



R&E International

A Subsidiary of Microchip Technology Inc.

RE46C117

DC to DC Converter and Piezoelectric Horn Driver
Product Specification

General Description

The RE46C117 is intended for use in 3V or 4.5V battery or battery-backed applications. The circuit features a DC-to-DC up-converter and driver circuit suitable for driving a piezoelectric horn

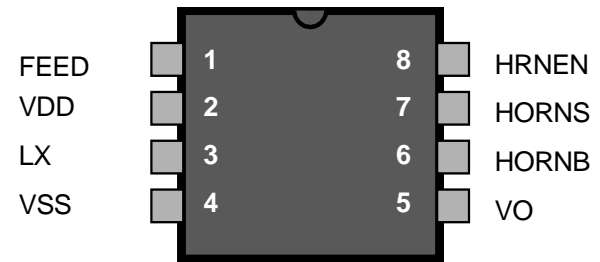
Applications

Smoke detectors
CO Detectors
Personal Security Products
Electronic Toys

Features

- Low Quiescent Current
- 10V Up Converter
- Low Horn Driver Ron
- Available in Standard Packaging or RoHS Compliant Pb Free Packaging

Pin Configuration



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNITS
Supply Voltage	V_{DD}	5	V
Output Voltage	V_{OUT}	12	V
Input Voltage Range Except FEED	V_{in}	$-.3$ to $V_{dd}+.3$	V
FEED Input Voltage Range	V_{infd}	-10 to $+22$	V
Input Current except FEED	I_{in}	10	mA
Operating Temperature	T_A	0 to 50	°C
Storage Temperature	T_{STG}	-55 to 125	°C
Continuous Operating Current (HornS, HornB, VO)	I_O	40	mA

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only and operation at these conditions for extended periods may affect device reliability.

This product utilizes CMOS technology with static protection; however proper ESD prevention procedures should be used when handling this product. Damage can occur when exposed to extremely high static electrical charge

RE46C117

DC to DC Converter and Piezoelectric Horn Driver
Product Specification



R&E International
A Subsidiary of Microchip Technology Inc.

Electrical Characteristics

Limits apply at $V_{dd}=3V$, $V_{ss}=0V$, $C_{vo}=10\mu F$, $T_A=0^{\circ}C$ to $50^{\circ}C$, unless otherwise noted.
Typical values are at $T_A=27^{\circ}C$.

Parameter	Symbol	Test Conditions	Limits			Units
			Min	Typ	Max	
Supply Voltage	Vdd	Operating	2.0	—	5.0	V
Standby Supply Current	Iddstby	HRNEN low; No loads; DC-DC Running	—	14	—	μA
Quiescent Supply Current	Iddq	HRNEN low; No loads; $VO=5V$; $V_{Ix}=0.5V$	—	7	10.5	μA
Quiescent Ivo	Ivoq	Same conditions as above for Iddq	—	4	7.5	μA
Input Leakage	Iin	HRNEN Input, $V_{in}=V_{DD}$ or V_{SS}	-100	—	100	nA
	Iihf	FEED=+22V; $VO=10V$	—	20	50	μA
	Iilf	FEED=-10V; $VO=10V$	-50	-15	—	μA
Input Voltage Low	Vil	HRNEN Input	—	—	1	V
Input Voltage High	Vih	HRNEN Input	2.3	—	—	V
Output Low Voltage	Vol1	HORNB or HORNS; $I_{out}=16mA$; $V_{dd}=3V$	—	.3	.5	V
Output High Voltage	Voh1	HORNB or HORNS; $VO=10V$; $I_{out}=-16mA$; $V_{dd}=HRNEN=3V$	9.5	9.7	—	V
VO Output Voltage	Vvo1	$V_{dd}=3V$; $HRNEN=3V$; $I_{out}=10mA$	8.5	10	11	V
	Vvo2	$V_{dd}=3V$; $HRNEN=0V$; $I_{out}=10mA$	3.5	4	4.4	V
VO Efficiency	Voeff1	$I_{load}=10mA$; $V_{dd}=3V$; $HRNEN=0V$	—	85	—	%
	Voeff2	$I_{load}=100\mu A$; $V_{dd}=3V$; $HRNEN=0V$	—	75	—	%
Brownout Threshold	Vobvt	Falling edge of VO	3.2	3.6	4.0	V

Notes on Electrical Characteristics:

- DC-DC converter in high boost mode (normal $VO=10V$) can draw current pulses of greater than 1 Amp and is therefore very sensitive to series resistance. Critical components of this resistance are the inductor DC resistance, the internal resistance of the battery and the resistance in the connections from the inductor to the battery, from the inductor to the LX pin and from the Vss2 pin to the battery. In order to function properly under full load at $V_{dd}=2V$, the total of the inductor and the interconnect resistances should not exceed 0.3 ohm. The internal battery resistance should be no more than 0.5 ohm and a low ESR capacitor of 10 μF or more should be connected in parallel with the battery to average current over the boost converter cycle.
- In the Electrical Characteristics Table, wherever a specific VO value is listed under test conditions, the VO is forced externally with the inductor disconnected and the DC-DC converter is not running.
- The brown-out threshold voltage is the VO voltage at which the horn will be disabled.
- The limits shown are 100% tested at 25C only. Test limits are guard-banded based on temperature characterization to guarantee compliance at temperature extremes.

