



New Product Announcement

AL3565

High-Efficiency Triple DC-DC Converter for Battery-Powered Devices with AMOLED Display

The AL3565 is a cost-effective PMIC (power management integrated chip) for AMOLED (active matrix organic light emitting diode) panels supporting three supply rails: V_{POS} , V_{NEG} , and AV_{DD} .

A single pin, PRG, programs the V_{POS} and V_{NEG} output voltages in steps of 100mV, as well as AV_{DD} in steps of 300mV.

- V_{POS} – buck-boost converter (4.6V to 5.0V) with 0.5% accuracy at up to 500mA output current.
- V_{NEG} – inverting converter (-1.4V to -5.4V) with 0.5% accuracy at up to 500mA output current.
- AV_{DD} – boost converter (5.8V to 7.9V) with 0.5% accuracy at up to 100mA output current.

The AL3565 has a built-in soft-start function which limits inrush currents. In addition, the AL3565 powers up the three output rails in sequence – AV_{DD} , then V_{POS} followed by V_{NEG} .

An FD pin (active high) controls whether or not fast-discharge of the outputs is implemented when the device is disabled.

The AL3565 is available in U-QFN3030-16 (Type B) package with exposed pad.



The DIODES Advantage

This cost-effective PMIC is for battery equipment using an AMOLED panel.

- **Wide Input Voltage From 2.9V to 4.8V**
Extends Li-Ion battery application range
- **0.5% Voltage Accuracy For All Three DC-DC Outputs ($AV_{DD}/V_{POS}/V_{NEG}$), With Built-In Sequencing**
Maintains tight brightness control of AMOLED displays and ensures correct operation
- **500mA Guaranteed V_{POS} and V_{NEG} Output Current**
Increases support for small- to mid-sized AMOLED displays
- **One Pin (PRG) Programming For All Three DC-DC Outputs**
Simplifies MCU interface and output control
- **Full Protection (SCP, OTP, etc.) Feature Set**
Enhances safety and robustness

Applications

AMOLED display panels:

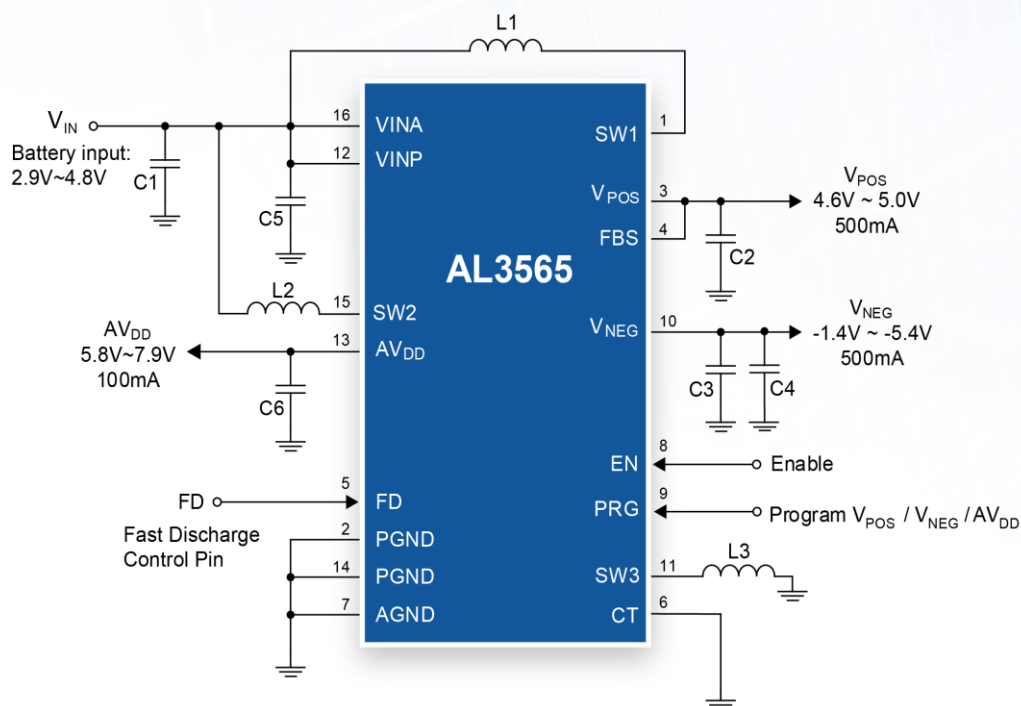
- Smart phones
- Tablets
- White goods
- Point-of-sale terminals

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Typical Applications Circuit



AMOLED PMIC Product Portfolio

| Part Number | Input Voltage Range | Max VOUT | | | Channel Output Current | Overcurrent Protection (Typ) | | | Switching Frequency | Efficiency | Shutdown Current | SW RDS(ON) | Operating Temperature Range | Package |
|------------------------|---------------------|----------|------|------|------------------------|------------------------------|------|------|---------------------|------------|------------------|------------|-----------------------------|-----------------------|
| | | AVDD | VPOS | VNEG | | AVDD | VPOS | VNEG | | | | | | |
| | V | V | V | V | mA | A | A | A | kHz | % | μA | mΩ | °C | |
| AL3565 | 2.9 to 4.8 | 7.9 | 5.0 | -5.4 | 500 | 0.65 | 1.4 | 2.0 | 1500 | 92 | 0.3 | 200 | -40 to +85 | U-QFN3030-16 (Type B) |

Ordering Information

| Orderable Part Number | Compliance (Only Automotive Supports PPAP) | Package | Moisture Sensitivity | Packing | |
|----------------------------|--|-----------------------|----------------------|----------|----------------|
| | | | | Quantity | Carrier |
| AL3565DA-7 | Standard | U-QFN3030-16 (Type B) | MSL-1 | 1,500 | 7" Tape & Reel |