

## 250mA Low Power LDO Low Power Consumption LDO HK73XX Series

### General Description

The HK73XX series are a group of positive voltage output, three-pin regulator, that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS technology. They allow input voltages as high as 12V.

### Features

- Ultra low quiescent current: 3.0uA(typ)
- High input voltage (up to 12V)
- Low dropout voltage :80mV@Iout=40mA (Vout=3.3V)
- Output voltage accuracy:  $\pm 2\%$
- Maximum output current: 250mA (within max. power dissipation, Vout=3.3V)
- Low temperature coefficient
- Package : SOT23-3 、 TO-92 、 SOT89-3

### Selection Guide

HK 7 3 X X X X

Environment mark

Package:

e.g.: M3-SOT23-3  
P-SOT89-3  
T-TO92

Output Voltage

e.g.: 25-2.5V  
30-3.0V  
33-3.3V  
36-3.6V  
44-4.4V  
50-5.0V

Function

e.g.: A- no "CE"

Product Type

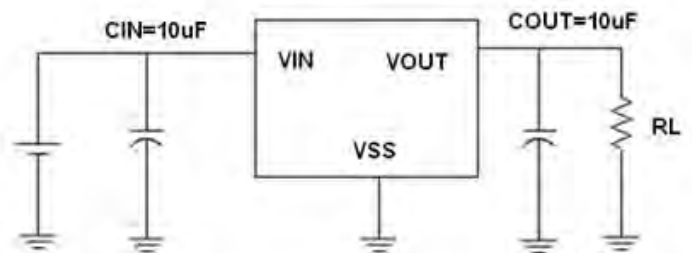
Product Series

HK

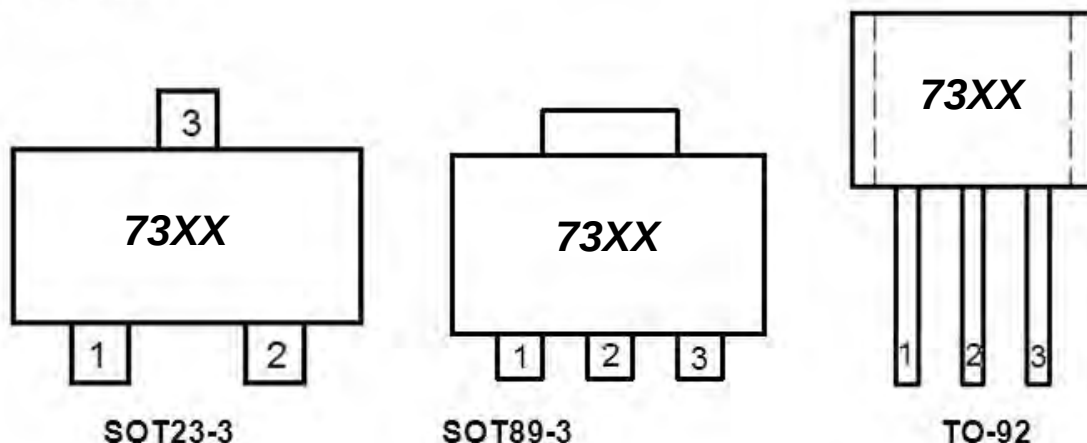
### Typical Application

- Cameras, video recorders
- Voltage regulator for microprocessor
- Voltage regulator for LAN cards
- Wireless communication equipment
- Audio/Video equipment

