



## General Description

The MB66066 is an ideal diode controller that protects the load against damaging automotive transients down to -42V and blocks reverse-current flow within 600ns. The MB66066 operates over a wide supply voltage range of 4V to 66V and withstands input transients up to 80V. In light load applications, the device regulates the voltage drop across the external MOSFET to 20mV, allowing smooth, ring-free operation. At heavy load, the charge pump drives the gate of the external MOSFET into an enhanced mode of operation and significantly improves efficiency and power dissipation compared to traditionally used Schottky diodes.

The MB66066 consumes only 1 $\mu$ A of current during shutdown mode ( $V_{EN} = GND$ ) to extend battery life while providing standby power to the load through the body diode of the external MOSFET. An internal 2.5M $\Omega$  resistor between GATE and SRC keeps the external MOSFET off when the input voltage drops below ground.

The MB66066 is available in a tiny 2mm x 3mm x 0.75mm, 8-pin TDFN package with side-wettable flanks and operates over the -40°C to +125°C automotive temperature range.

## Applications

- Automotive Power Systems
- Network Telecom Power Systems
- Redundant Power Supplies
- RAID Systems
- Servers

## Benefits and Features

- -42V to +80V Protection Range
  - Relaxes TVS Diodes Requirements
- 4V to 66V Operating Range
  - Accommodates Wide Automotive Supply Rails
- 9V Gate Drive Voltage with Respect to SRC
  - Reduces MOSFET Power Dissipation
- Enable Input
  - Provides On-the-Fly System Control
- 1 $\mu$ A Shutdown Current
  - Extends Battery Life
- 600ns Reverse-Current Blocking Time with 10mV
- Overdrive
  - Extends System Operation Time During Power Interruption
- -40°C to +125°C Automotive Temperature Range
- 2mm x 3mm, Side-Wettable TDFN Package

## Typical Application Circuit

