



High Efficiency Switching Surge Stopper Protects Against 200V & Higher Transients

MILPITAS, CA – March 4, 2015 – Linear Technology Corporation announces the [LTC7860](#), a high efficiency switching surge stopper with overvoltage and overcurrent protection for high availability systems. During normal operation the LTC7860 turns on an external P-channel MOSFET continuously to pass the input voltage through to the output with minimum conduction loss. During an input overvoltage condition, the LTC7860 controls the external MOSFET to operate as a high efficiency switching DC/DC regulator to protect critical downstream components by limiting the output voltage and current.

The LTC7860 builds on our popular linear surge stoppers such as the LTC4363 by offering high efficiency switching protection to extend output current capability and reduce power loss during transients and faults. Supply voltages surge when the load current changes abruptly in long inductive power busses. The situation is aggravated in automotive applications by the energy stored in the alternator inductance, causing an elevated and extended voltage surge during a load dump. The power handling capability of a surge stopper is limited by the power lost in the protection device. In a linear surge stopper, the power capability is determined by the size of the pass MOSFET, while in a switching surge stopper the power capability is determined by conversion efficiency. Due to its lower power loss, a switching surge stopper can operate through longer input voltage surges at higher output current than a linear solution.

The LTC7860 has an input voltage operating range of 3.5V to 60V, which can be extended with external circuitry up to 200V and higher. An external fault timer capacitor

configures the limited time spent in overvoltage mode and keeps the switching surge stopper below a safe peak operating temperature when power loss is at its highest levels. The fault timer reduces system cost and size by optimizing component selection for normal mode rather than overvoltage transient and fault conditions.

In MIL-STD-1275 applications the LTC7860 protects devices operating from a 28V vehicle power bus which can reach as high as 100V for up to 500ms. The LTC7860 is ideal for industrial, avionics and automotive power applications including ISO7637, as well as positive high voltage distributed power Hot Swap™ systems.

The LTC7860 is available in a thermally enhanced 12-lead MSOP package, priced starting at \$2.95 each in 1,000-piece quantities. Four temperature grades are available, with operation from -40°C to 125°C for the extended and industrial grades, a high temp automotive grade of -40°C to 150°C and a military grade of -55°C to 150°C . For more information, visit www.linear.com/product/LTC7860

Photo Caption: High Efficiency Switching Surge Stopper


Summary of Features: LTC7860

- SWITCH-ON Mode 100% Duty Cycle in Normal Operation
- PROTECTIVE PWM Mode for Transients & Faults
- Wide Operating Range: 3.5V to 60V
- Input Voltage Extendable to Over 200V
- Adjustable Fault Timer
- Adjustable Output Voltage Clamp
- Adjustable Output Overcurrent Protection
- Adjustable Soft-Start for Input Inrush Current Limiting
- MIL-STD-1275 & ISO7637 Compatible
- Optional Reverse Input Voltage Protection to -60V
- Extended & Industrial Temp Grades: -40°C to 125°C Operating Junction Temp
- Automotive Temp Grade: -40°C to 150°C Operating Junction Temp
- Military Temp Grade: -55°C to 150°C Operating Junction Temp

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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