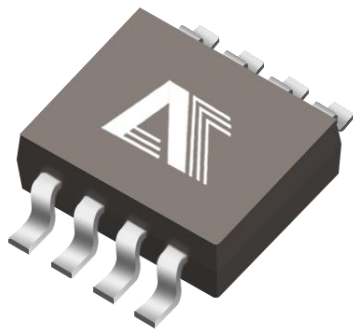




lithium ion battery charger

HT7660

Product Data Sheet

AOTE DCC
RELEASE

◆ Summary :

The HT7660 is a monolithic DC/DC voltage conversion integrated circuit manufactured using CMOS technology. It features inverting, voltage doubling, voltage dividing, and multiple voltage output capabilities. It can operate stably within a range of 1.5V to 10V without requiring any external diodes across the entire temperature range. For every 0.5V voltage drop, it can release a current of 10mA. By utilizing the BOOST input, the oscillator frequency can be increased above the audio frequency range, reducing output ripple. Consequently, this minimizes the required external capacitor capacitance.

The MC7660 combines low static current with high conversion efficiency, featuring an integrated oscillator control circuit and four power MOSFET switching transistors. Applications include negative voltage generation, voltage doubling, and input voltage 1/2 voltage division.

◆ Product features

- Micro packaging form
- Working voltage range: 1.5~10.0V
- 98% of typical power conversion power
- Reverse, voltage doubling, voltage division, and multiple voltage doubling
- BOOST pin is used to increase the oscillation frequency
- No load current; Maximum 180μA under 5V voltage
- When operating at high voltage, no external diode is required

◆ Applications

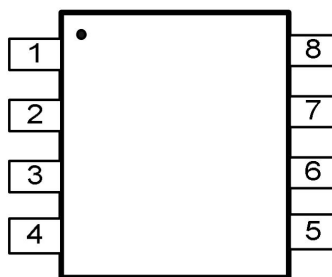
- Generate -5V voltage from +5V logic power supply
- Personal communication equipment
- LCD display module power supply
- Positive and negative symmetrical power supply of operational amplifier occurs
- EIA/TIA-232E and EIA/TIA-562 interface power supply
- A/D converter power supply
- Handheld instrument panel
- Panel Table

◆ Electrical parameters

Unless otherwise specified, $V_+ = 5.0V$, $LV_{pin} = 0V$, BOOST pin=open, $I_{LOAD} = 0mA$, $T_A = T_{MIN} \sim T_{MAX}$

Parameter	Test conditions		Min.	Typ.	Max.	Unit
power supply current	$R_L = +\infty$, P1和 Pin7 接LV open	$T_A = +25^\circ C$		30	180	μA
		$T_A = 0^\circ C \sim +70^\circ C$			200	
		$T_A = -40^\circ C \sim +65^\circ C$			200	
	$R = +\infty$, Pin 1=Pin 7= $V_+ = 3V$			10		
Power supply voltage range	$R = 10K\Omega$, LV open					V
	$R = 10K\Omega$, LV to GND		1.5		10	
power supply current	$I_L = 20mA$ $f_{OSC} = 5kHz$ LV open	$T_A = +25^\circ C$		65	100	Ω
		$T_A = 0^\circ C \sim +70^\circ C$			130	
		$T_A = -40^\circ C \sim +65^\circ C$			130	
	$f_{OSC} = 1kHz$ $V_+ = 2V$, $I_L = 3mA$ LV to GND	$T_A = +25^\circ C$			325	
		$T_A = 0^\circ C \sim +70^\circ C$			325	
		$T_A = -40^\circ C \sim +65^\circ C$			325	
Oscillator frequency	$C_{OSC} = 1pF$, LV to GND	$V_+ = 5V$	5			kHz
		$V_+ = 2V$	1			
power supply wattage	$R_L = 5k\Omega$, $T_A = +25^\circ C$, $f_{OSC} = 5kHz$, LV open		95	98		%
Voltage reversal power	$R_L = +$, $T_A = +25^\circ C$, LV open		97.0	99.9		%
Source drain current of oscillator	$V_{OSC} = 0V$ 或 V_+ , LV open	Pin1=0V			3	$M\Omega$
		Pin1= V_+			20	
Oscillator impedance	$T_A = +25^\circ C$	$V_+ = 5V$		1000		k Ω
		$V_+ = 2V$		100		

◆ Pin definition



SOP8

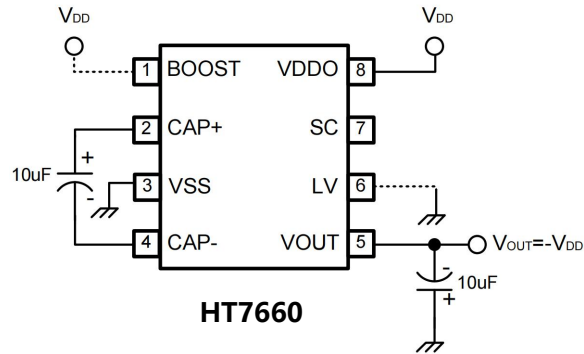
Pin number	Pin definition	Pin number	Pin definition
1	BOOST	2	CAP+
3	GND	4	CAP-
5	V _{OUT}	6	LV
7	OSC	8	V+