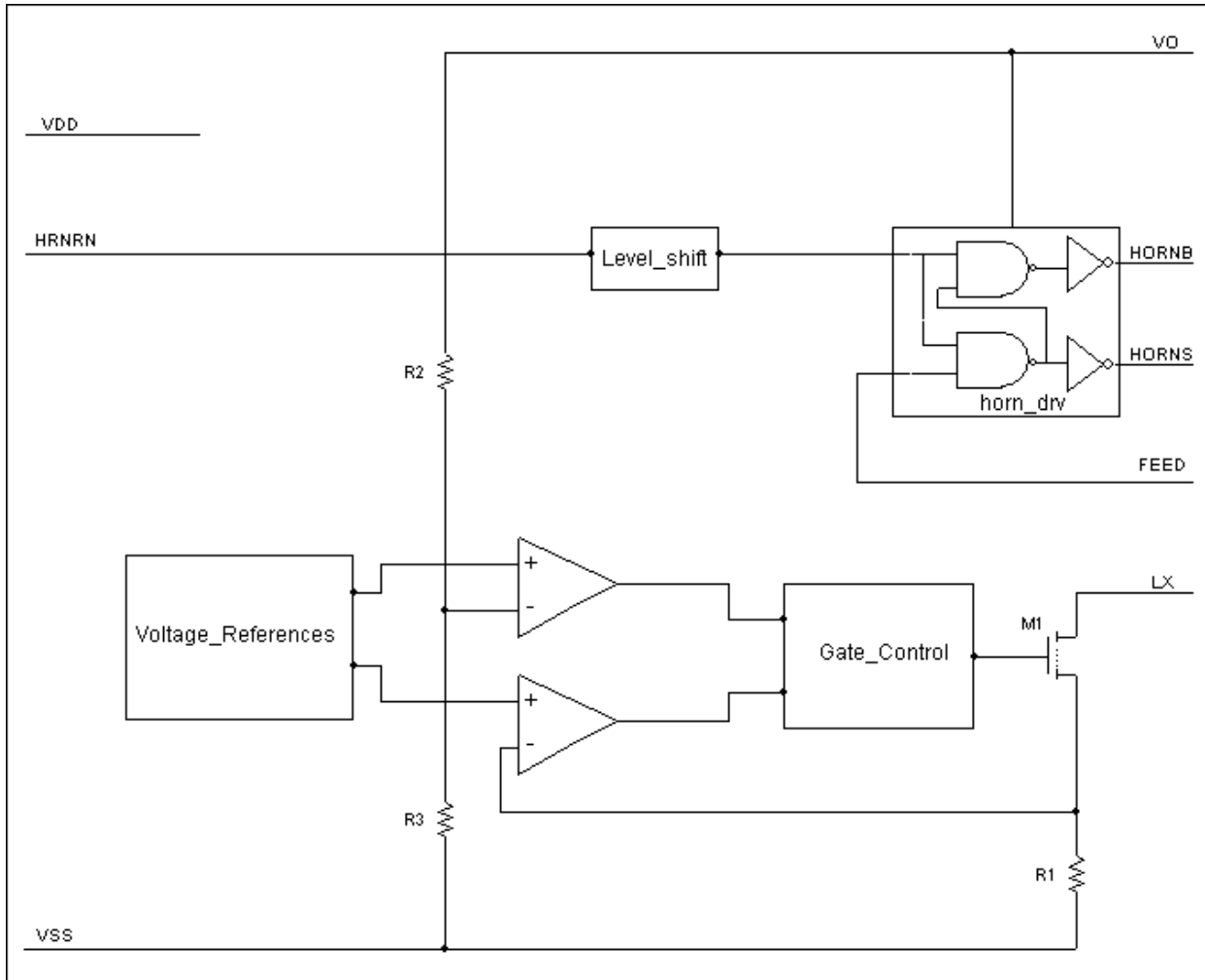
RE46C117

DC to DC Converter and Piezoelectric Horn Driver
Product Specification



R&E International
A Subsidiary of Microchip Technology Inc.

