

## Highly Efficient, All-Internal MOSFET, 6-Channel PMIC for 2AA Digital Camera Systems

### General Description

The MAX8858 PMIC provides a complete power-supply solution for digital still cameras (DSCs) and digital video cameras (DVCs). The MAX8858 improves performance, component count, and board space utilization compared to currently available solutions for two AA cell and dual-battery designs. On-chip power MOSFETs provide up to 95% efficiency for critical power supplies. The CCD inverter can operate directly from two AA/NiMH batteries without the use of any additional external components.

- Step-up synchronous-rectified DC-DC converter (SU). The MAX8858 is bootstrapped from  $V_{SU}$ .
- MAIN synchronous-rectified step-up DC-DC converter (M) with active discharge for DSP I/O supply voltage.
- SDZ synchronous-rectified step-down DC-DC converter (SDZ) with active discharge for DSP DDR supply voltage.
- Low-voltage (down to 1V) synchronous-rectified step-down DC-DC converter (SD) with active discharge for DSP core supply voltage.
- High-voltage step-up DC-DC converter (CCDBST) for CCD imagers or positive LCD bias supplies.
- Transformerless inverting DC-DC converter (CCDINV) with active discharge for CCD imagers or negative LCD bias supplies. **This converter can connect directly to two AA batteries.**

Individual ON\_ inputs provide independent on/off control for the SU, CCDBST, and CCDINV converters, while dual-function inputs allow independent on/off control or power-up sequencing of the MAIN, SDZ, and SD converters.

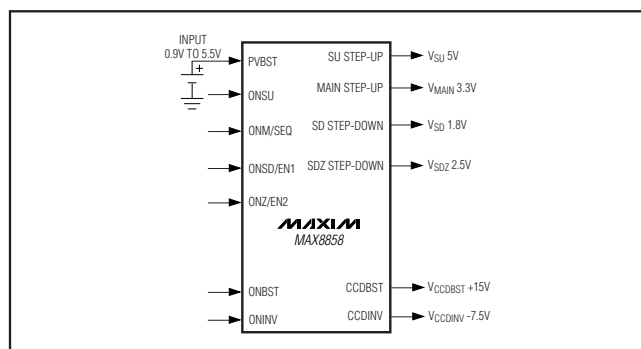
The MAX8858 is available in a 5mm x 5mm x 0.8mm, 32-pin thin QFN package and operates over the -40°C to +85°C extended temperature range.

### Applications

DSCs and DVCs

PDA's and Portable Media Players

### Typical Operating Circuit



### Features

- ◆ 95% Efficient Synchronous-Rectified DC-DC Converters
- ◆ Up to 90% Efficient Boost-Buck Operation
- ◆ Up to 85% Efficient, High-Voltage DC-DC Converters
- ◆ Transformerless Inverting Converter with Active Discharge for CCD
- ◆ Preset Power-Up Sequencing for MAIN, SDZ, and SD Converters
- ◆ Inverter Operates Directly from Two AA Batteries
- ◆ Internal Compensation on All Channels
- ◆ True Shutdown™ on All Step-Up Converters
- ◆ Overload Protection
- ◆ Startup into Short Protection
- ◆ Soft-Start for Controlled Inrush Current
- ◆ 100% Duty Cycle on Step-Down Converters
- ◆ 2MHz ±5% Switching Frequency
- ◆ 0.1µA Shutdown Supply Current
- ◆ All Internal Power MOSFETs

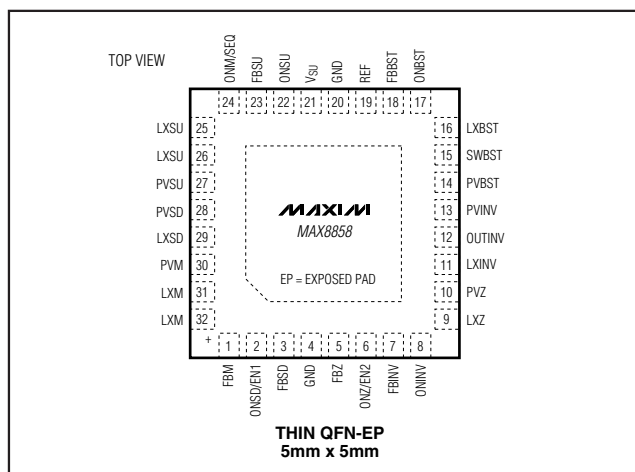
### Ordering Information

PART	TEMP RANGE	PIN-PACKAGE
MAX8858ETJ+	-40°C to +85°C	32 Thin QFN-EP*

+ Denotes a lead-free package.

