R&E International

A Subsidiary of Microchip Technology Inc.

RE46C104

Piezoelectric Horn Driver and Voltage Converter

Product Specification

General Description

The RE46C104 is a piezoelectric horn driver with voltage converter to provide maximum audibility in low voltage applications. The feedback control pin is designed for use with self-oscillating piezoelectric horn but can also be used in direct drive applications. The built-in charge pump voltage converter provides increased supply voltage for the horn drivers allowing outputs to swing from Vss to 2 x Vdd. A charge pump enable pin is provided to minimize supply current when not in use.

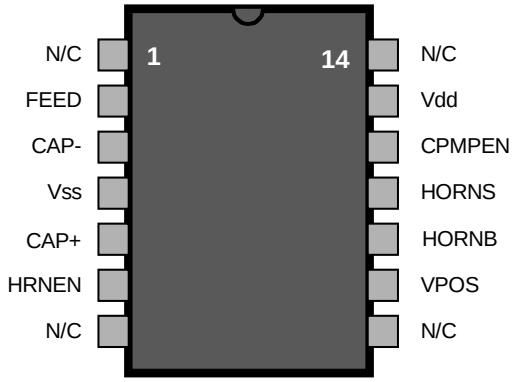
Applications

Smoke detectors
CO Detectors
Personal Security Products
Electronic Toys

Features

- Low Quiescent Current
- Low Driver Ron
- Wide Operating Voltage Range
- Available in Standard Packaging or RoHS Compliant Pb Free Packaging

Pin Configuration



Absolute maximum ratings

Supply Voltage V_{dd} .....-.5V to +9.0V
Input voltage Range V_{in} ..... -.3V to V_{DD}+.3V, except FEED
FEED Input Voltage Range Vinf ..... -10V to +22V
Input Current I_{in} ..... 10mA, except FEED
Operating Temperature ..... 0 to 50°C
Continuous Output Current (HornS, HornB, or Vpos)..... 30mA

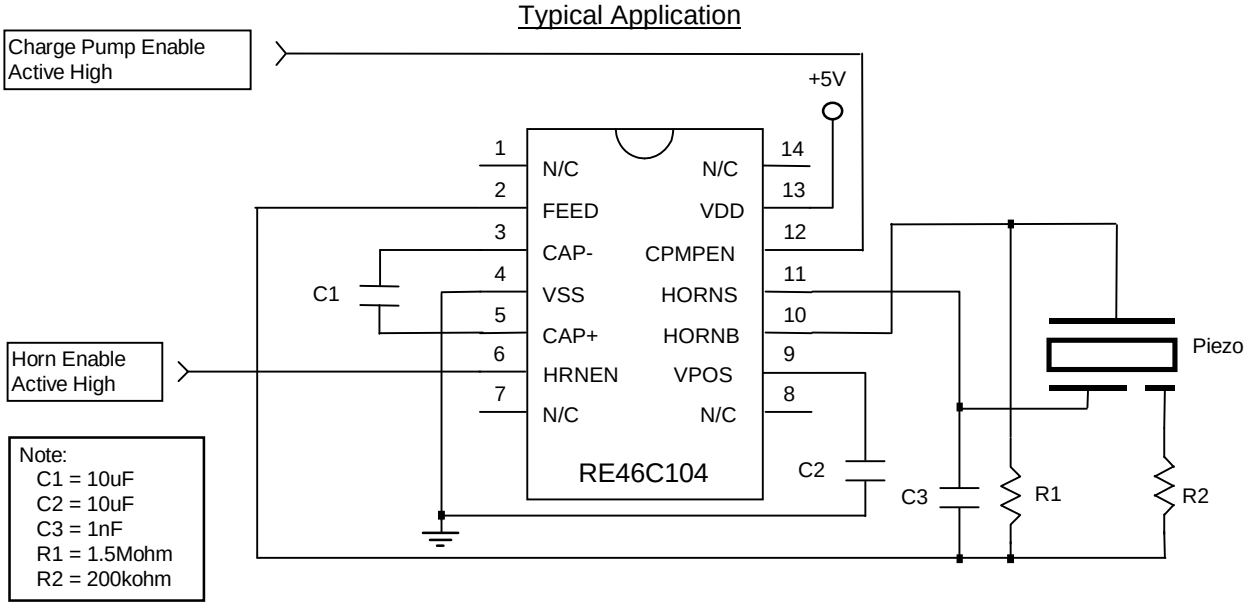
Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only and operation at these conditions for extended periods may affect device reliability.