Functional Block Diagram



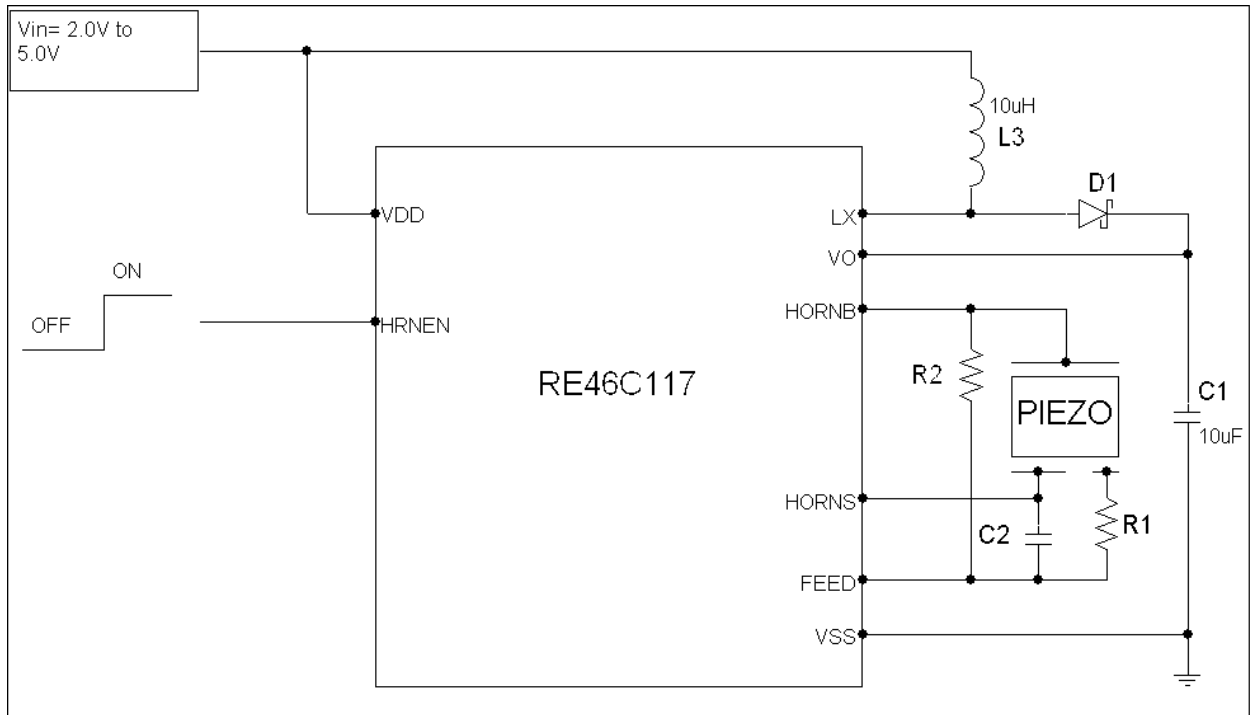
RE46C117

DC to DC Converter and Piezoelectric Horn Driver
Product Specification



R&E International
A Subsidiary of Microchip Technology Inc.

Typical Application Circuit



Notes:

1/ Schottky diode D1 must have maximum peak current rating of at least 1.5A and for best results should have forward voltage spec of less than 0.5V at 1 Amp.

2/ Inductor L3 must have maximum peak current rating of at least 1.5A and for best results should have DC resistance of less than 0.5 ohm.

RE46C117

DC to DC Converter and Piezoelectric Horn Driver
Product Specification



R&E International
A Subsidiary of Microchip Technology Inc.

Notes

RE46C117

DC to DC Converter and Piezoelectric Horn Driver Product Specification



R&E International

A Subsidiary of Microchip Technology Inc.

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO ITS CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE. Microchip disclaims all liability arising from this information and its use. Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights.

Trademarks

The Microchip name and logo, the Microchip logo, Accuron, dsPIC, KEELOQ, KEELOQ logo, MPLAB, PIC, PICmicro, PICSTART, rfPIC, SmartShunt and UNI/O are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.


FilterLab, Hampshire, Linear Active Thermistor, MXDEV, MXLAB, SEEVAL, SmartSensor and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Analog-for-the-Digital Age, Application Maestro, CodeGuard, dsPICDEM, dsPICDEM.net, dsPICworks, dsSPEAK, ECAN, ECONOMONITOR, FanSense, In-Circuit Serial Programming, ICSP, ICEPIC, Mindi, MiWi, MPASM, MPLAB Certified logo, MPLIB, MPLINK, mTouch, nanoWatt XLP, PICKit, PICDEM, PICDEM.net, PICtail, PIC³² logo, PowerCal, PowerInfo, PowerMate, PowerTool, REAL ICE, rLAB, Select Mode, Total Endurance, TSHARC, WiperLock and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

All other trademarks mentioned herein are property of their respective companies.

© 2009, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

 Printed on recycled paper.

**QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
== ISO/TS 16949:2002 ==**

Microchip received ISO/TS-16949:2002 certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona; Gresham, Oregon and design centers in California and India. The Company's quality system processes and procedures are for its PIC® MCUs and dsPIC® DSCs, KEELOQ® code hopping devices, Serial EEPROMs, microperipherals, nonvolatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001:2000 certified.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.