

600V High-Side Switching Without the Complexity: Introducing Our P-Channel MOSFET Series

Designing high-side switches in 600V systems often comes with added complexity. Bootstrap circuits, charge pumps, floating gate drivers, and careful timing control are commonly required when using N-channel MOSFETs by adding cost, design risk, and validation effort.

To address these challenges, Analog Power Inc. introduces its 600V P-Channel MOSFET series, offering engineers a simpler, safer, and more controllable approach to high-voltage high-side switching.

Why P-Channel Makes Sense at 600V?

In high-voltage applications, simplicity and reliability are often more valuable than pursuing extreme efficiency. P-channel MOSFETs provide several inherent advantages in high-side configurations:

- **Direct, ground-referenced gate drive**
P-channel devices can be turned on by pulling the gate low, eliminating the need for bootstrap circuits, charge pumps, or isolated drivers.
- **Fail-safe high-side behavior**
Default OFF operation during power-up and fault conditions reduces the risk of unintended turn-on and improves system safety.
- **Lower system-level complexity**
Fewer external components, simpler PCB layout, and easier EMI control result in shorter design cycles and more predictable performance.

For many 600V systems especially auxiliary rails, protection paths, and industrial control circuits. P-channel MOSFETs represent a more practical engineering choice.

Typical Applications

- High-side switching in high-voltage systems
- Offline SMPS auxiliary power circuits
- Industrial power control and load switching
- Load disconnect and protection paths
- High-voltage power management systems

Multiple Package Options from Analog Power Inc.

To support a wide range of design requirements, Analog Power Inc. offers this 600V P-Channel MOSFET series in multiple industry-standard packages, allowing engineers to optimize for thermal performance, power density, and PCB footprint:

- TO-220
- TO-220F
- TO-247
- TO-262
- TO-263-3
- TO-263-6L
- TO-252 (DPAK)
- DFN5×6EP
- DFN3×3EP

Both through-hole and surface-mount options are available, providing flexibility across industrial, power management, and compact system designs.

Production devices and datasheets are now available, including:

AM10P60-800D <https://www.analogpowerinc.com/products/AM10P60-8000D>

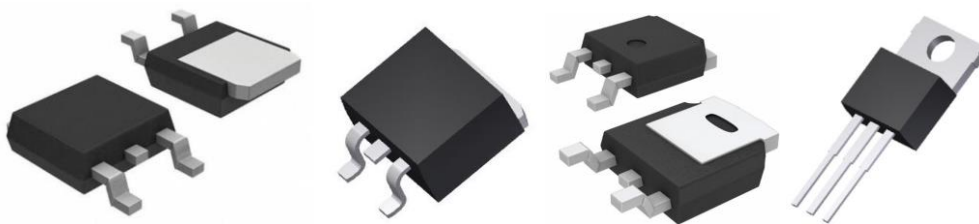
AM10P60-800PF <https://www.analogpowerinc.com/products/AM10P60-8000PF>

AMRM03P <https://www.analogpowerinc.com/products/AMRM03P>

AMSM05P <https://www.analogpowerinc.com/products/AMSM05P>

AM10P60-800P <https://www.analogpowerinc.com/products/AM10P60-8000P>

Samples and volume production are available upon request.





600V P-Channel, Done Right Analog Power Inc.

For more information, visit www.analogpowerinc.com.

Founded in 2002 in San Jose, CA, USA, Analog Power is a leading manufacturer of Power MOSFETs. It produces not only a complete line of N- and P-channel MOSFETs from 20V to 1.5kV, but also application specific MOSFETs that facilitate smaller and higher performance end products. Using tier-1 wafer foundries and assembly and test outsourcing, Analog Power provides the quality and reliability levels of market leaders, yet remains dynamic and customer-driven.

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