



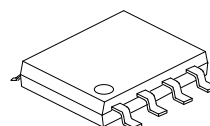
CHARGE PUMP DC-DC VOLTAGE CONVERTER

■ DESCRIPTION

ME7660 is a charge pump DC-DC voltage converter using AL-gate CMOS technology and optimization design. It converts a +1.5V to +10V input to a corresponding -1.5V to -10V output using only two external capacitors, eliminating inductors and their associated cost, size and EMI. The on-board oscillator operates at a nominal frequency of 10KHZ. Operation below 10 KHZ (for lower supply current applications) is possible by connecting an external capacitor from OSC to ground.

■ FEATURES

- * Converts +5V Logic supply to $\pm 5V$
- * Wide input voltage range: 1.5V~10V
- * Efficient voltage conversion: 99.9%
- * Good power efficiency: 98%
- * Low power supply: 50uA @ 5Vin
- * Only two external capacitors required
- * Compatible with RS232 negative power supply standard
- * No Dx diode needed for high voltage operation



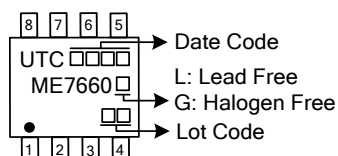
SOP-8

■ ORDERING INFORMATION

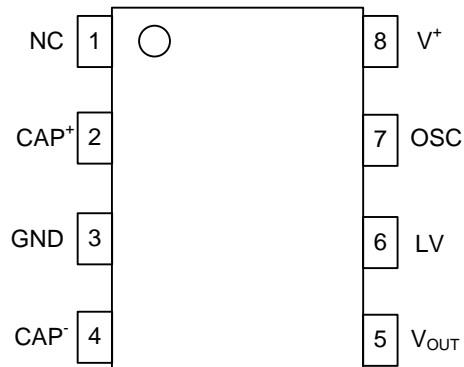
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ME7660L-S08-R	ME7660G-S08-R	SOP-8	Tape Reel

<p>ME7660G-S08-R</p> <ul style="list-style-type: none">(1) Packing Type(2) Package Type(3) Green Package	<ul style="list-style-type: none">(1) R: Tape Reel(2) S08: SOP-8(3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING



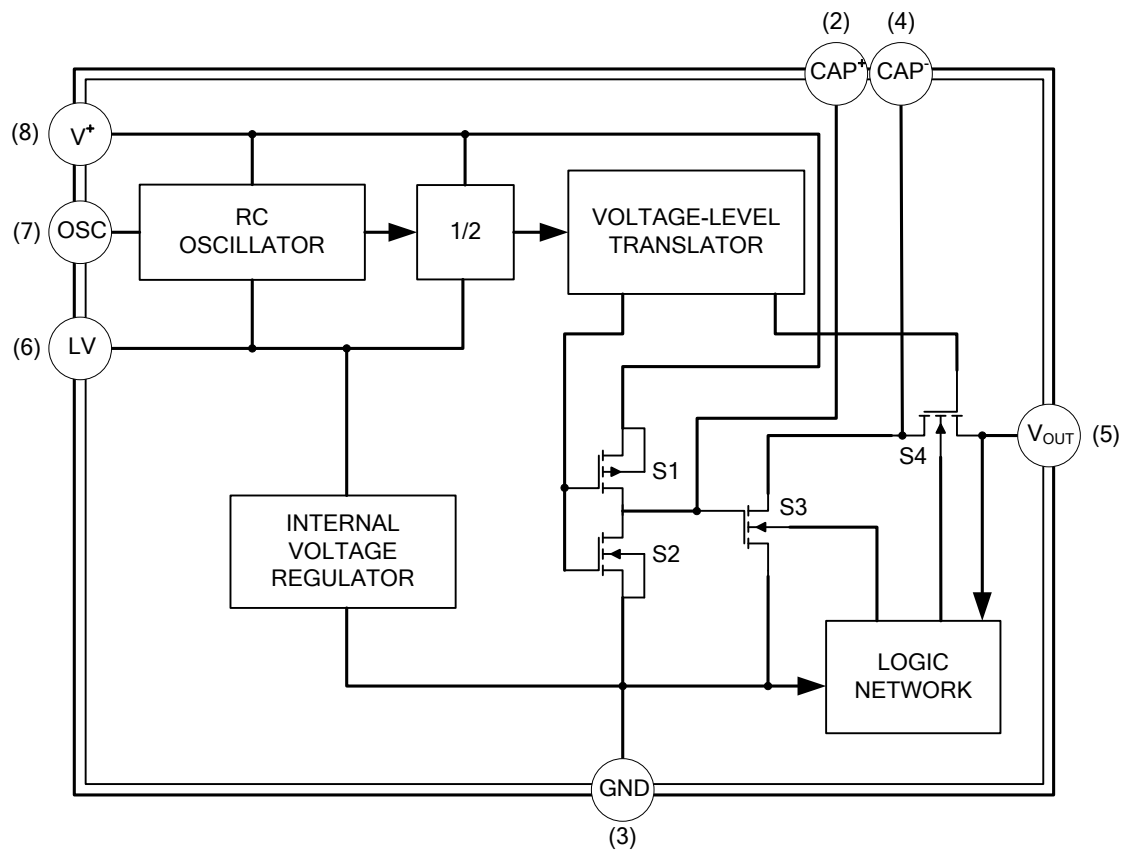
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	SYMBOL	DESCRIPTION
1	NC	No connection
2	CAP ⁺	Connection external capacitor (+) pin
3	GND	Ground Pin
4	CAP ⁻	Connection external capacitor (-) pin
5	V _{OUT}	Voltage output pin
6	LV	Low voltage selection pin
7	OSC	Connecting oscillation capacitor pin
8	V ⁺	Power supply pin

