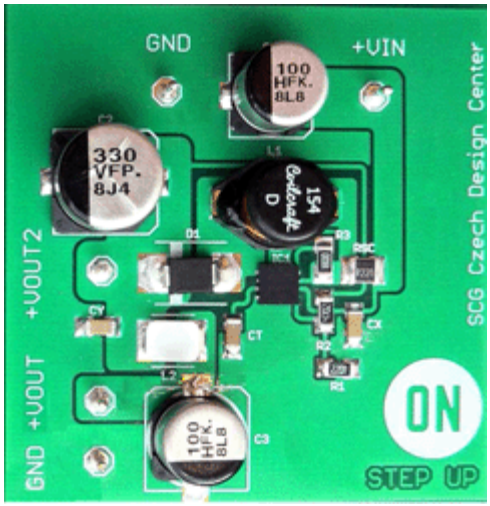
Monolithic Control Circuit Evaluation Board

Part Number: MC33063DFBSTGEVB

ON Semiconductor



Evaluation/Development Tool Description

The MC34063A Series is a monolithic control circuit containing the primary functions required for DC-to-DC converters. These devices 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 and Step-Up and Voltage-Inverting applications with a minimum number of external components. Refer to Application Note AN920/D for additional design information. The excel spread sheet for thermal considerations is available too. The MC33063 is an extended temperature version. The NCV33063 is an extended temp version for automotive. The one layer demoboard in step down topology contend additional output filter. Size of demoboard: 50 x 50 mm

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
- Pb-Free Packages are Available

Applications

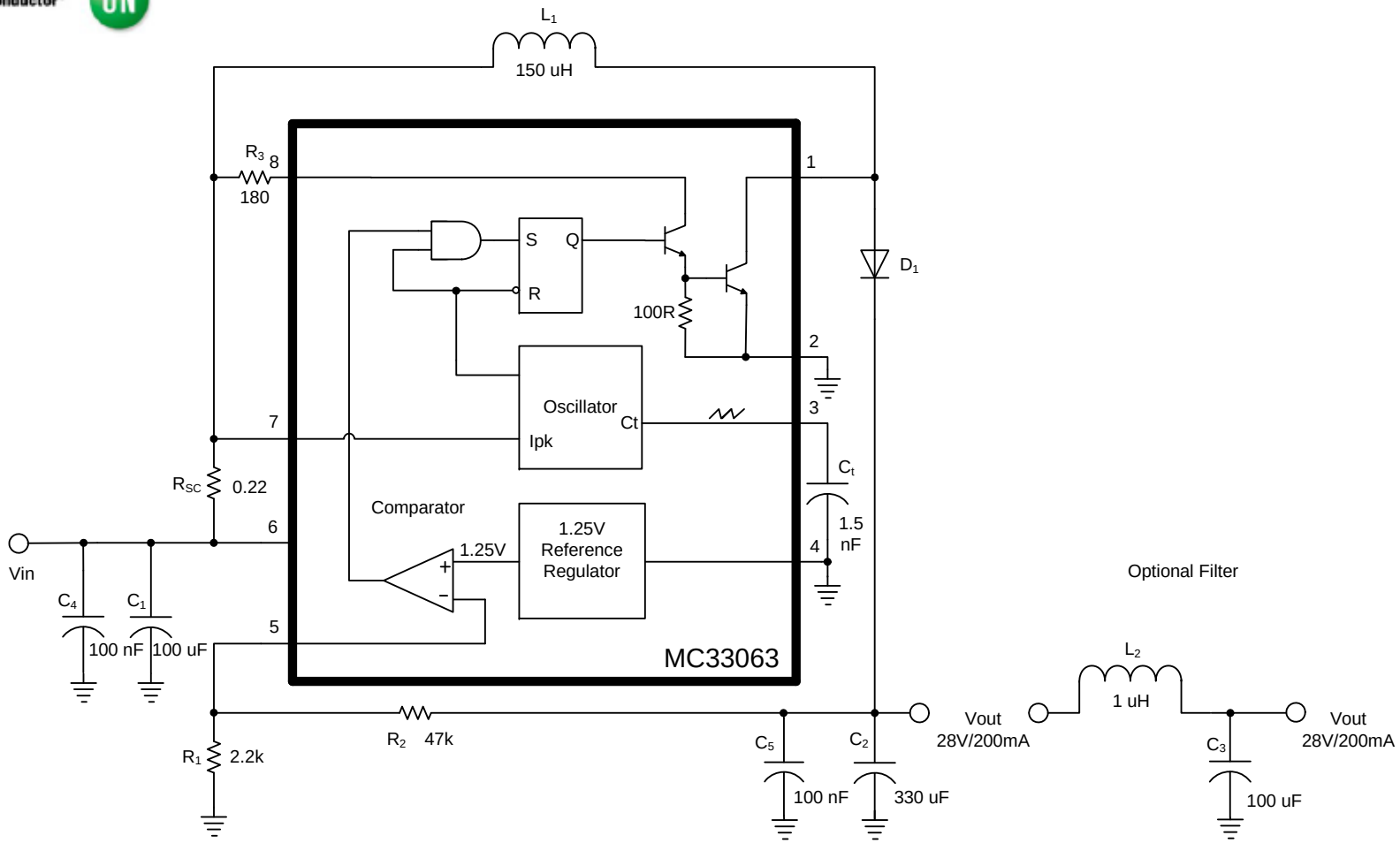
- High Power LED Lighting
- Battery Chargers

