

AIRCHILD

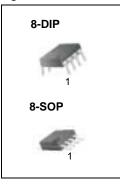
SEMICONDUCTOR®

Features

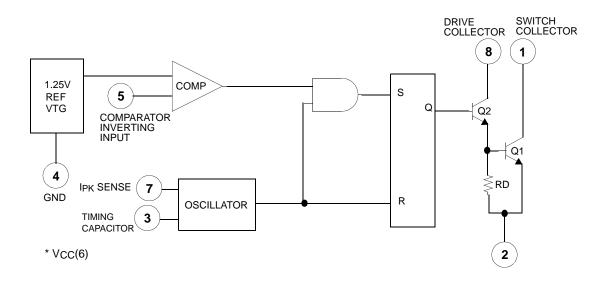
- Operation From 3.0 to 40V Input
- Short Circuit Current Limiting
- Low Stand-by Current
- Output Switch Current of 1.5A Without External Transistors
- Output Voltage Adjustable
- Frequency of Operation From 100Hz to 100kHz
- Step-up, Step-Down or Inverting Switching Regulators

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)

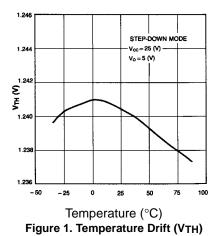
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit	
OSCILLATOR							
Charging Current	ICHG	$V_{CC} = 5 \text{ to } 40V, T_{A} = 25^{\circ}C$	22	31	42	μΑ	
Discharging Current	IDISCHG	$V_{CC} = 5 \text{ to } 40V, T_A = 25^{\circ}C$	140	190	260	μΑ	
Oscillator Amplitude	V(OSC)	$T_A = 25^{\circ}C$		0.5	-	V	
Discharge to Charge Current Ratio	К	V7 = V _{CC} , T _A = 25°C	5.2	6.1	7.5	-	
Current Limit Sense Voltage	VSENSE(C.L)	ICHG = IDISCHG T _A = 25° C	250	300	350	mV	
OUTPUT SWITCH							
Saturation Voltage 1 (Note1)	VCE(SAT)1	I _{SW} = 1.0A V _C (driver) = V _C (SW)	-	0.95	1.3	V	
Saturation Voltage 2 (Note1,2)	VCE(SAT)2	I _{SW} = 1.0A, V _C (driver) = 50mA	-	0.45	0.7	V	
DC Current Gain (Note1,2)	GI(DC)	I _{SW} = 1.0A, V _{CE} = 5.0V, T _A = 25°C	50	180	-	-	
Collector off State Current (Note1)	IC(OFF)	VCE = 40V, TA = 25°C	-	0.01	100	μA	
COMPARATOR							
Threshold Voltage	Vth	-	1.21	1.24	1.29	V	
Threshold Voltage Line Regulation	ΔVτη	VCC = 3 to 40V	-	2.0	5.0	mV	
Input Bias Current	IBIAS	$V_I = 0V$	-	50	400	nA	
TOTAL DEVICE							
Supply Current	ICC	V _{CC} = 5 to 40V, C _T = 0.001uF 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.

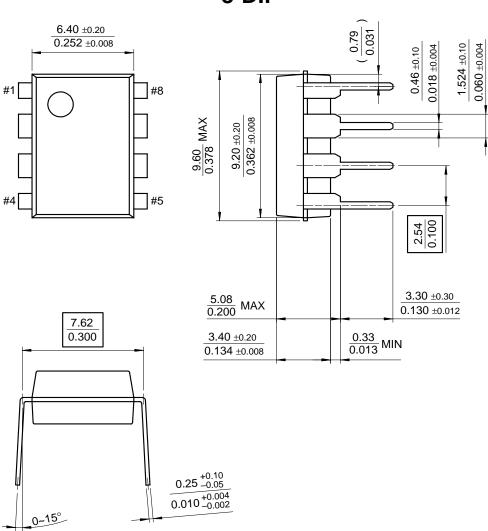




Mechanical Dimensions

Package

Dimensions in millimeters



8-DIP

Mechanical Dimensions (Continued)

Package



8-SOP MIN <u>0.1~0.25</u> 0.004~0.001 1.55 ± 0.20 0.061 ±0.008 0.56 #8 #1 🔲 \bigcirc $\frac{4.92 \pm 0.20}{0.194 \pm 0.008}$ MAX 5.13 0.202 $\begin{array}{c} 0.41 \pm \! 0.10 \\ 0.016 \pm \! 0.004 \end{array}$ #4 🗖 #5 1.27 0.050 6.00 ±0.30 <u>1.80</u> 0.071 MAX $\overline{0.236 \pm 0.012}$ 0.15 -0.05 0.006 -0.004 MAX0.10 MAX0.004 3.95 ±0.20 0.156 ± 0.008 000 5.72 0.225 0.50 ± 0.20 $\overline{0.020 \pm 0.008}$

Ordering Information

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

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