

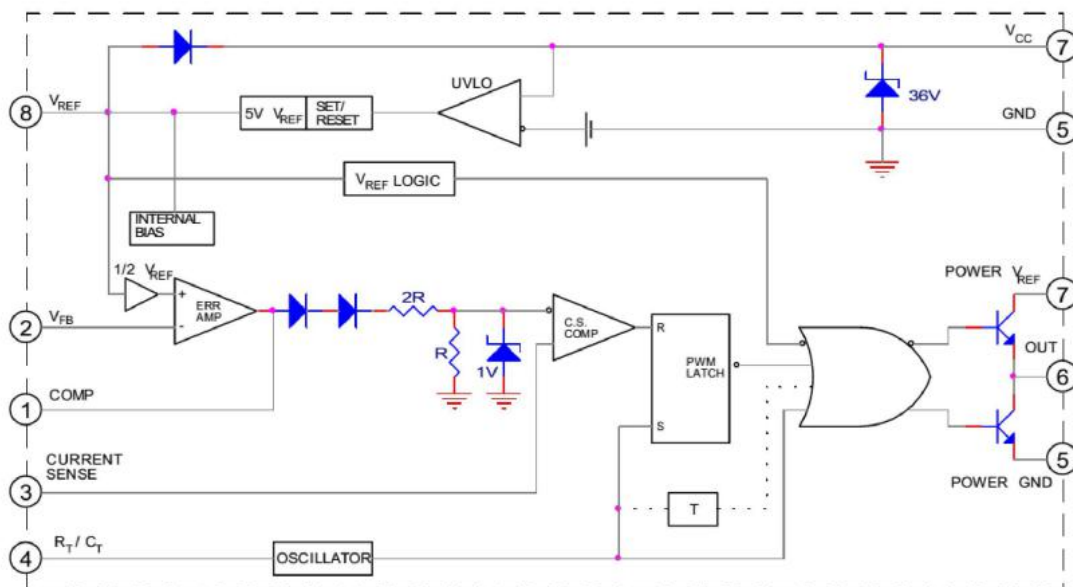
# HIGH PERFORMANCE CURRENT MODE PWM CONTROLLER

**WK3842**

## Features

- Trimmed Oscillator for Precise Frequency Control
- Current Mode Operation to 500 kHz
- Low start-up current(0.12mA)
- Automatic Feed Forward Compensation
- Latching PWM for Cycle-By-Cycle Current Limiting
- Internally Trimmed Reference with Undervoltage Lockout
- High Current Totem Pole Output
- Undervoltage Lockout with Hysteresis
- Low Startup and Operating Current
- This is a Pb-Free and Halide-Free Device

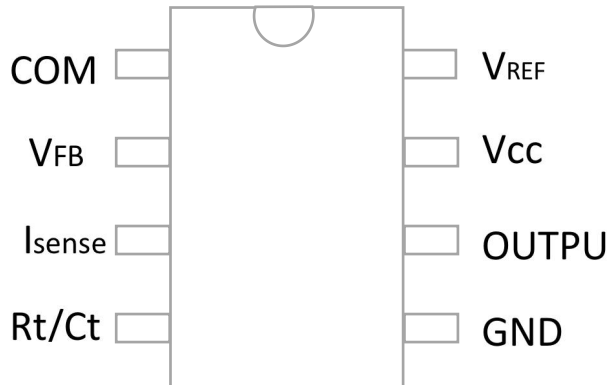
## Block-diagram



## PACKAGE INFORMATION



## PIN CONNECTIONS



## Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Supply voltage	VCC	30	V
Output current	I <sub>o</sub>	±1	A
Err Amp Output Sink current	I <sub>sink</sub>	10	mA
Err Amp Input Voltage	V <sub>in</sub>	-0.3~6.3	V
Power dissipation	P <sub>d</sub>	1	W
Temperature of Ambient	T <sub>amb</sub>	0-70	degC
Temperature of Storage	T <sub>stg</sub>	-55~150	degC