■ BLOCK DIAGRAM



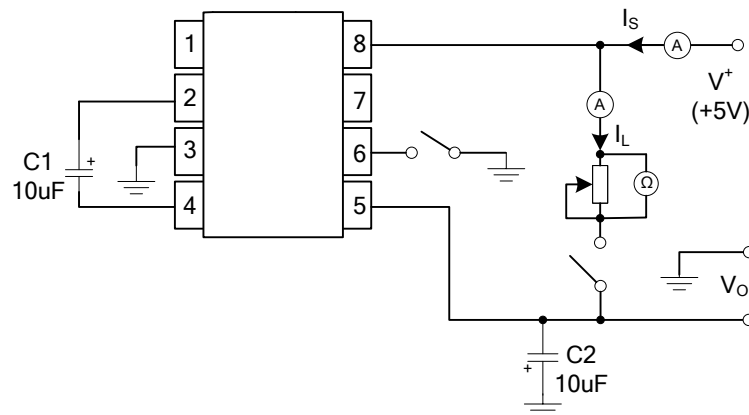
■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{IN}	10.5	V
LV and OSC Inputs Voltage	$V^+ < 5.5V$	V_{LX}	$-0.3 \sim (V^+ + 0.3)$	V
	$V^+ > 5.5V$	V_{OSC}	$(V^+ - 5.5) \sim (V^+ + 0.3)$	V
Power Dissipation($T_A \leq 75^\circ C$)		P_D	470	mW
Current Into LV	$V^+ > 3.5V$	I_{LV}	20	μA
Operating Temperature		T_{OPR}	$-40 \sim +85$	$^\circ C$
Storage Temperature		T_{STG}	$-65 \sim +150$	$^\circ C$

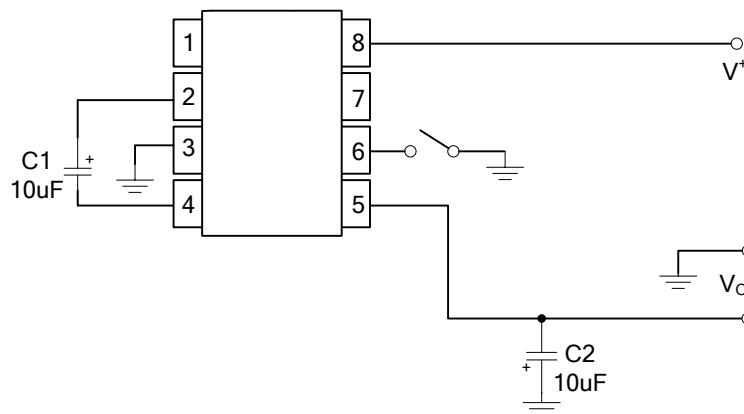
■ ELECTRICAL CHARACTERISTICS ($V^+ = 5V$, $C_{OSC} = 0$)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current		I ⁺	R _L =∞		60	120	uA
Supply Voltage	High	V ⁺ _H	LV Open	3		10	V
	Low	V ⁺ _L	LV to GND	1.5		4	V
Output Resistance		R _{OUT}	I _{OUT} =20mA, T _A =25°C		110		Ω
			I _{OUT} =3mA, V ⁺ =2V, T _A =25°C		220		Ω
Oscillator Frequency		F _{OSC}	Pin 7 open		10		kHz
Power Efficiency		P _{EFF}	R _L =5kΩ	90	98		%
Voltage Conversion Efficiency		V _{EFF}	R _L =∞	98	99.9		%

■ TESTING CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



Above figure is the basic application circuit to provide a negative supply from -1.5V ~ -10V while a positive supply from +1.5V ~ +10V is available. When $V^+ = +5V$, the output resistance is about 100Ω; The output voltage is -4V while the load current is 10mA.

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