

KA34063A

SMPS Controller

Features

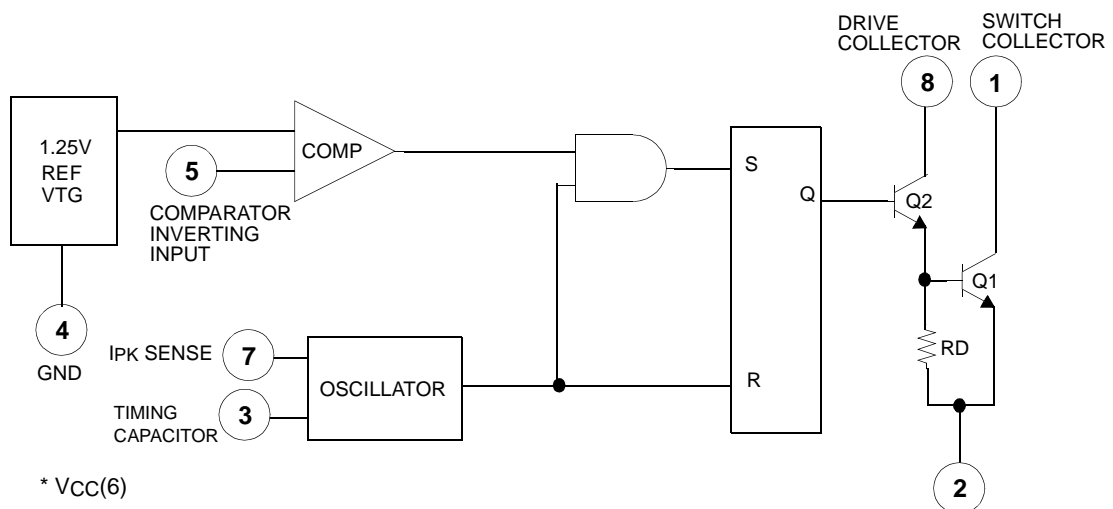
- Operation From 3.0 to 40V Input
- Short Circuit Current Limiting
- Low Stand-by Current
- Output Switch Current of 1.5A Without External Transistors
- Output Voltage Adjustable
- Frequency of Operation From 100Hz to 100kHz
- Step-up, Step-Down or Inverting Switching Regulators

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

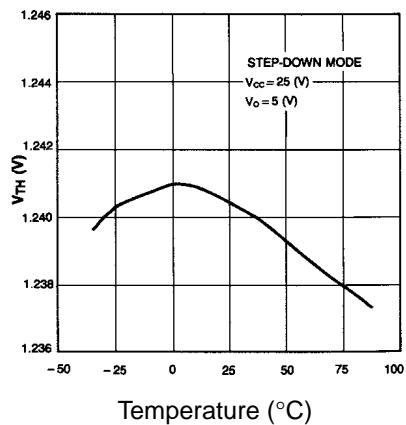


Figure 1. Temperature Drift (V_{TH})

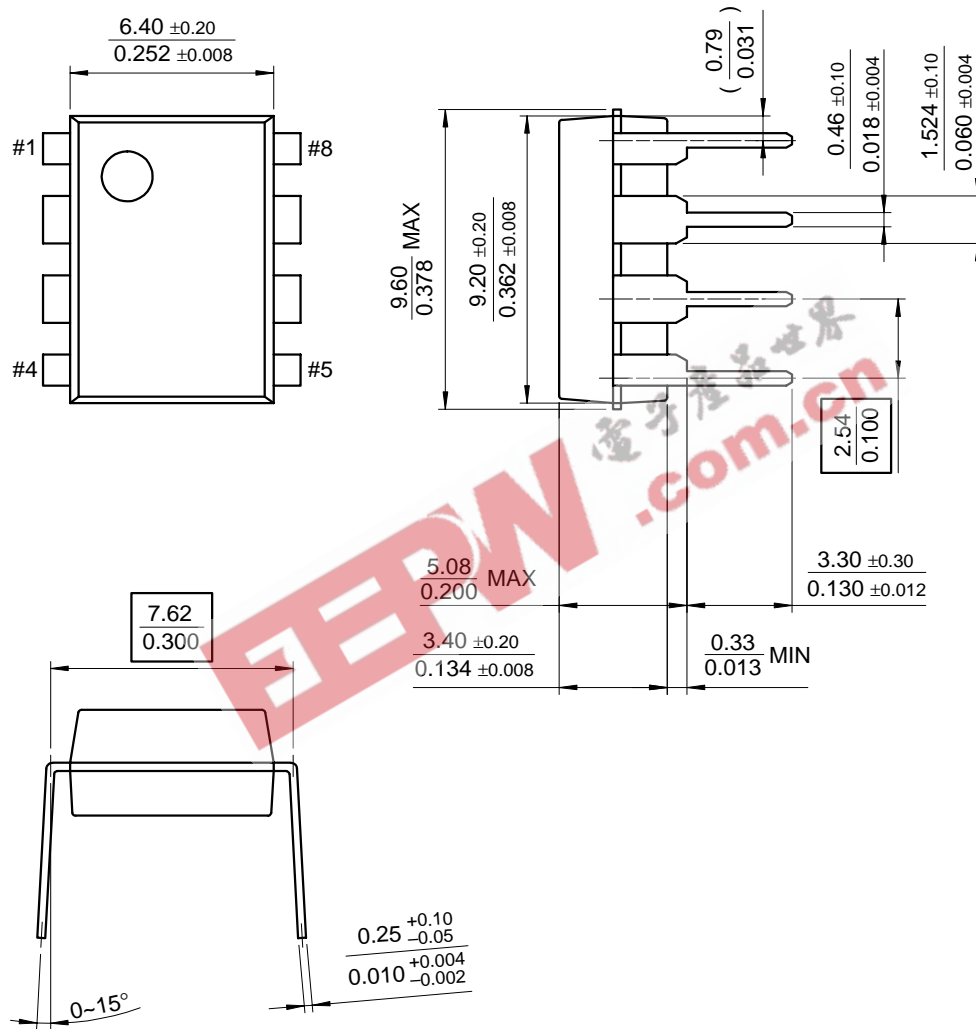
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Mechanical Dimensions

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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