



## 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.

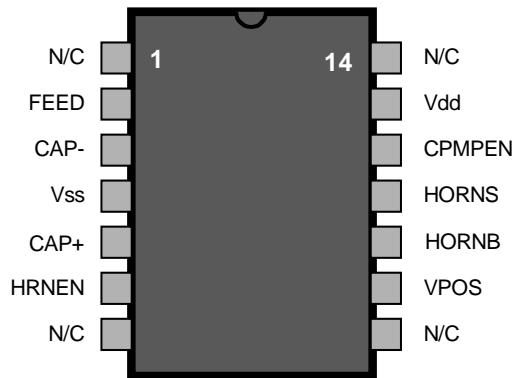
#### Applications

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 <sub>dd</sub> .....	-5V to +9.0V
Input voltage Range V <sub>in</sub> .....	-.3V to V <sub>DD</sub> +.3V, except FEED
FEED Input Voltage Range V <sub>inf</sub> .....	-10V to +22V
Input Current I <sub>in</sub> .....	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  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 5\text{V}$ ,  $V_{SS} = 0\text{V}$  (unless otherwise noted).**

<b>Parameter</b>	<b>Test Pin</b>	<b>Test Conditions</b>	<b>Limits</b>			<b>Units</b>
			<b>Min</b>	<b>Typ</b>	<b>Max</b>	
Supply Voltage	Vdd	Operating	4.0	5.0	8.0	V
Standby Supply Current	Vdd	Hrnen, Cppmen = Vss Feed = Vss ; Vdd = 5V	100	500		nA
	Vdd	Hrnen, Cppmen = Vss Feed = Vss ; Vdd = 8V	500			nA
Supply Current	Vdd	Hrnen = Vss Cppmen = Vdd No Loads; See note 1	200	500		uA
Input Leakage	Hrnen & Cppmen	Vin = Vdd or Vss	-100	100		nA
	FEED	Feed = +22V Cppmen = Vdd	20	50		uA
	FEED	Feed = -10V Cppmen = Vdd	-50	-15		uA
Input Voltage Low	Hrnen & Cppmen			1.0		V
Input Voltage High	Hrnen & Cppmen		2.3			V
Output Low Voltage	Horns or Hornb	Iout = 16mA Cppmen = Vdd	0.3	0.5		V
Output High Voltage	Horns or Hornb	Iout = -16mA Cppmen = Vdd	8.5	8.7		V
Vpos Output Voltage	Vpos	Iout = -16mA Cppmen = 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		%

