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KA34063A

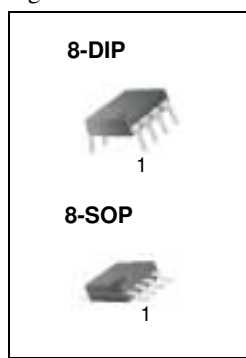
SMPS Controller

Features

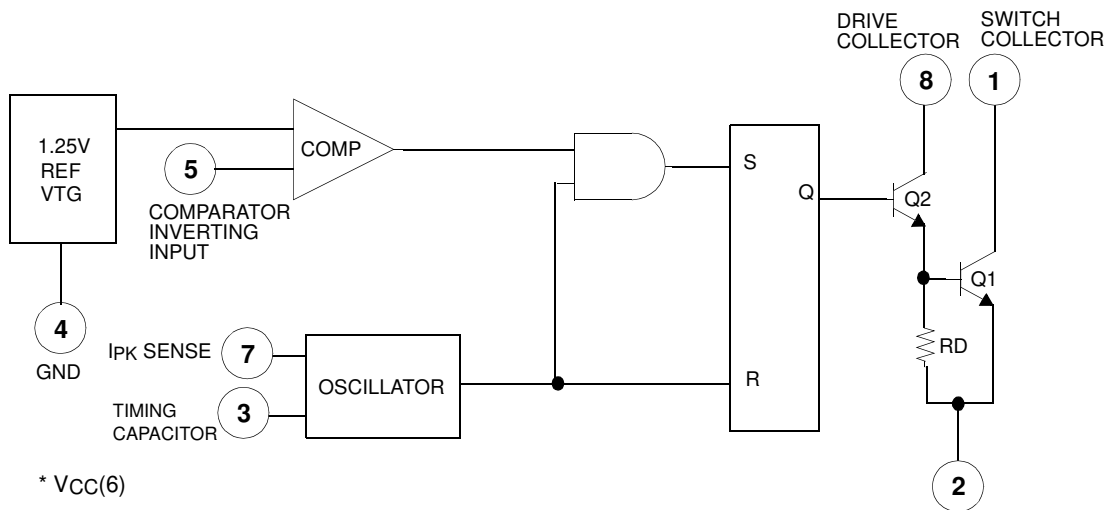
- Operation From 3.0 to 40V Input
- Short Circuit Current Limiting
- Low Stand-by Current
- Output Switch Current of 1.5A Without External Transistors
- Output Voltage Adjustable
- Frequency of Operation From 100Hz to 100kHz
- Step-up, Step-Down or Inverting Switching Regulators

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 | V _{CC} | 40 | V |
| Comparator Input Voltage Range | V _I (COMP) | -0.3 ~ +40 | V |
| Switch Collector Voltage | V _C (SW) | 40 | V |
| Switch Emitter Voltage | V _E (SW) | 40 | V |
| Switch Collector To Emitter Voltage | V _{CE} (SW) | 40 | V |
| Driver Collector Voltage | V _C (DR) | 40 | V |
| Switch Current | I _{SW} | 1.5 | A |
| Storage Temperature Range | T _{STG} | -65 ~ +150 | °C |

Electrical Characteristics

(V_{CC} = 5.0V, T_A = 0°C to +70°C, unless otherwise specified)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------------|--------------------------|---|------|------|------|------|
| OSCILLATOR | | | | | | |
| Charging Current | I _{CHG} | V _{CC} = 5 to 40V, T _A = 25°C | 22 | 31 | 42 | μA |
| Discharging Current | I _{DISCHG} | V _{CC} = 5 to 40V, T _A = 25°C | 140 | 190 | 260 | μA |
| Oscillator Amplitude | V(OSC) | T _A = 25°C | | 0.5 | - | V |
| Discharge to Charge Current Ratio | K | V ₇ = V _{CC} , T _A = 25°C | 5.2 | 6.1 | 7.5 | - |
| Current Limit Sense Voltage | V _{SENSE} (C.L) | I _{CHG} = I _{DISCHG} T _A = 25°C | 250 | 300 | 350 | mV |
| OUTPUT SWITCH | | | | | | |
| Saturation Voltage 1 (Note1) | V _{CE} (SAT)1 | I _{SW} = 1.0A V _C (driver) = V _C (SW) | - | 0.95 | 1.3 | V |
| Saturation Voltage 2 (Note1,2) | V _{CE} (SAT)2 | I _{SW} = 1.0A, V _C (driver) = 50mA | - | 0.45 | 0.7 | V |
| DC Current Gain (Note1,2) | G _I (DC) | I _{SW} = 1.0A, V _{CE} = 5.0V, T _A = 25°C | 50 | 180 | - | - |
| Collector off State Current (Note1) | I _C (OFF) | V _{CE} = 40V, T _A = 25°C | - | 0.01 | 100 | μA |
| COMPARATOR | | | | | | |
| Threshold Voltage | V _{TH} | - | 1.21 | 1.24 | 1.29 | V |
| Threshold Voltage Line Regulation | ΔV _{TH} | V _{CC} = 3 to 40V | - | 2.0 | 5.0 | mV |
| Input Bias Current | I _{BIAS} | V _I = 0V | - | 50 | 400 | nA |
| TOTAL DEVICE | | | | | | |
| Supply Current | I _{CC} | V _{CC} = 5 to 40V, C _T = 0.001μF V ₇ = V _{CC} , V ₅ > V _{TH} pin2 = GND | - | 2.7 | 4.0 | mA |

