

Maxim > App Notes > BATTERY MANAGEMENT POWER-SUPPLY CIRCUITS

gate is connected to ground, so Q1 remains off, disconnecting the reversed battery from the system.  $V_{DS}$  equals the full negative battery voltage when you insert the battery backwards, and in some applications Q1 may have to withstand transient levels many times the battery voltage. Q1 must be able to withstand  $V_{GS}$  and  $V_{DS}$  voltages at least equal to the maximum battery voltage.

Besides reverse-battery protection, the Figure 1 circuit also protects against reverse load current at startup. Q3 ensures that no load current flows until U1 enables both n-channel MOSFETs (Q2 and Q3). Reverse load current can cause Q1 to turn on inadvertently, leaving the circuit unprotected against reversed-battery connections.

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Application Note 2012: <http://www.maxim-ic.com/an2012>

### More Information

For technical questions and support: <http://www.maxim-ic.com/support>

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### Related Parts

MAX1614: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

AN2012, AN 2012, APP2012, Appnote2012, Appnote 2012

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