### **Note:**

Test Condition:

1. T<sub>amb</sub>:25°C , Board thickness:1.6mm,
2. Do not exceed P<sub>d</sub> and SOA.

## Electrical Characteristics

V<sub>cc</sub>=15V, R<sub>T</sub>=10kΩ, C<sub>T</sub>=3.3nF, T<sub>amb</sub>=0°C~70°C, Unless otherwise specified

Parameters	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>REFERENCE SECTION</b>						
Reference output voltage	V <sub>ref</sub>	T <sub>j</sub> =25°C, I <sub>REF</sub> =1mA	4.90	5.0	5.10	V
Line Regulation	ΔV <sub>ref</sub>	12V≤V <sub>cc</sub> ≤25V		6	20	mV
Load Regulation	ΔV <sub>ref</sub>	1mA≤I <sub>REF</sub> ≤20mA		6	25	mV
Short Circuit Output Current	I <sub>sc</sub>	T <sub>amb</sub> =25°C	-30	-100	-180	mA
<b>OSCILLATOR SECTION</b>						
Oscillation Frequency	f	T <sub>j</sub> =25°C	47	52	57	kHz
Frequency Change with Voltage	Δf/ΔV <sub>CC</sub>	12V≤V <sub>cc</sub> ≤25V		0.05	1	%
Oscillator Amplitude	V <sub>osc</sub>	4 PIN PEAK VALUE		1.6		V <sub>pp</sub>
<b>ERROR AMPLIFIER SECTION</b>						
Input Bias Current	I <sub>bias</sub>			-0.1	-2	μA
Input Voltage	V <sub>i</sub> (E>A)	V <sub>1</sub> =2.5V	2.42	2.5	2.58	V
Open Loop Voltage Gain	G <sub>vo</sub>	2V≤V <sub>O</sub> ≤4V	60	90		dB
Power supply Rejection Ratio	PSRR	12V≤V <sub>CC</sub> ≤25V	60	70		dB
Output Sink Current	I <sub>sink</sub>	V <sub>2</sub> =2.7V, V <sub>1</sub> =1.1V	2	6		mA
Output Source Current	I <sub>source</sub>	V <sub>2</sub> =2.3V, V <sub>1</sub> =5V	-0.5	-0.8		mA
High Output Voltage	V <sub>oh</sub>	V <sub>2</sub> =2.3V, R <sub>L</sub> =15kΩ to GND	5	6		V
Low Output Voltage	V <sub>ol</sub>	V <sub>2</sub> =2.7V, R <sub>L</sub> =15kΩ to Pin8		0.7	1.1	V
<b>CURRENT SENSE SECTION</b>						
Gain	G <sub>v</sub>		2.85	3	3.15	V/V
Maximum input signal	V <sub>i</sub> (max)	V <sub>1</sub> =5V	0.9	1	1.1	V
Power Supply Rejection Ratio	PSRR	12V≤V <sub>CC</sub> ≤25V		70		dB
Input Bias Current	I <sub>bias</sub>			-2	-10	μA
<b>OUTPUT SECTION</b>						
Low Output Voltage	V <sub>ol</sub>	I <sub>SINK</sub> =20mA		0.1	0.4	V
		I <sub>SINK</sub> =200mA		1.5	2.2	V
High Output Voltage	V <sub>oh</sub>	I <sub>SOURCE</sub> =20mA	13	13.5		V
		I <sub>SOURCE</sub> =200mA	12	13.0		V
Rise Time	t <sub>R</sub>	C <sub>L</sub> =1nF		50	150	nS
Fall Time	t <sub>F</sub>	C <sub>L</sub> =1nF		50	150	nS
<b>UNDER-VOLTAGE LOCKOUT SECTION</b>						
	V <sub>th</sub> (ST)		14.5	16.0	17.5	V
Min. Operating Voltage			8.5	10.0	11.5	V
<b>PWM SECTION</b>						
Min. Duty Cycle	D(min)		94	96		%
Max. Duty Cycle	D(max)				0	%