### Typical Application Circuit



## Pin Configuration



## Pin Assignment

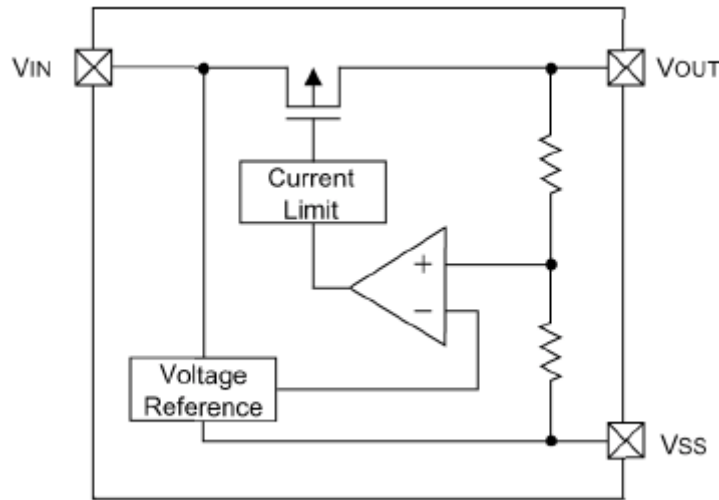
### HK73XX

| Pin Number    |         | Pin Name  | Functions |
|---------------|---------|-----------|-----------|
| SOT89-3/TO-92 | SOT23-3 |           |           |
| 1             | 1       | $V_{SS}$  | Ground    |
| 2             | 3       | $V_{IN}$  | Input     |
| 3             | 2       | $V_{OUT}$ | Output    |

## Absolute Maximum Ratings

| Parameter                   | Symbol    | Ratings                      | Units              |
|-----------------------------|-----------|------------------------------|--------------------|
| Input Voltage               | $V_{IN}$  | 18                           | V                  |
| Output Voltage              | $V_{OUT}$ | $V_{SS}-0.3 \sim V_{IN}+0.3$ | V                  |
| Output Current              | $I_{out}$ | 250                          | mA                 |
| Operating Temperature Range | $T_{OPR}$ | $-40 \sim +85$               | $^{\circ}\text{C}$ |
| Storage Temperature Range   | $T_{STG}$ | $-40 \sim +125$              | $^{\circ}\text{C}$ |
| Power Dissipation           | SOT89-3   | 500                          | mW                 |
|                             | TO-92     | 500                          |                    |
|                             | SOT23-3   | 300                          |                    |

## Block Diagram



## Electrical Characteristics

### HK7330

( $V_{IN} = V_{OUT} + 1.0V$ ,  $C_{IN} = C_L = 10\mu F$ ,  $T_a = 25^\circ C$ , unless otherwise noted)

| Parameter                     | Symbol                                                | Conditions                                                                     | Min.          | Typ.                     | Max.          | Units          |
|-------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------|---------------|--------------------------|---------------|----------------|
| Output Voltage                | $V_{OUT(E)}$<br>(Note 2)                              | $I_{OUT} = 40mA$ ,<br>$V_{IN} = V_{OUT} + 1V$                                  | $\times 0.98$ | $V_{OUT(T)}$<br>(Note 1) | $\times 1.02$ | V              |
| Input Voltage                 | $V_{IN}$                                              |                                                                                |               |                          | 18            | V              |
| Maximum Output Voltage        | $I_{OUT\_max}$                                        | $V_{IN} = V_{OUT} + 1V$                                                        | 250           |                          |               | mA             |
| Load Regulation               | $\Delta V_{OUT}$                                      | $V_{IN} = V_{OUT} + 1V$ ,<br>$1mA \leq I_{OUT} \leq 60mA$                      |               | 15                       | 40            | mV             |
| Dropout Voltage<br>(Note 3)   | $V_{dif}$                                             | $I_{OUT} = 40mA$                                                               |               | 80                       |               | mV             |
| Supply Current                | $I_{SS}$                                              | $V_{IN} = V_{OUT} + 1V$                                                        |               | 3                        | 4             | $\mu A$        |
| Line Regulations              | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | $I_{OUT} = 40mA$<br>$V_{OUT} + 1V \leq V_{IN} \leq 18V$                        |               | 0.1                      | 0.2           | %/V            |
| $\Delta V_{OUT} / \Delta T_a$ | Temperature<br>Coefficient                            | $V_{IN} = V_{OUT} + 1V$ , $I_{OUT} = 40mA$<br>$-40^\circ C < T_a < 85^\circ C$ |               | $\pm 0.7$                |               | mV/ $^\circ C$ |



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# 深圳市航顺芯片技术研发有限公司 航顺浩瀚处理器（广州）有限公司

国家高新技术企业 深圳龙华2017年八大重点签约引进企业  
航顺芯片32位通用MCU之M0 M3 M4世界级超低功耗  
性能超稳定 开发工具全兼容进口 软硬件全兼容进口

