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# KA34063A

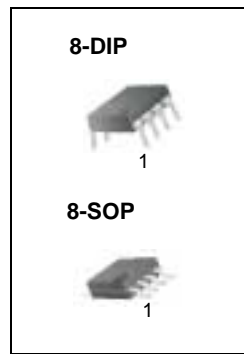
## SMPS Controller

### Features

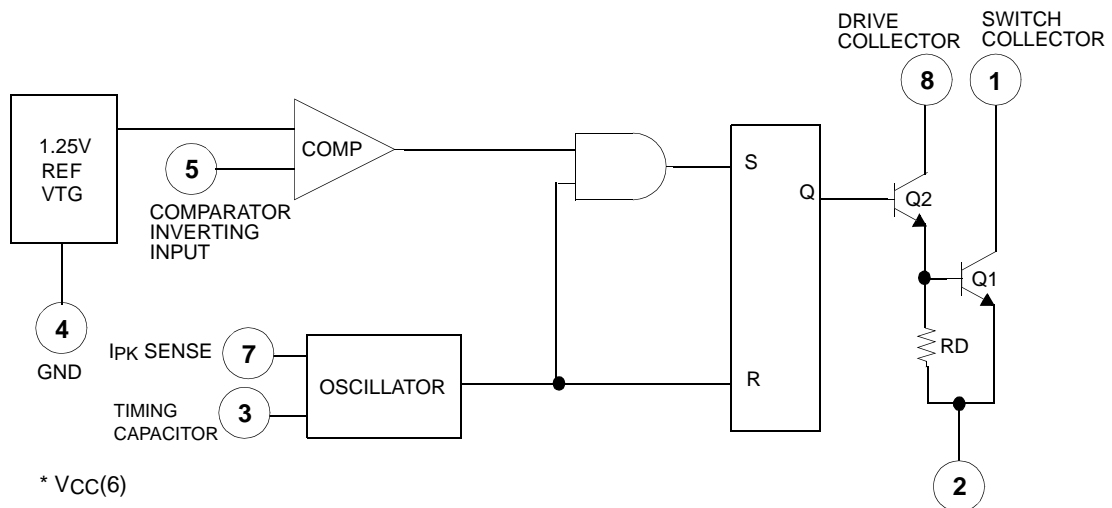
- Operation From 3.0 to 40V Input
- Short Circuit Current Limiting
- Low Stand-by Current
- Output Switch Current of 1.5A Without External Transistors
- Output Voltage Adjustable
- Frequency of Operation From 100Hz to 100kHz
- Step-up, Step-Down or Inverting Switching Regulators

### Description

The KA34063A is a monolithic regulator sub system intended for use as DC to DC converter. This device contains a temperature compensated bandgap reference, a duty cycle control oscillator, a driver, and a high current output switch. It can be used for step down, step up or inverting switching regulators as well as for series pass regulators.



### Internal Block Diagram



## Absolute Maximum Ratings

| Parameter                           | Symbol   | Value      | Unit |
|-------------------------------------|----------|------------|------|
| Supply Voltage                      | VCC      | 40         | V    |
| Comparator Input Voltage Range      | VI(COMP) | -0.3 ~ +40 | V    |
| Switch Collector Voltage            | VC(SW)   | 40         | V    |
| Switch Emitter Voltage              | VE(SW)   | 40         | V    |
| Switch Collector To Emitter Voltage | VCE(SW)  | 40         | V    |
| Driver Collector Voltage            | VC(DR)   | 40         | V    |
| Switch Current                      | ISW      | 1.5        | A    |
| Storage Temperature Range           | TSTG     | -65 ~ +150 | °C   |

## Electrical Characteristics

(VCC = 5.0V, TA = 0°C to +70°C, unless otherwise specified)