Total Standby Current						
Start-up Current	IST			0.12	0.3	mA
Operating Supply Current	I <sub>cc(OPR)</sub>	V <sub>3</sub> =V <sub>2</sub> =0V		11	17	mA
Zener Voltage	V <sub>z</sub>	I <sub>cc</sub> =25mA		34		V

### Test Circuit

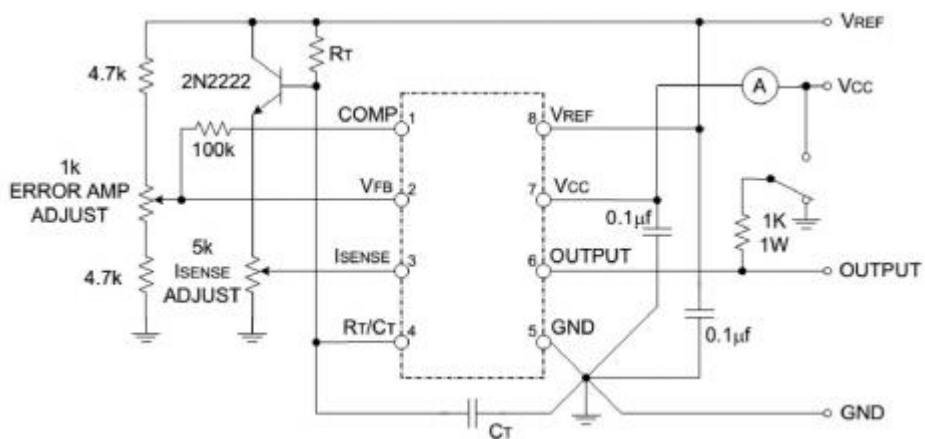


Fig. 1

MECHANICAL DIMENSION

1. SOP

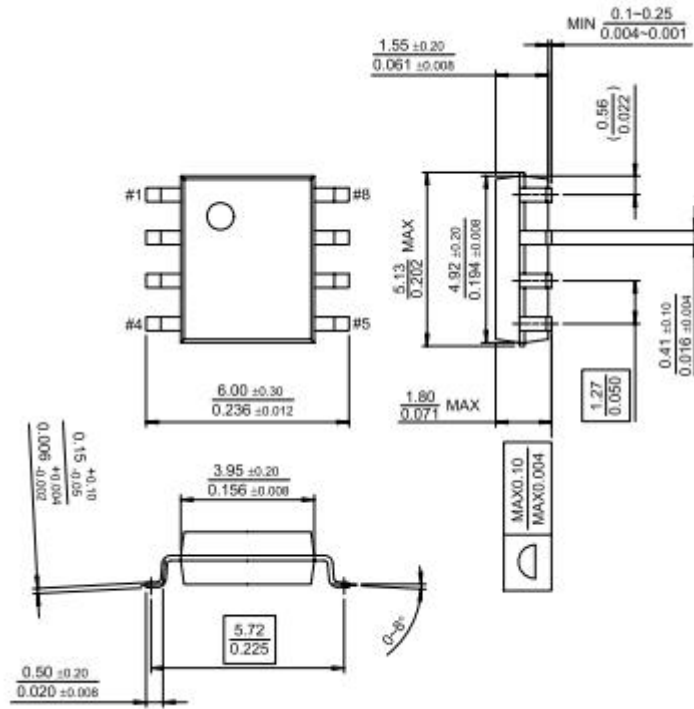
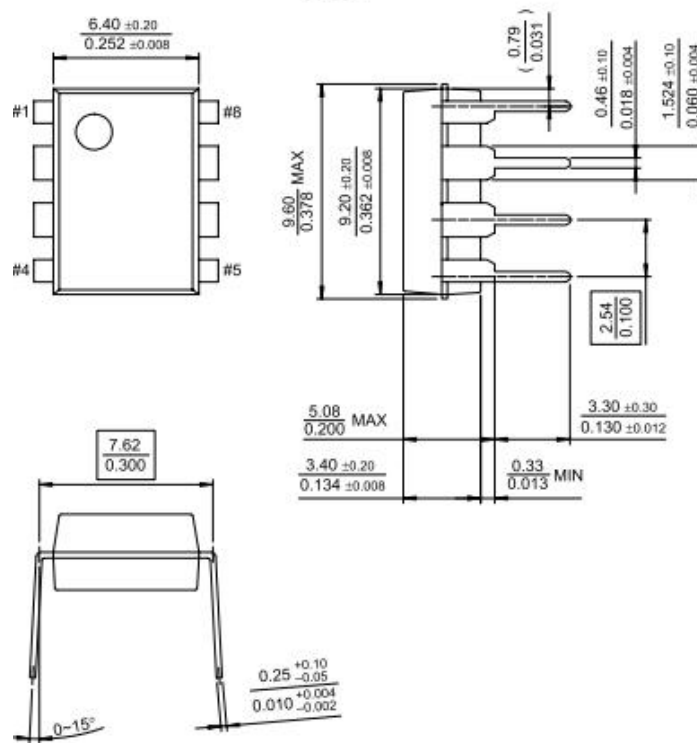
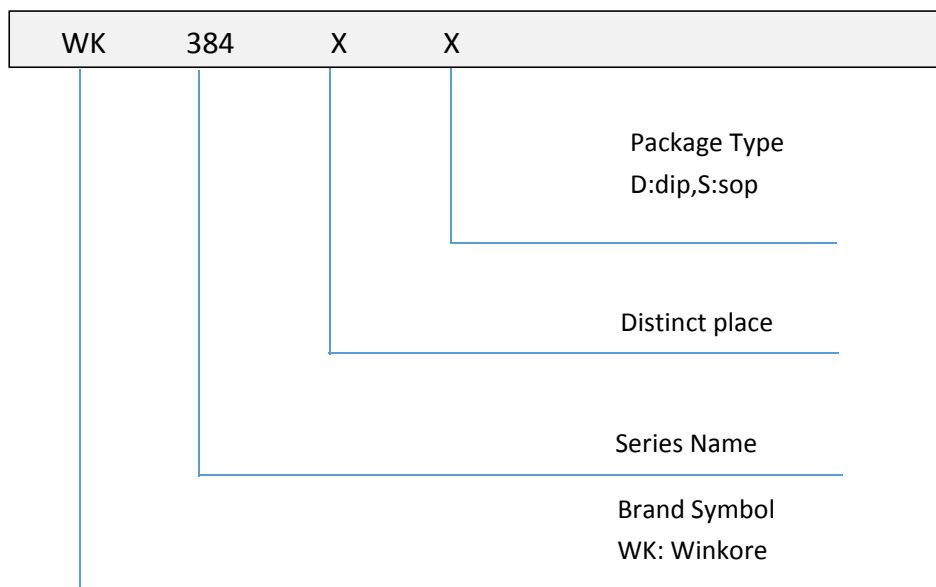


FIG. 2

2. DIP



## Naming Rules



## History

Version	Contents	Date	Author
1.0	Create documents	2017.11.1	Jason

## DISCLAIMER

All product specifications and data are subject to change without notice.

For documents and material available from this datasheet, Winkore or IMES does not warrant or assume any legal liability or responsibility for the accuracy, completeness of any product or technology disclosed hereunder.

No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document or by any conduct of Winkore or IMES. The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless. Customers using or selling Winkore OR IMES products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Winkore OR IMES for any damages arising or resulting from such use or sale.

IMES& Winkore disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Winkore and IMES's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products. Suzhou Winkore Microelectronics CO., LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

In the event that any or all Winkore or IMES's products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. Winkore or IMES believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

## CONTACT US