Note :

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

Typical Performance Characteristics

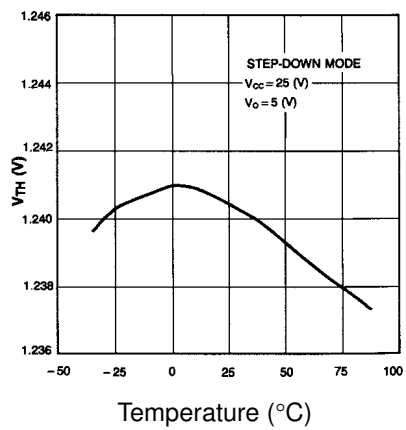


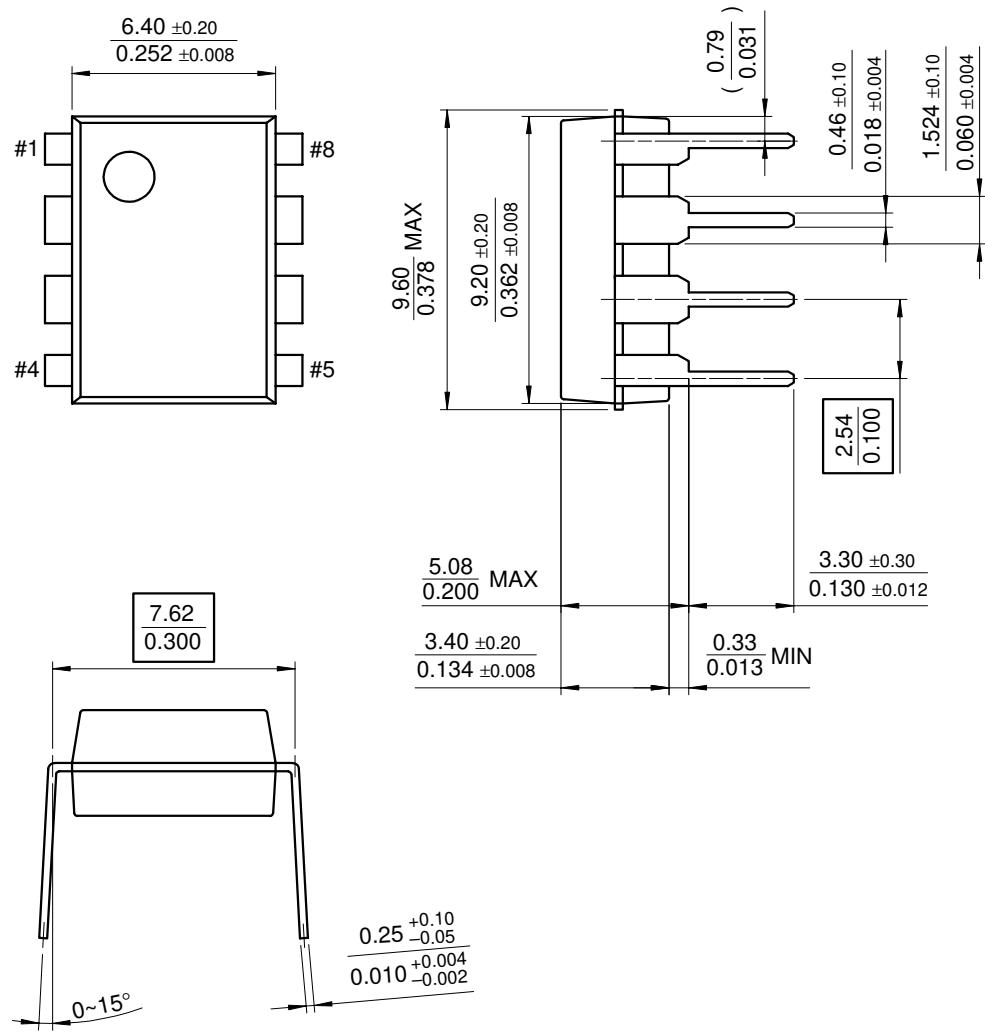
Figure 1. Temperature Drift (V_{TH})

Mechanical Dimensions

Package

Dimensions in millimeters

8-DIP



Ordering Information

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

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