HK73XX

## HK7340

( $V_{IN} = V_{OUT} + 1.0V$ ,  $C_{IN} = C_L = 10\mu F$ ,  $T_a = 25^\circ C$ , unless otherwise noted)

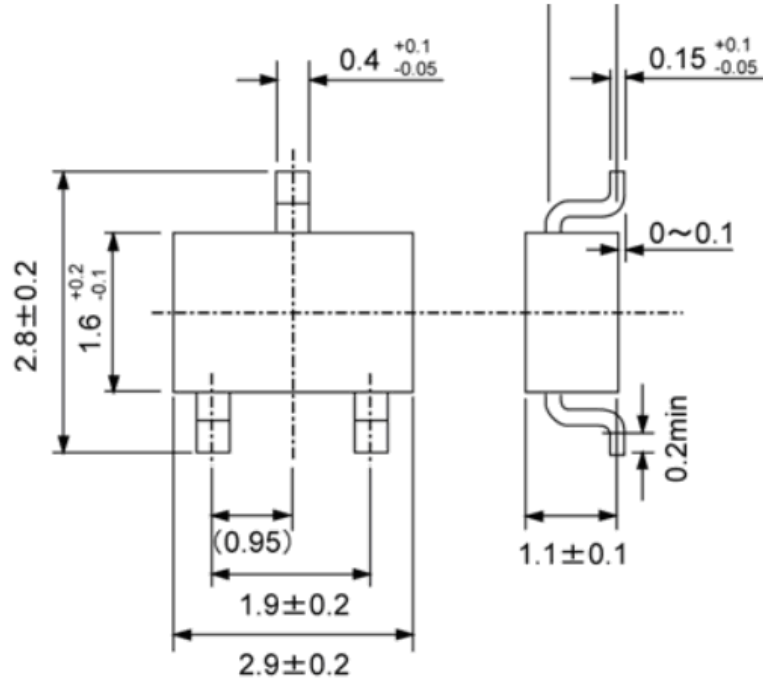
| Parameter                     | Symbol                                                | Conditions                                                                     | Min.   | Typ.                     | Max.   | Units          |
|-------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------|--------|--------------------------|--------|----------------|
| Output Voltage                | $V_{OUT}(E)$<br>(Note 2)                              | $I_{OUT} = 40mA$ ,<br>$V_{IN} = V_{OUT} + 1V$                                  | X 0.98 | $V_{OUT}(T)$<br>(Note 1) | X 1.02 | V              |
| Input Voltage                 | $V_{IN}$                                              |                                                                                |        |                          | 18     | V              |
| Maximum Output Voltage        | $I_{OUT\_max}$                                        | $V_{IN} = V_{OUT} + 1V$                                                        | 250    |                          |        | mA             |
| Load Regulation               | $\Delta V_{OUT}$                                      | $V_{IN} = V_{OUT} + 1V$ ,<br>$1mA \leq I_{OUT} \leq 60mA$                      |        | 15                       | 40     | mV             |
| Dropout Voltage<br>(Note 3)   | $V_{dif}$                                             | $I_{OUT} = 40mA$                                                               |        | 70                       |        | mV             |
| Supply Current                | $I_{SS}$                                              | $V_{IN} = V_{OUT} + 1V$                                                        |        | 3                        | 4      | $\mu A$        |
| Line Regulations              | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | $I_{OUT} = 40mA$<br>$V_{OUT} + 1V \leq V_{IN} \leq 18V$                        |        | 0.1                      | 0.2    | %/V            |
| $\Delta V_{OUT} / \Delta T_a$ | Temperature<br>Coefficient                            | $V_{IN} = V_{OUT} + 1V$ , $I_{OUT} = 40mA$<br>$-40^\circ C < T_a < 85^\circ C$ |        | $\pm 0.7$                |        | mV/ $^\circ C$ |

Note :

