

# ADVANCE INFORMATION

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

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## Digitally Adjustable LCD Bias Supply

### General Description

The MAX1620/MAX1621/MAX1622 convert a 4V to 24V battery voltage to a positive or negative LCD backplane bias voltage. Backplane bias voltage is automatically disabled when the display logic voltage is removed, protecting the display. These devices use very little PC board area: They come in ultra-small QSOP and  $\mu$ MAX packages, and require only small, low-profile external components.

The output voltage can be preset to the desired positive or negative voltage range with simple applications resistors, and adjusted over that range with the on-board DAC or with a potentiometer. The MAX1620/MAX1621 include a 5-bit DAC, allowing digital software control of the bias voltage. The MAX1620 uses up/down digital signaling to adjust the DAC, and the MAX1621 uses the System Management Bus (SMBus™) two-wire serial interface. The MAX1622 is suitable for applications where digital control is not required.

These devices use low-cost, external N-channel or NPN power switches, and can be configured for positive or negative output voltages. Operating power is a low 500 $\mu$ A, provided from the display logic supply of 3.0V to 5.5V. The MAX1620/MAX1621 are available in a 16-pin QSOP package, and the MAX1622 is available in the 8-pin  $\mu$ MAX package.

### Applications

Notebook Computers      Palmtop Computers  
Laptop Computers      Personal Digital Assistants  
Portable Data-Collection Terminals

### Features

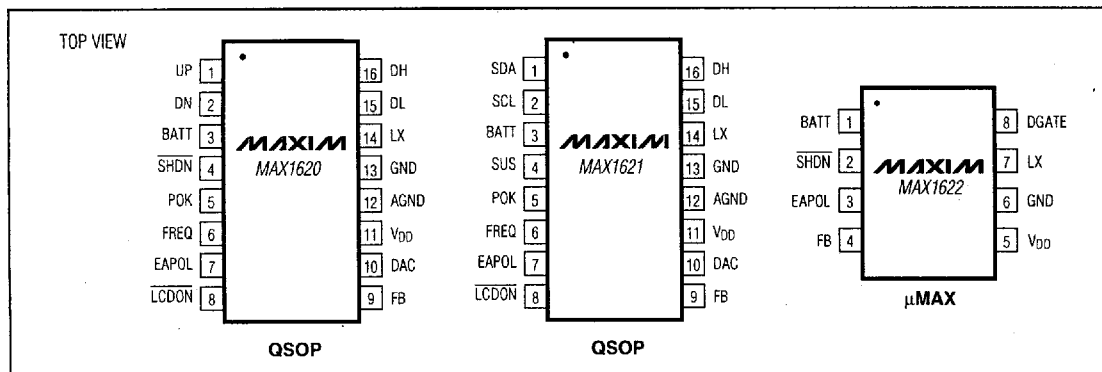
- ◆ 4V to 24V Battery Input Voltage
- ◆ Automatic Disable when Display Logic is Shut Down
- ◆ Extremely Small QSOP/ $\mu$ MAX Package
- ◆ 32-Level Internal DAC
- ◆ SMBus™ Serial Interface
- ◆ Positive or Negative Output Voltage

### Ordering Information

| PART       | TEMP. RANGE    | PIN-PACKAGE |
|------------|----------------|-------------|
| MAX1620CEE | 0°C to +70°C   | 16 QSOP     |
| MAX1620EEE | -40°C to +85°C | 16 QSOP     |
| MAX1621CEE | 0°C to +70°C   | 16 QSOP     |
| MAX1621EEE | -40°C to +85°C | 16 QSOP     |
| MAX1622CUA | 0°C to +70°C   | 8 $\mu$ MAX |
| MAX1622EUA | -40°C to +85°C | 8 $\mu$ MAX |

MAX1620/MAX1621/MAX1622

### Pin Configurations



SMBus is a trademark of Intel Corp.

**MAXIM**

Maxim Integrated Products 4-33

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## Typical Operating Circuit