ON Semiconductor

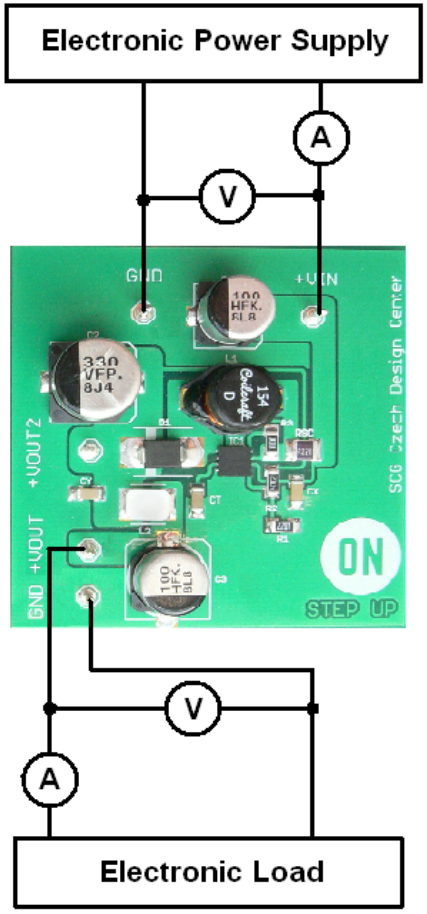
Bill of Materials for the MC33063 Boost DFN Demo Board

Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
R1	1	Resistor	2k2	1%	1206	ROHM	MCR18EZPF2201	Yes	Yes
R2	1	Resisitor	47k0	1%	1206	ROHM	MCR18EZPF4702	Yes	Yes
R3	1	Resisitor	180R	1%	1206	ROHM	MCR18EZPF1800	Yes	Yes
RSC	1	Resistor	0R22	5%	1210	PANASONIC	ERJ-14RQJR22U	Yes	Yes
C1, C3	2	Capacitor	100 uF/50 V	20%	F	PANASONIC	EEEFK1H101P	Yes	Yes
C2	1	capacitor	330 uF/35 V	20%	G	PANASONIC	EEEFP1V331AP	Yes	Yes
C4, C5	2	Capacitor	100 nF	10%	1206	KEMET	C1206C104K5RACTU	Yes	Yes
CT	1	Capacitor	1.5 nF	10%	1206	KEMET	C1206C152K5RACTU	Yes	Yes
IC1	1	Switching regulator	MC33063		DFN	ON Semiconductor	MC33063MNTXG	No	Yes
D1	1	Diode	MBRS260	-	SMB	ON Semiconductor	MBRS260T3G	No	Yes
L1	1	Inductor	150 uH	-	DO3340P	CoilCraft	DO3340P-154MLB	Yes	Yes
L2	1	Inductor	1 uH	-	DO1605T	CoilCraft	DO1605T-102MLB	Yes	Yes
Pin	5	Pin 1.3mm	-	-	1.3mm	Various	Various	Yes	Yes

Schematic for MC33063 (DFN) step up demoboard



Test procedure for MC33063 (DFN) step up demoboard



Test Procedure:

1. **Connect the test setup as shown in Figure .**
2. **Apply an input voltage, Vcc = 12V**
3. **Apply Iout = 0mA load.**
4. **Check that Vout is 28Vdc (27.72V – 28.28V)**
5. **Increase Iout load up to 200mA**
6. **Check that Vout is 28V**
7. **Power down the load**
8. **Power down Vcc**
9. **End of test**