◆ Pin definition

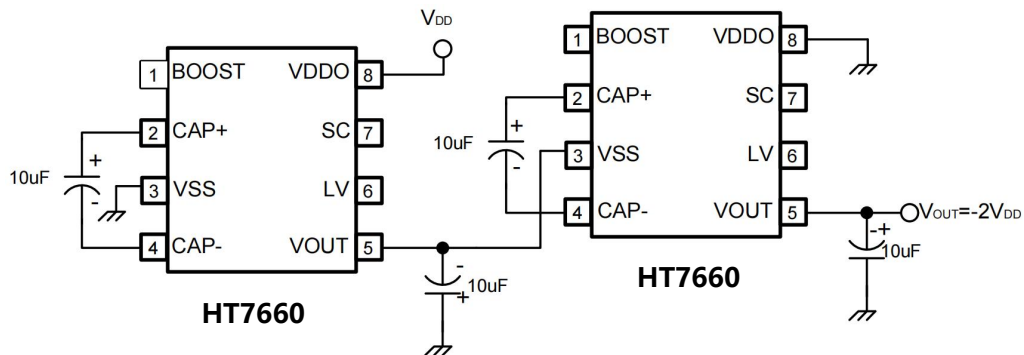
Serial Number	Name	Functional Description
ESOP8		
1	BOOST	Increase the frequency control end. Connecting BOOST and V+ can increase the frequency of the internal oscillator by 6 times. As for making If an external oscillator is used, BOOST will not work and should be suspended.
2	CAP+	Connect to the negative pole of the charge pump capacitor
3	GND	Grounding, in most applications, the negative terminal of the storage capacitor should be connected to this pin
4	CAP-	Connect to the positive pole of the charge pump capacitor
5	V _{OUT}	Positive voltage output terminal. In most applications, the positive terminal of the storage capacitor should be connected to this pin
6	LV	Low voltage operation selection section. When the supply voltage is lower than 3.5V, the terminal should be connected to ground. Low voltage operation selection section. When the supply voltage is lower than 3.5V, the terminal should be connected to the ground
7	OSC	Oscillator frequency control input. Connecting an external capacitor can reduce the frequency of the internal oscillator.
8	V+	Positive voltage input of the power supply (1.5~10V), V ₊ is also the connection point of the chip substrate.

◆ Application Circuit

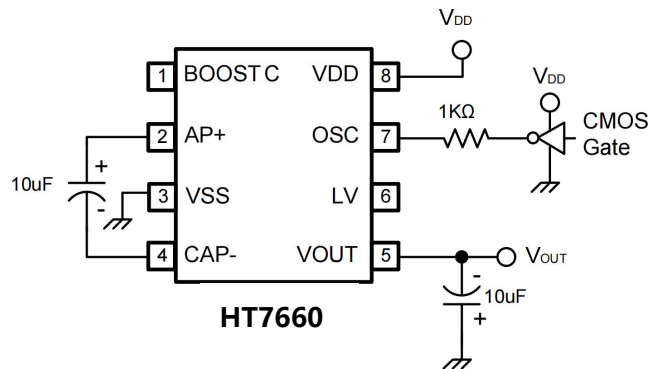
Simple negative pressure converter



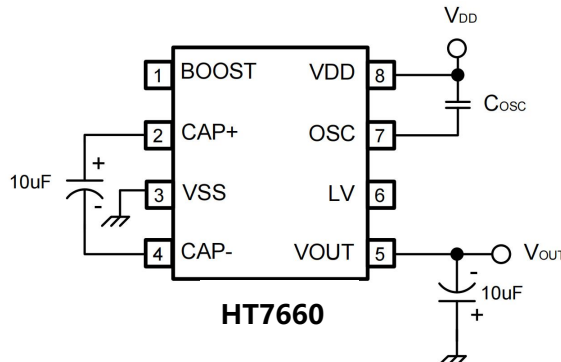
Simple voltage multiplier



External switch frequency



Reduce the switching frequency

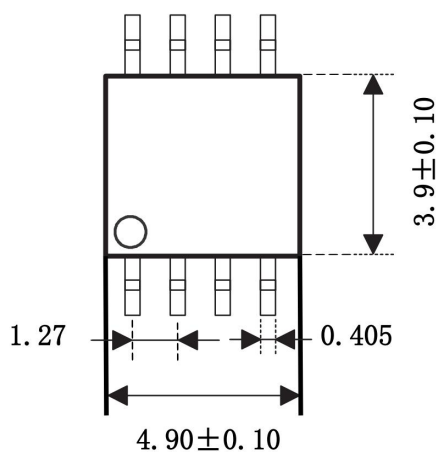


◆ Limiting parameters

Name	Parameter	Value	Unit
power supply voltage	$V+ \sim GND$ or $GND \sim V_{OUT}$	10.5	V
input voltage	1、 6、 7	$-0.3 \leq V_{IN}$	V
LV input current		20	μA
Continuous power consumption	SO	471	mV
	μMAX	330	mV
Packaging temperature range		$-65 \sim +150$	$^{\circ}C$
Working temperature range			$^{\circ}C$

◆ Package size diagram

SOP8L packaging size diagram



◆ Attention

- AOTE implements dynamic technical updates. Specifications are subject to change. Refer to the official website for the latest version.
- Users must strictly adhere to specified conditions. Failures caused by misuse (overload, high temperature, incompatible circuits) are excluded from warranty.
- Contact technical support for customized validation in critical applications (medical devices, industrial control).
- This document is valid until December 31, 2026. Updates will be notified on the official website.
- For further clarification on technical specifications or application solutions, please contact us through official channels: