

# ADVANCE INFORMATION

All information in this data sheet is preliminary and subject to change.

8/97



## Regulated, 125mA-Output, Charge-Pump DC-DC Inverter

MAX1673

### General Description

The MAX1673 charge-pump inverter provides a low-cost and compact means of generating a regulated negative output from a positive input at up to 125mA. Its equivalent output resistance is only  $6\Omega$ . The MAX1673 comes in an 8-pin SO and requires only three small capacitors and two resistors to set its output voltage. The input range is 2V to 5.5V. The regulated output can be set from  $(-1 \times V_{IN})$  to 0V in skip mode or from  $(-1 \times V_{IN})$  to -1.5V in linear mode.

The MAX1673 can be configured to regulate in one of two ways: in skip mode or in linear mode. In skip mode, the MAX1673 regulates by varying its switching frequency as a function of the load current. This patented on-demand switching gives the MAX1673 two advantages: very small capacitors and very low quiescent supply current. For example, at heavy loads, it transfers energy from the input to the output by switching at up to 350kHz, requiring only small 2.2 $\mu$ F capacitors. At light loads, it switches more slowly, using only 45 $\mu$ A quiescent supply current.

In linear mode, the MAX1673 switches at a constant 350kHz and regulates its output by controlling the current-path resistance. The output ripple's constant frequency allows it to be easily filtered for low-noise applications.

The MAX1673 also features a 1 $\mu$ A logic-controlled shutdown. For a smaller device that delivers about 30mA and fits in a smaller package, refer to the MAX868.

### Applications

Hard Disk Drives  
Analog Signal-Processing Applications  
Measurement Instruments  
Modems  
Camcorders  
Digital Cameras

### Features

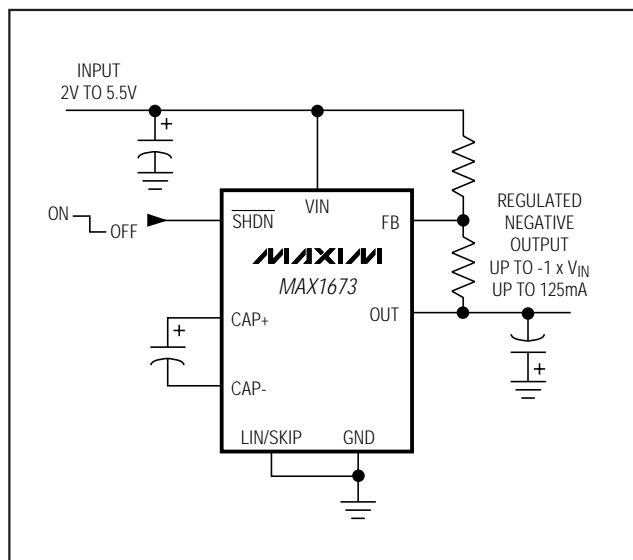
- ♦ Regulated Negative Output Voltage (Up to  $-1 \times V_{IN}$ )
- ♦ 125mA Output Current ( $6\Omega$  output impedance)
- ♦ 45 $\mu$ A Quiescent Supply Current (skip-mode regulation)
- ♦ 350kHz Fixed-Frequency, Low-Noise Output (linear mode)
- ♦ 2V to 5.5V Input Range
- ♦ 1 $\mu$ A Logic-Controlled Shutdown

### Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX1673C/D	0°C to +70°C	Dice*
MAX1673ESA	-40°C to +85°C	8 SO

\*Dice are tested at  $T_A = +25^\circ\text{C}$ , DC parameters only.

### Typical Operating Circuit



Maxim Integrated Products 1

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Pin Configuration