| Parameter                           | Symbol      | Conditions   | Min. | Typ. | Max. | Unit |
|-------------------------------------|-------------|--|------|------|------|------|
| <b>OSCILLATOR</b>                   |             |  |      |      |      |      |
| Charging Current                    | ICHG        | VCC = 5 to 40V, TA = 25°C  | 22   | 31   | 42   | μA   |
| Discharging Current                 | IDISCHG     | VCC = 5 to 40V, TA = 25°C  | 140  | 190  | 260  | μA   |
| Oscillator Amplitude                | V(OSC)      | TA = 25°C  |      | 0.5  | -    | V    |
| Discharge to Charge Current Ratio   | K           | V7 = VCC, TA = 25°C  | 5.2  | 6.1  | 7.5  | -    |
| Current Limit Sense Voltage         | VSENSE(C.L) | ICHG = IDISCHG<br>TA = 25°C                                      | 250  | 300  | 350  | mV   |
| <b>OUTPUT SWITCH</b>                |             |  |      |      |      |      |
| Saturation Voltage 1 (Note1)        | VCE(SAT)1   | ISW = 1.0A<br>VC(driver) = VC(SW)                                | -    | 0.95 | 1.3  | V    |
| Saturation Voltage 2 (Note1,2)      | VCE(SAT)2   | ISW = 1.0A,<br>VC(driver) = 50mA                                 | -    | 0.45 | 0.7  | V    |
| DC Current Gain (Note1,2)           | GI(DC)      | ISW = 1.0A,<br>VCE = 5.0V, TA = 25°C                             | 50   | 180  | -    | -    |
| Collector off State Current (Note1) | IC(OFF)     | VCE = 40V, TA = 25°C   | -    | 0.01 | 100  | μA   |
| <b>COMPARATOR</b>                   |             |  |      |      |      |      |
| Threshold Voltage                   | VTH         | -  | 1.21 | 1.24 | 1.29 | V    |
| Threshold Voltage Line Regulation   | ΔVTH        | VCC = 3 to 40V   | -    | 2.0  | 5.0  | mV   |
| Input Bias Current                  | IBIAS       | VI = 0V  | -    | 50   | 400  | nA   |
| <b>TOTAL DEVICE</b>                 |             |  |      |      |      |      |
| Supply Current                      | ICC         | VCC = 5 to 40V, CT = 0.001μF<br>V7 = VCC, V5 > VTH<br>pin2 = GND | -    | 2.7  | 4.0  | mA   |

### Note :

- Output switch tests are performed under pulsed conditions to minimize power dissipation.
- These parameters, although guaranteed, are not 100% tested in production.

## Typical Performance Characteristics

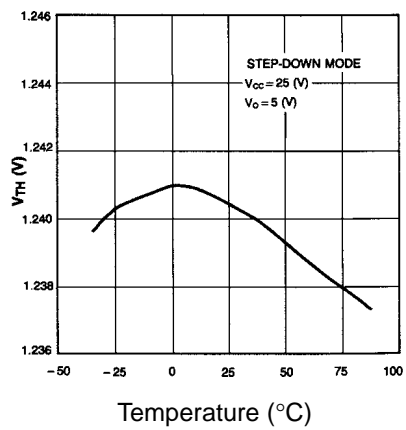


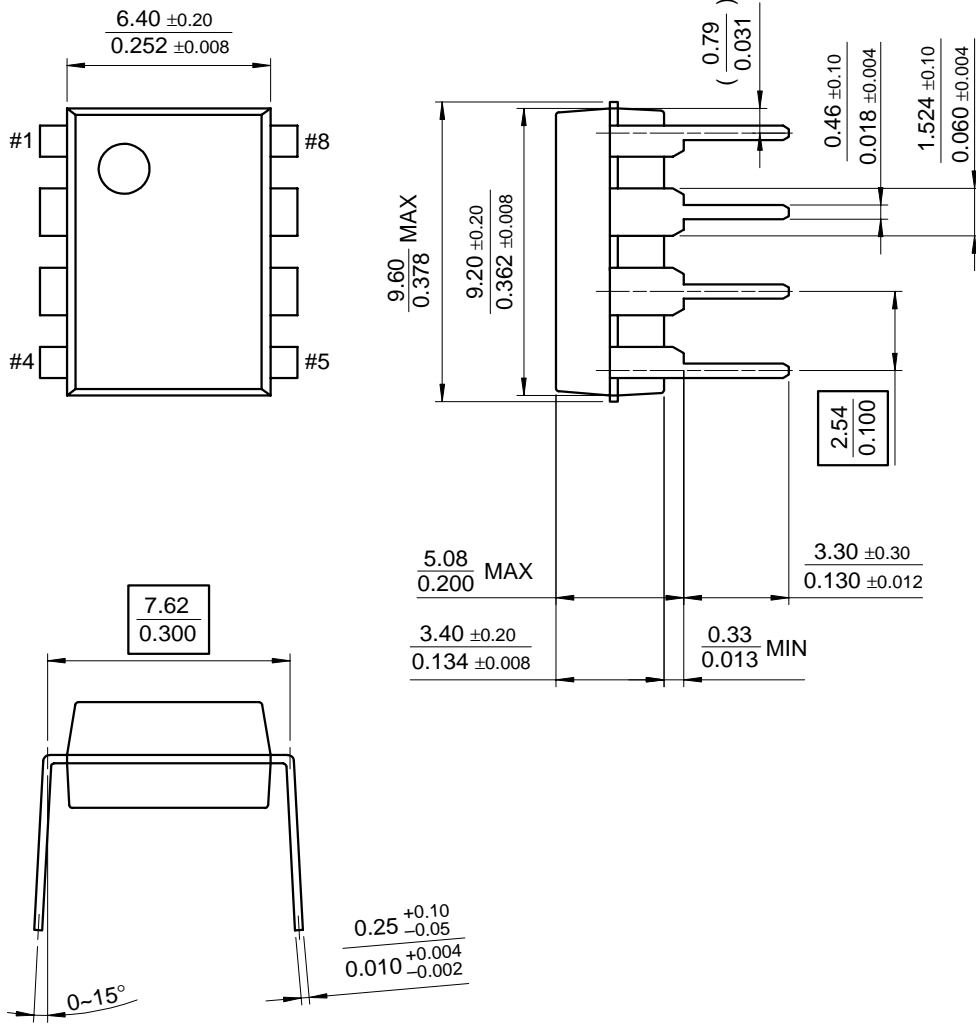
Figure 1. Temperature Drift ( $V_{TH}$ )

