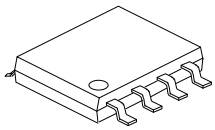
ME7660

CMOS IC

CHARGE PUMP DC-DC VOLTAGE CONVERTER



SOP-8

■ DESCRIPTION

ME7660 is a charge pump DC-DC voltage converter using AL-gate CMOS technology and optimization design. It converters 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

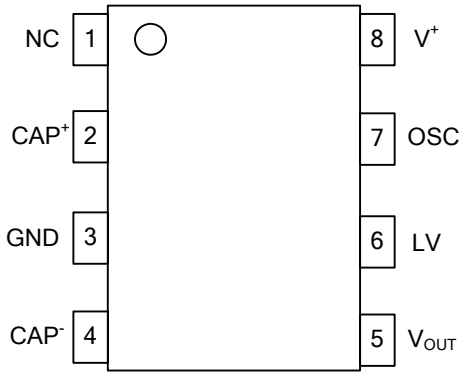
* Converts +5V Logic supply to ±5V
* Wide input voltage range:1.5V~10V
* Efficient voltage conversion:99.9%
* Good power efficiency:98%
* Low power supply:50uA@5Vin
* Only two external capacitors required
* Compatible with RS232 negative power supply standard
* No Dx diode needed for high voltage operation

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
ME7660L-SO8-R	ME7660G-SO8-R	SOP-8	Tape Reel
ME7660L-SO8-T	ME7660G-SO8-T	SOP-8	Tube

ME7660L-S08-R (1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel, T: Tube (2) S08: SOP-8 (3) G:Halogen Free, L: Lead Free

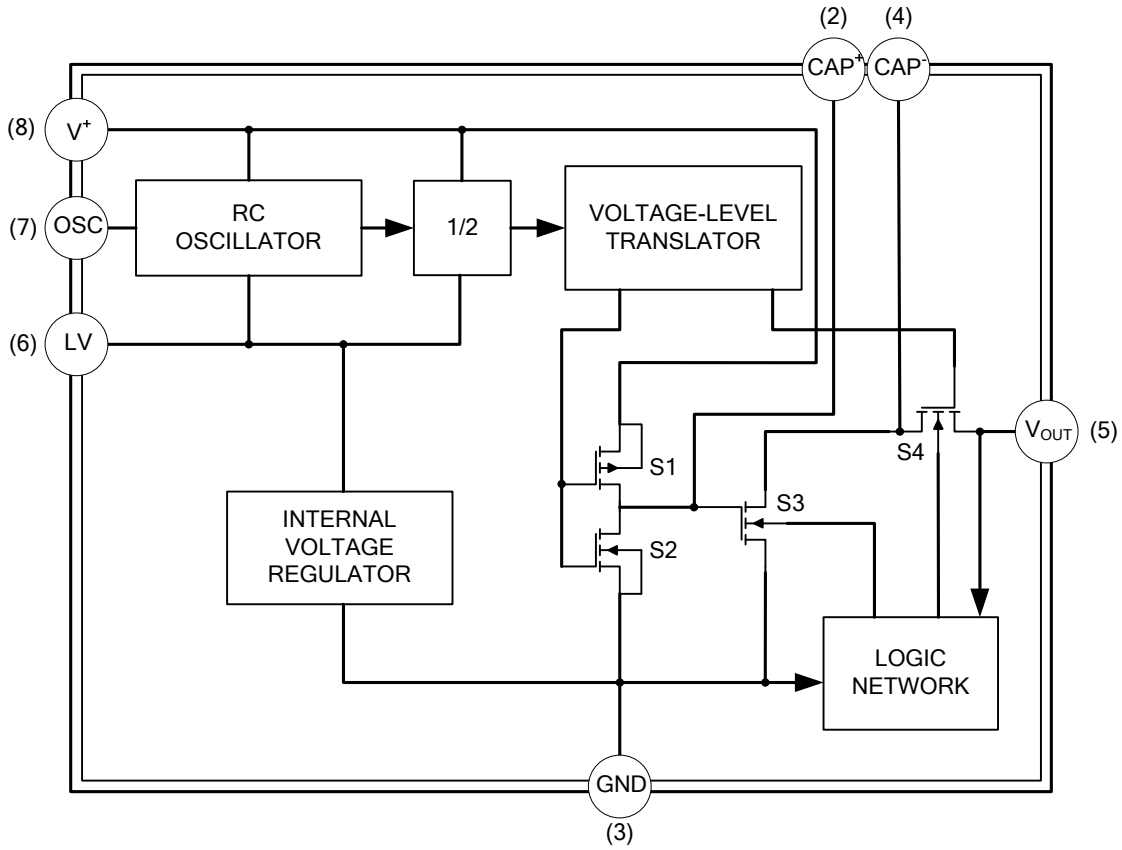
■ PIN CONFIGURATION



■ 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



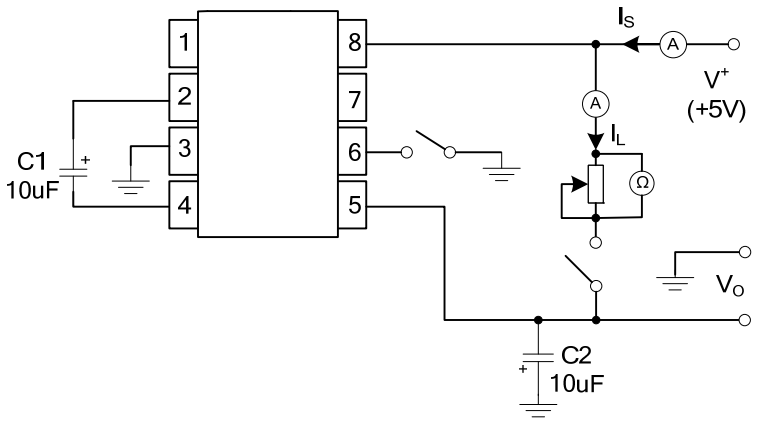
■ ABSOLUTE MAXIMUM RATING

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

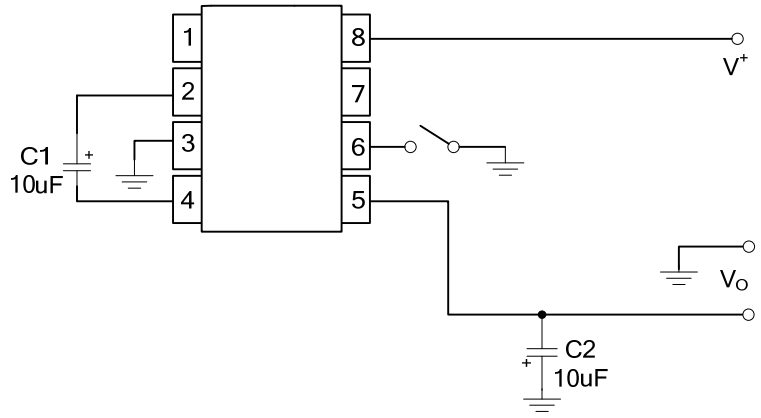
■ ELECTRICAL CHARACTERISTICS (V^+=5V,C_{OSC}=0)

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℃		110		Ω
			I_{OUT}=3mA, V^+=2V,T_A=25℃		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.