\*EP = Exposed pad.

### Pin Configuration



True Shutdown is a trademark of Maxim Integrated Products, Inc.

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MAX8858

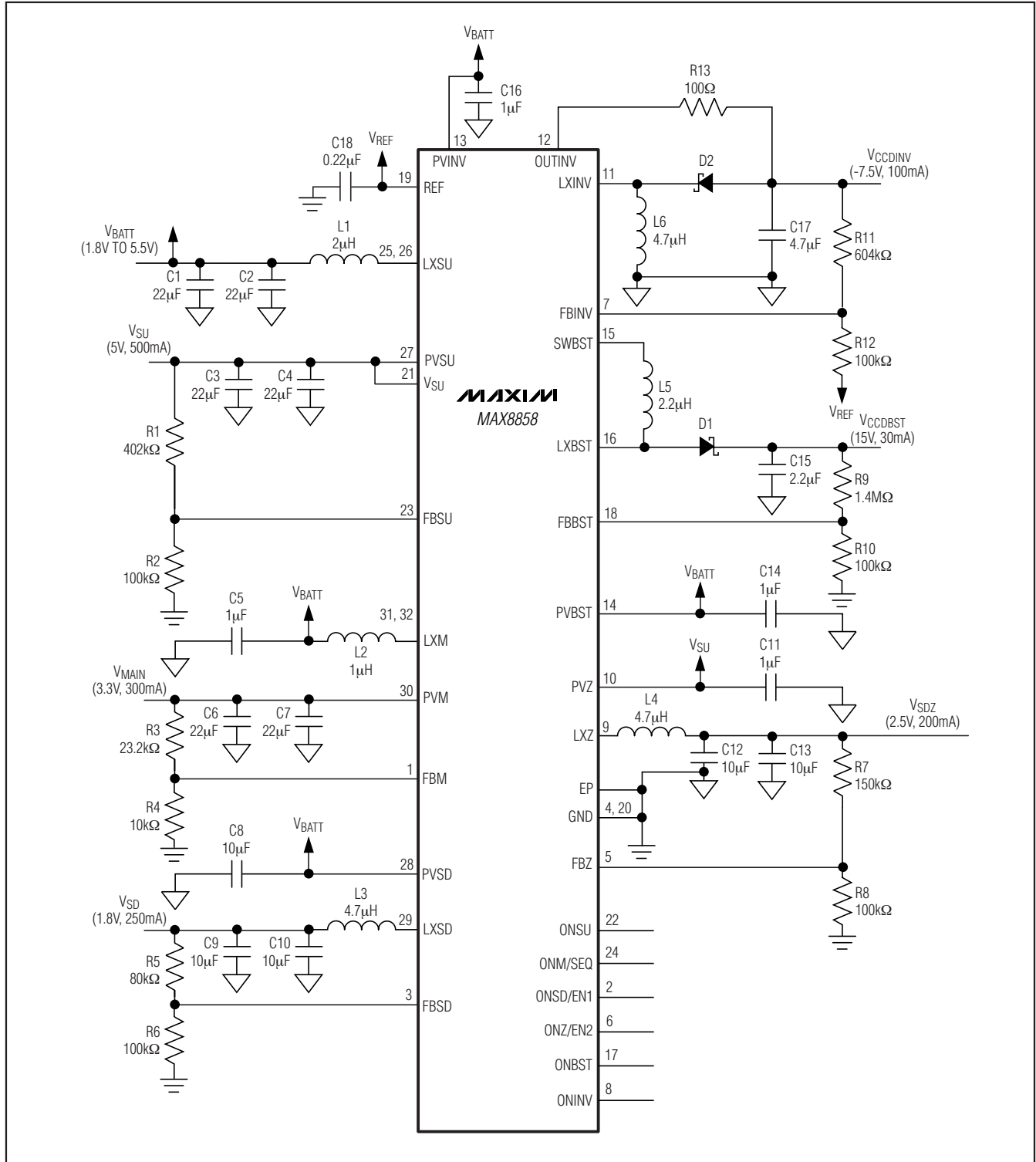


Figure 1. MAX8858 Typical Application Circuit