# Mechanical Dimensions

## Package

Dimensions in millimeters

### 8-DIP

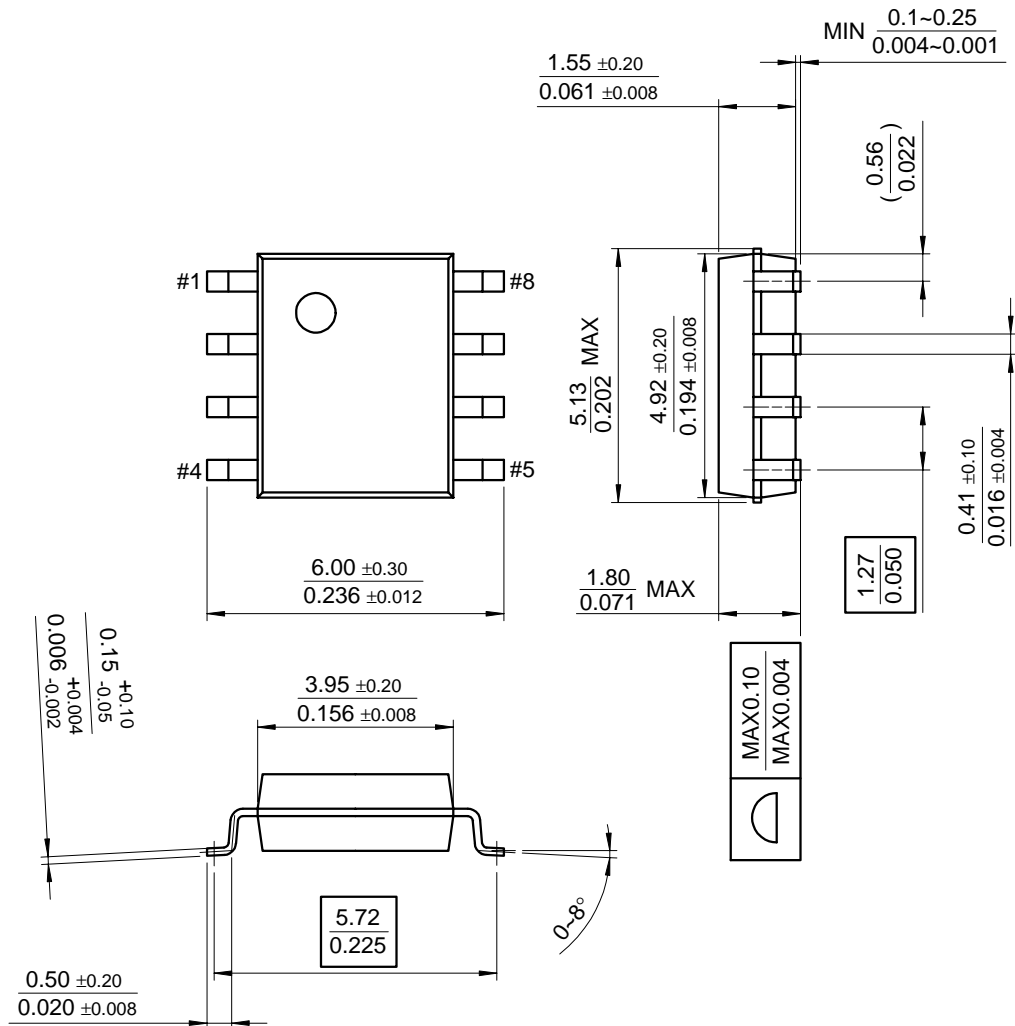


# Mechanical Dimensions (Continued)

Package

Dimensions in millimeters

## 8-SOP



## Ordering Information

| Product Number | Package | Operating Temperature |
|----------------|---------|-----------------------|
| KA34063A       | 8-DIP   | 0 ~ +70°C             |
| KA34063AD      | 8-SOP   |                       |

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