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ON Semiconductor®

Energy Efficient Innovations

Product Overview

MC34063A: Buck / Boost / Inverting Regulator, Switching, 1.5 A

For complete documentation, see the data sheet.

The MC34063A Series is a monolithic control circuit containing the primary functions required for dc-to-dc converters. These Buck Boost Inverting Switching Regulators consist of an internal temperature compensated reference, comparator, controlled duty cycle oscillator with an active current limit circuit, driver and high current output switch. This series was specifically designed to be incorporated in Step down (Buck), Step up (Boost) and Voltage-Inverting applications with a minimum number of external components. Refer to Application Notes AN920A/D and AN954/D for additional design information. The MC33063 is an extended temperature version. The NCV33063 is an extended temp version for automotive.

Features

- Operation from 3.0 V to 40 V Input
- Low Standby Current
- Current Limiting
- Output Switch Current to 1.5 A
- Output Voltage Adjustable
- Frequency Operation to 100 kHz
- Precision 2% Reference
- 4x4mm DFN package option
- MC34063A = 0 to +70degC
- MC33063A = -40 to +85degC

  For more features, see the data sheet

Benefits

- Wide input voltage range usable for many applications
- <100uA Collector Off-State Current
- Adjustable current limit provides improved protection
- Large 1.5A peak current capability provides up to ~1A of average current output
- External resistor divider for various output voltage options
- Optimize frequency for size or efficiency
- Accurate system level performance
- Exposed pad package allows for higher output current and improved thermal performance

Applications

- For Higher Switching Frequency See NCP3063
- For Dedicated ENABLE Pin and Higher Switching Frequency See NCP3064
- Fan Controller
- DC-DC Power Supply
- For DFN package see MC33063MNTXG

End Products

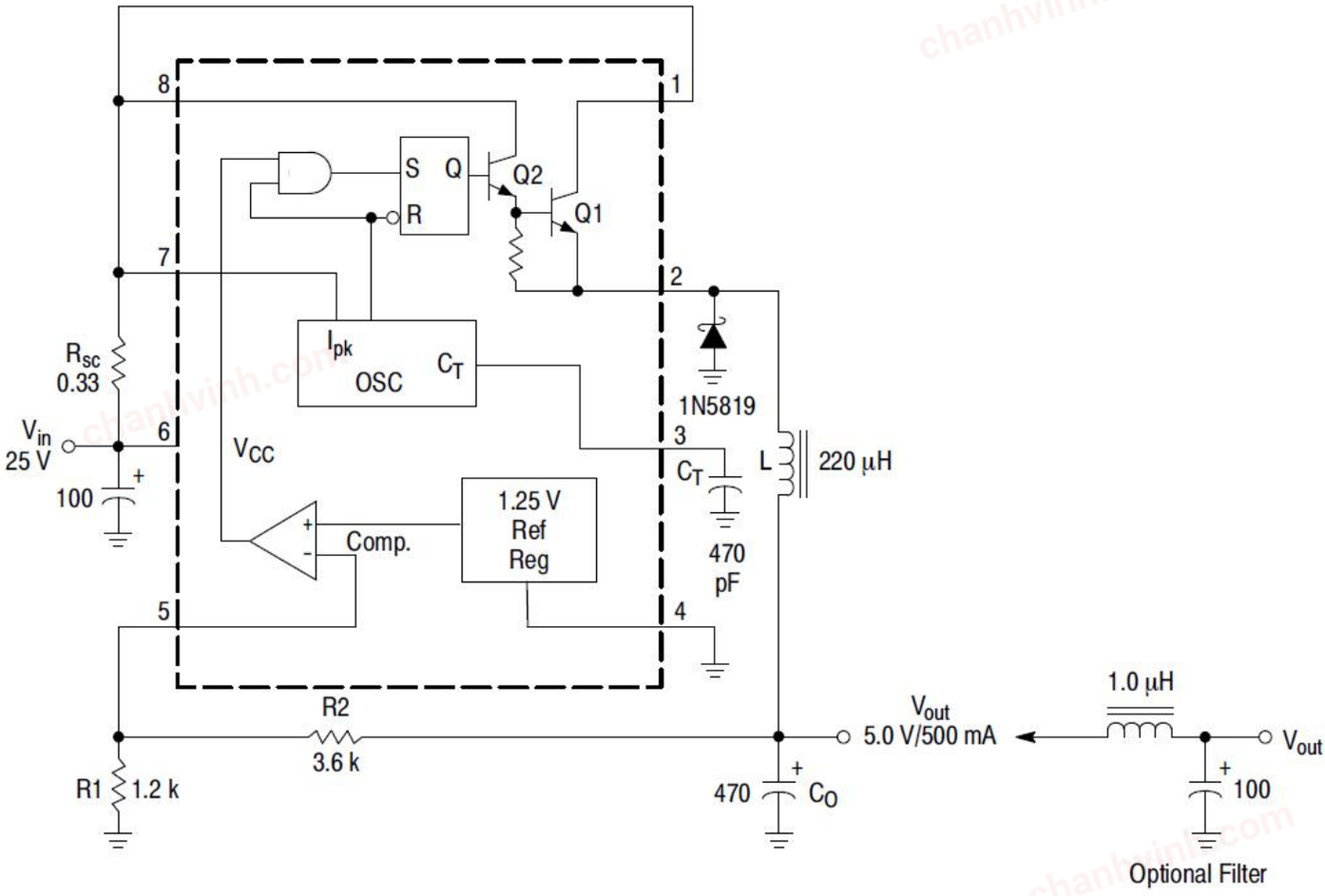
- Cigarette Lighter Adapter (CLA)
- Power Supply

Part Electrical Specifications

Product	Compliance	Status	Topology	Control Mode	V_{CC} Min (V)	V_{CC} Max (V)	V_O Typ (V)	I_O Typ (A)	Efficiency (%)	f_{SW} Typ (kHz)	Package Type
MC34063ADG	Pb-free Halide free	Active	Step-Up/Step-Down Step-Down Step-Up	Voltage Mode	3	40	1.25 to 40	1.5		100	SOIC-8
MC34063ADR2G	Pb-free Halide free	Active	Step-Up Step-Up/Step-Down Step-Down	Voltage Mode	3	40	1.25 to 40	1.5		100	SOIC-8
MC34063AP1G	Pb-free Halide free	Active	Step-Up/Step-Down Step-Down Step-Up	Voltage Mode	3	40	1.25 to 40	1.5		100	PDIP-8

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Application Diagram



Test	Conditions	Results
Line Regulation	V_{in} = 15 V to 25 V, I_O = 500 mA	12 mV = ±0.12%
Load Regulation	V_{in} = 25 V, I_O = 50 mA to 500 mA	3.0 mV = ±0.03%
Output Ripple	V_{in} = 25 V, I_O = 500 mA	120 mVpp
Short Circuit Current	V_{in} = 25 V, R_L = 0.1 Ω	1.1 A
Efficiency	V_{in} = 25 V, I_O = 500 mA	83.7%
Output Ripple With Optional Filter	V_{in} = 25 V, I_O = 500 mA	40 mVpp

Figure 11. Step−Down Converter

For more information please contact your local sales support at www.onsemi.com.
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