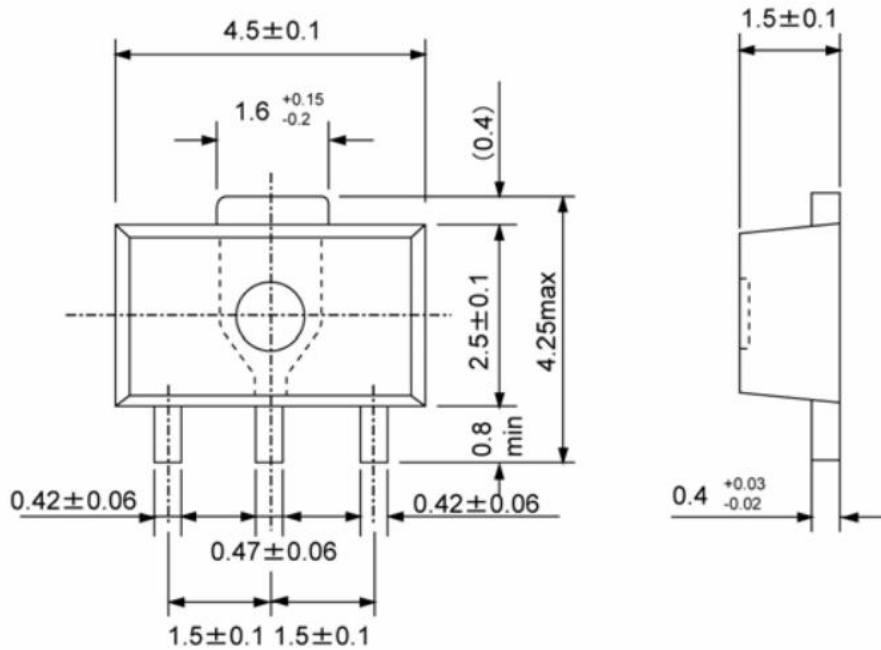
- $V_{OUT}(T)$  : Specified Output Voltage
- $V_{OUT}(E)$  : Effective Output Voltage ( ie. The output voltage when " $V_{OUT}(T) + 1.0V$ " is provided at the Vin pin while maintaining a certain  $I_{OUT}$  value.)
- $V_{DIF} = V_{IN1} - V_{OUT}(E)$   
 $V_{IN1}$  : The input voltage when  $V_{OUT}(E)$  appears as input voltage is gradually decreased.  
 $V_{OUT}(E)$  : A voltage equal to 98% of the output voltage whenever an amply stabilized  $I_{OUT}$  and  $\{V_{OUT}(T) + 1.0V\}$  is input.

## Packaging Information:

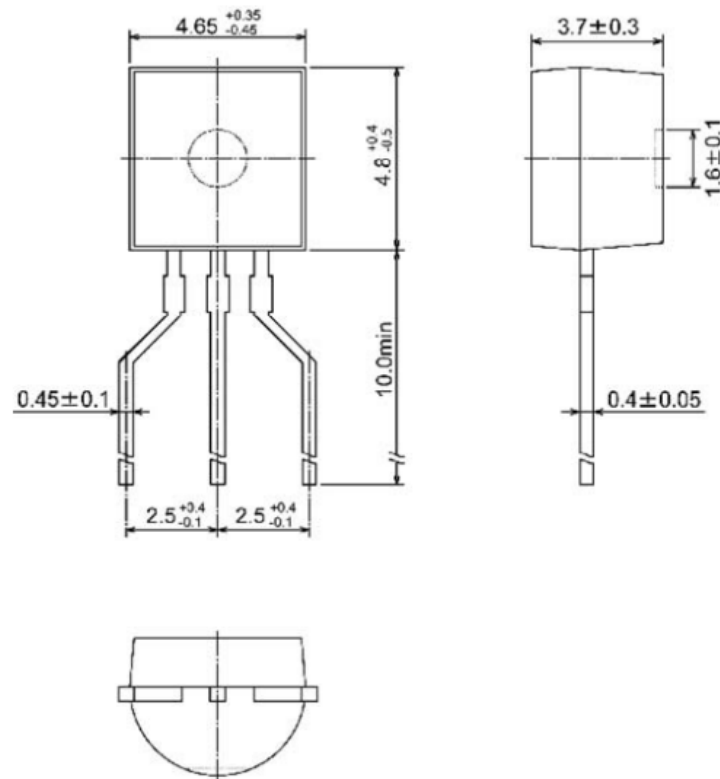
### ● SOT23-3



### ● SOT89-3



● TO-92





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