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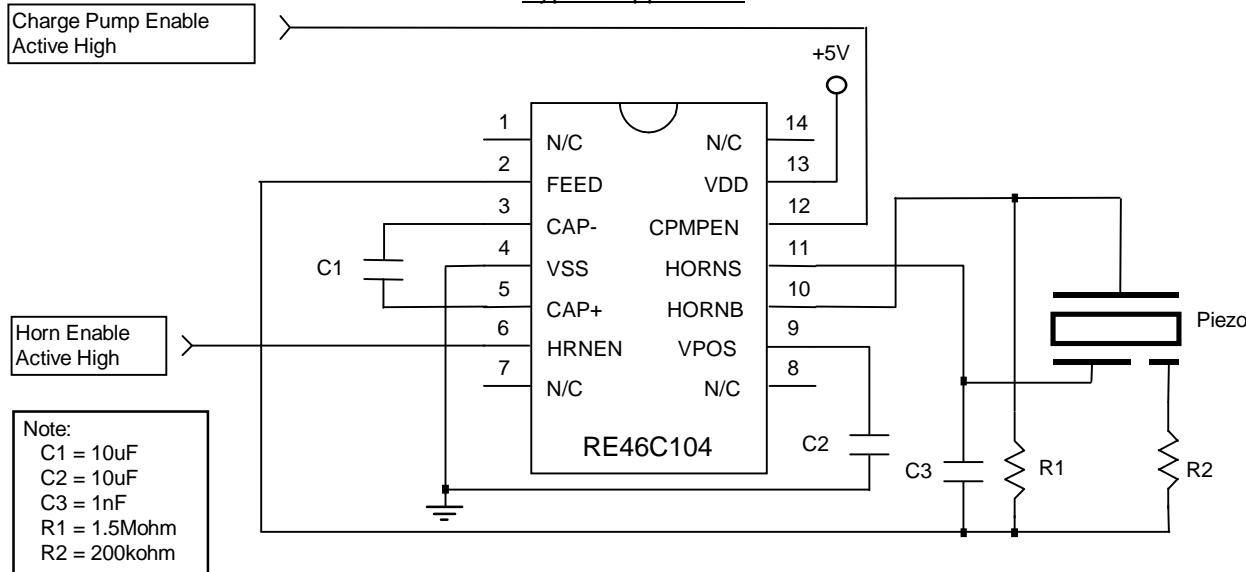
Piezoelectric Horn Driver and Voltage Converter  
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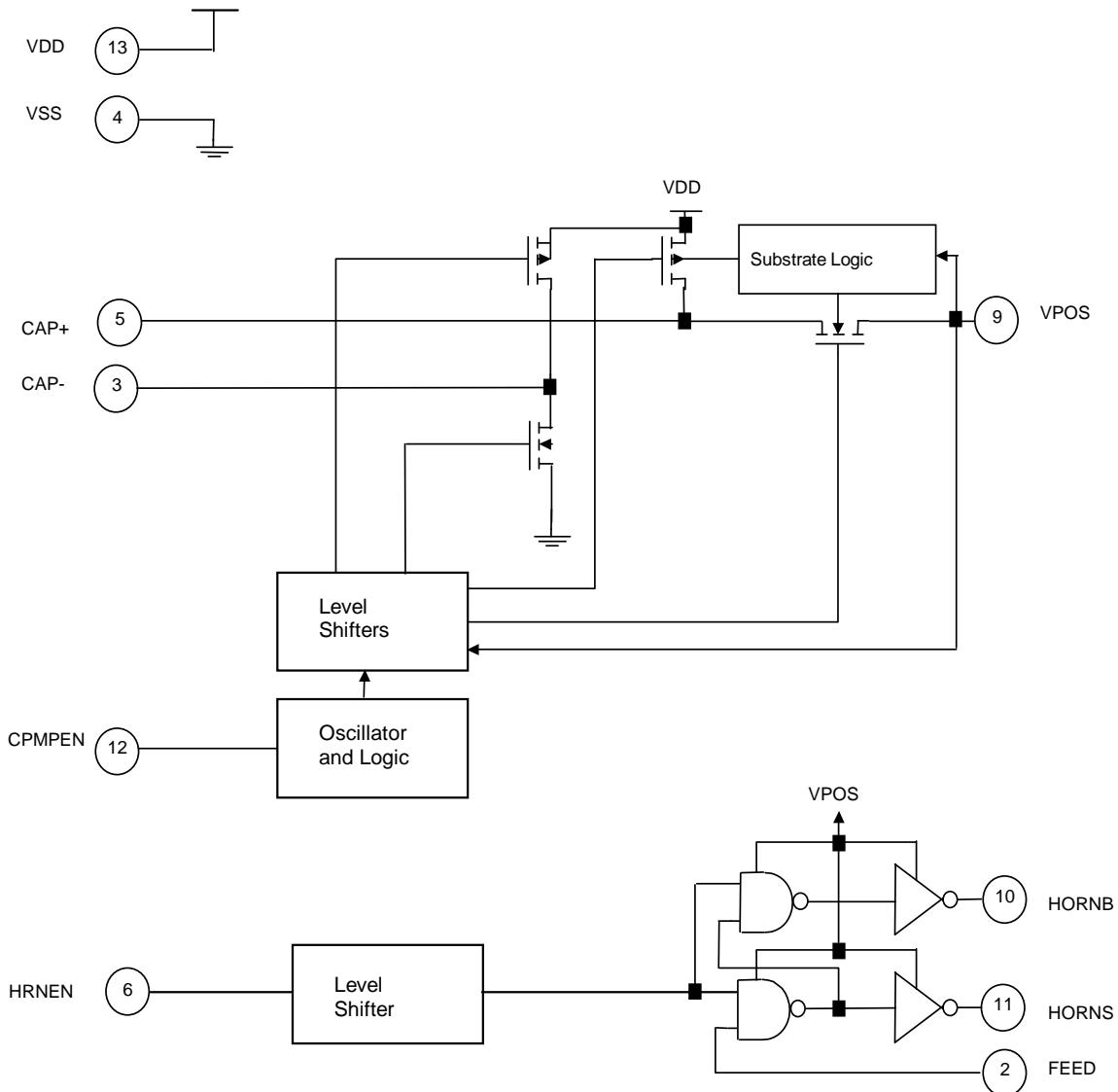


R&E International

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## 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.



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