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 charges

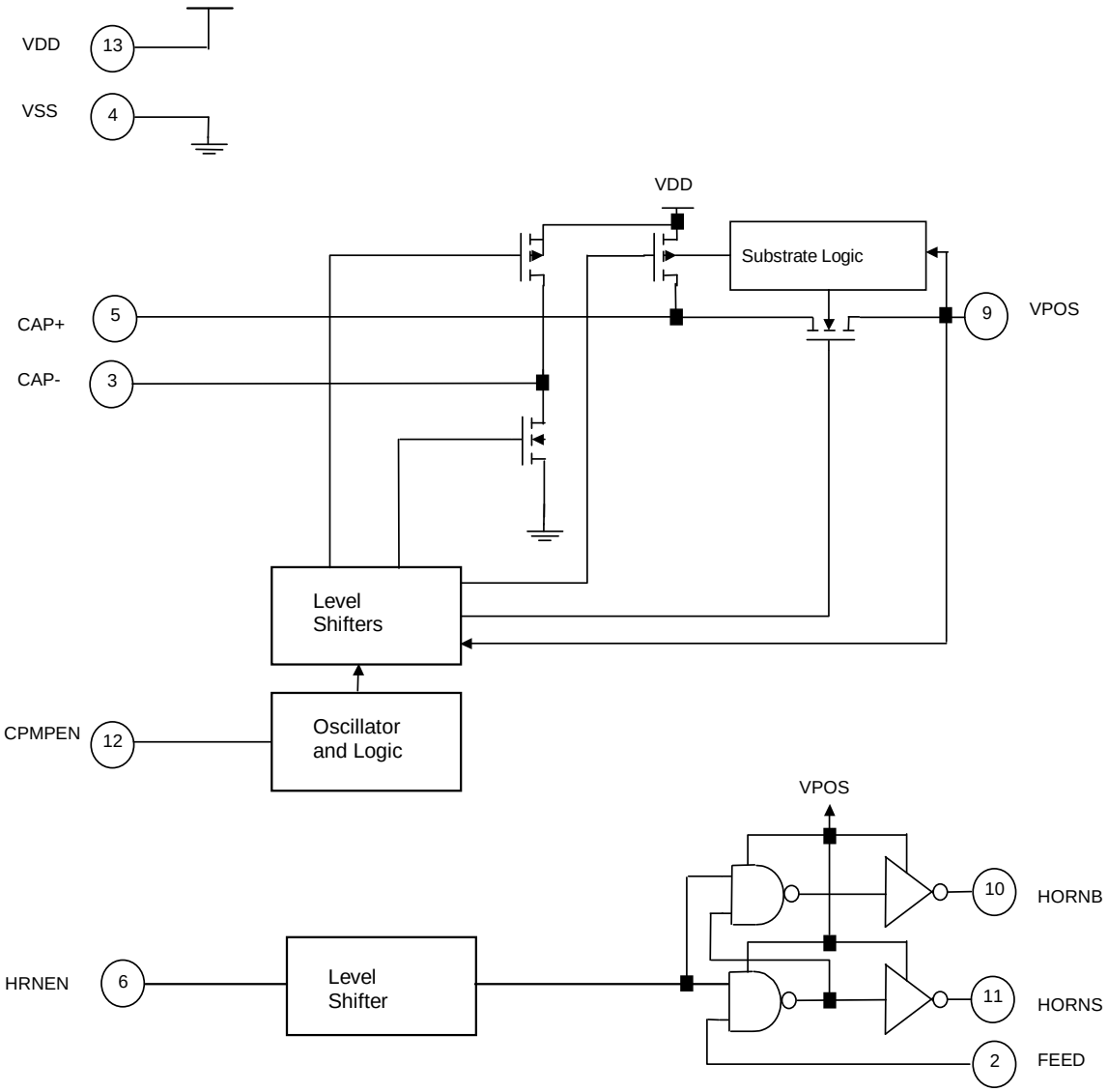
Electrical Characteristics at T_A = 25°C, V_{DD} = 5V, V_{SS} = 0V (unless otherwise noted).

Parameter	Test Pin	Test Conditions	Limits Min	Typ	Max	Units
Supply Voltage	Vdd	Operating	4.0	5.0	8.0	V
Standby Supply Current	Vdd	Hrnen, Cpmpen = Vss Feed = Vss ; Vdd = 5V		100	500	nA
	Vdd	Hrnen, Cpmpen = Vss Feed = Vss ; Vdd = 8V		500		nA
Supply Current	Vdd	Hrnen = Vss Cpmpen = Vdd No Loads; See note 1		200	500	uA
Input Leakage	Hrnen & Cpmpen	Vin = Vdd or Vss	-100		100	nA
	FEED	Feed = +22V Cpmpen = Vdd		20	50	uA
	FEED	Feed = -10V Cpmpen = Vdd	-50	-15		uA
Input Voltage Low	Hrnen & Cpmpen				1.0	V
Input Voltage High	Hrnen & Cpmpen		2.3			V
Output Low Voltage	Horns or Hornb	Iout = 16mA Cpmpen = Vdd		0.3	0.5	V
Output High Voltage	Horns or Hornb	Iout = -16mA Cpmpen = Vdd	8.5	8.7		V
Vpos Output Voltage	Vpos	Iout = -16mA Cpmpen = Vdd Hrnen = Vss		8.9		V
Charge Pump Oscillator Freq	Vpos			16		kHz
Charge Pump Power Efficiency	Vpos	Iout = -16mA C1=C2=10uF		85		%
Charge Pump Voltage Conversion Efficiency	Vpos	No Loads C1=C2=10uF	95	99		%

Typical Application



Functional Block Diagram



Notes:

1/ The supply current specification is an average under steady state conditions. The instantaneous current will exceed this value when C1 and C2 charge-up initially (after charge pump is enabled) and during subsequent recharging of C1 and C2.

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.