUTPUT VOLTAGE	OSCILLATOR FREQUENCY (kHz)
	100
1	1
2	2
3	3
4	4
5	5
6	6
7	7

③ Represents the decimal number of the Output Voltage and Oscillator Frequency

OUTPUT VOLTAGE	OSCILLATOR FREQUENCY (kHz)
	100
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

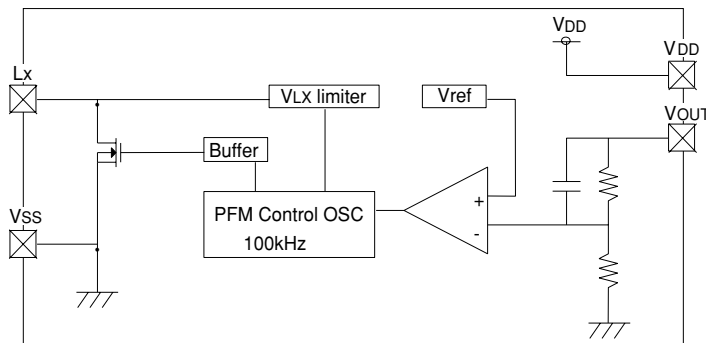
④ Denotes the production lot number  
0 to 9, A to Z repeated(G.I.J.O.Q.W excepted)

## ■ Block Diagram



Note: The CE pin is set up for XC6385C.

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Note: The VDD pin is set up for XC6385E.

## ■ Electrical Characteristics

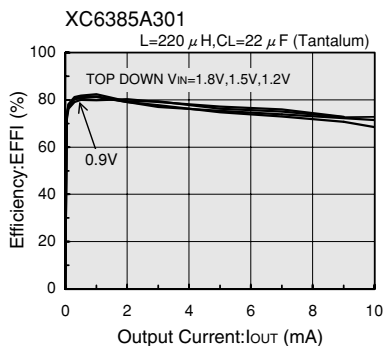
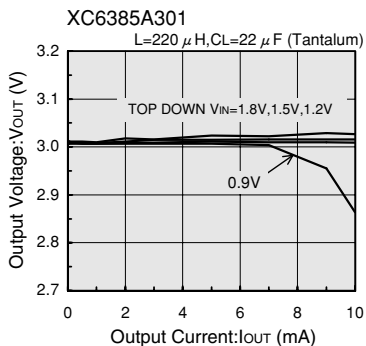
For electrical characteristics of XC6385 series, please refer to that of XC6382 series.

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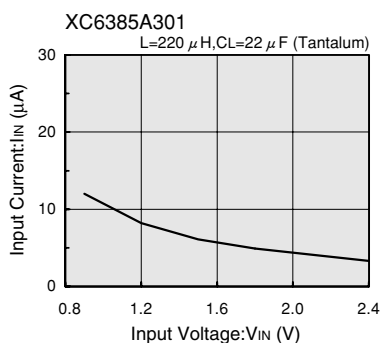
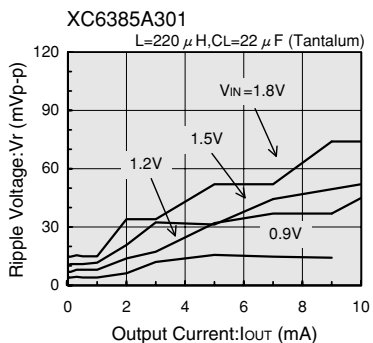
## Typical Performance Characteristics

●XC6385A301 (Output Voltage = 3.0V)

(1) OUTPUT VOLTAGE vs. OUTPUT CURRENT (2) EFFICIENCY vs. OUTPUT CURRENT



(3) RIPPLE VOLTAGE vs. OUTPUT CURRENT (4) NO LOAD INPUT CURRENT vs. INPUT VOLTAGE



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