

## 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

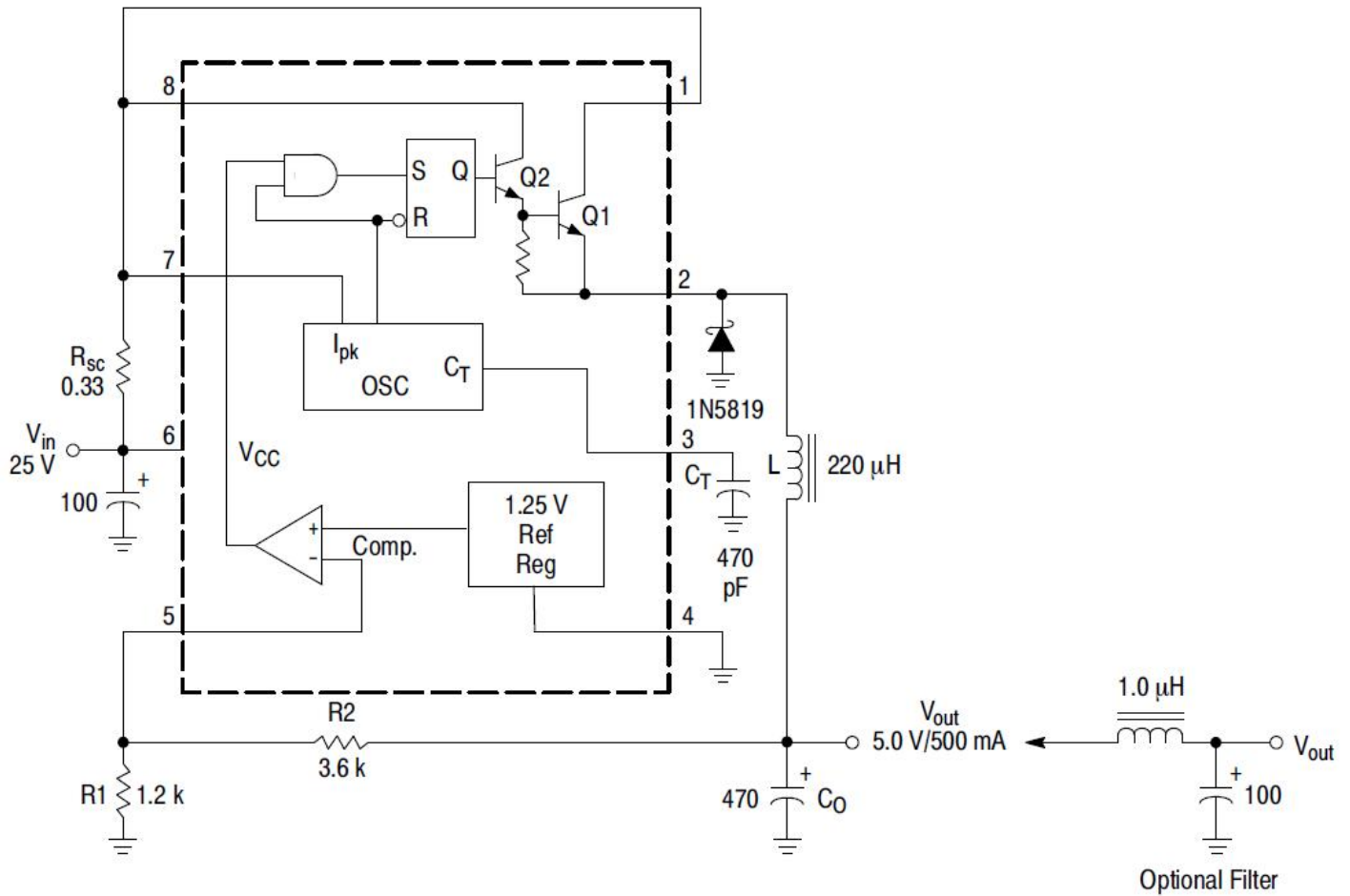
#### End Products

- Cigarette Lighter Adapter (CLA)
- Power Supply

### Part Electrical Specifications

| Product      | Compliance             | Status | Topology          | Control Mode | V <sub>oc</sub> Min (V) | V <sub>oc</sub> Max (V) | V <sub>o</sub> Typ (V) | I <sub>o</sub> Typ (A) | Efficiency (%) | f <sub>sw</sub> Typ (kHz) | Package Type |
|--------------|------------------------|--------|-------------------|--------------|-------------------------|-------------------------|------------------------|------------------------|----------------|---------------------------|--------------|
| MC34063ADG   | Pb-free<br>Halide free | Active | Step-Up/Step-Down | Voltage Mode | 3                       | 40                      | 1.25 to 40             | 1.5                    |                | 100                       | SOIC-8       |
|              |                        |        | Step-Down         |              |                         |                         |                        |                        |                |                           |              |
|              |                        |        | Step-Up           |              |                         |                         |                        |                        |                |                           |              |
| MC34063ADR2G | Pb-free<br>Halide free | Active | Step-Up           | Voltage Mode | 3                       | 40                      | 1.25 to 40             | 1.5                    |                | 100                       | SOIC-8       |
|              |                        |        | Step-Up/Step-Down |              |                         |                         |                        |                        |                |                           |              |
|              |                        |        | Step-Down         |              |                         |                         |                        |                        |                |                           |              |
| MC34063AP1G  | Pb-free<br>Halide free | Active | Step-Up/Step-Down | Voltage Mode | 3                       | 40                      | 1.25 to 40             | 1.5                    |                | 100                       | PDIP-8       |
|              |                        |        | Step-Down         |              |                         |                         |                        |                        |                |                           |              |
|              |                        |        | Step-Up           |              |                         |                         |                        |                        |                |                           |              |

## Application Diagram



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

**Figure 11. Step-Down Converter**

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

Created on: 6/18/2019