



New Product Announcement

ULN62003A

Seven-Channel, DMOSFET, Transistor Array with Negative Input Range Provides Load-Current Feedback and Reduced Power Dissipation

The DIODES™ ULN62003A is a high-voltage, high-current, transistor array containing seven open-drain DMOSFETs with their sources directly connected to the common ground pin.

The device's outputs are rated at 500mA, with each output having a protective clamp diode for driving inductive loads such as steppers, motors, solenoids, LED displays, filament lamps, thermal print-heads, and high-power buffers.

The ULN62003A's DMOSFET output construction has a lower output-voltage drop than pin-compatible bipolar devices. This reduces power dissipation, provides additional flexibility to control more devices, and maintains the desired die temperature.

The device has a wide input-signal range, permitting signals as low as -1V. This allows the GND pin to be used as an overcurrent-detection path.

The ULN62003A is available in the industry-standard, small-outline, 16-pin SO-16 package with a flow-through pin-out to simplify board layout. The SO-16 package is also a direct replacement for many common peripheral drivers.

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The DIODES™ Advantage

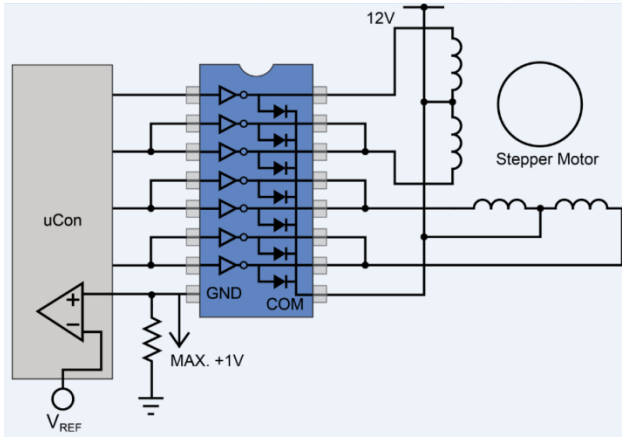
DMOSFET peripheral driver with seven channels provides low power dissipation and simplified drive for inductive loads.

- **DMOSFET Output Stage with Low 0.2V Voltage Drop**
Provides lower power losses compared to the ULN200x family's bipolar Darlington transistor arrays
- **-1V Logic Input Voltage Relative to Device GND**
Allows insertion of a ground sense resistor to monitor load currents, verifying solenoid operations and fault conditions
- **High 50V and 500mA Current Output Capabilities with Built-In Clamp Diodes**
Enables a robust and rugged drive of inductive loads from typical industrial rails
- **Available in a Small Outline, 16-Pin Package (SO-16)**
Industry-standard footprint that simplifies board layouts

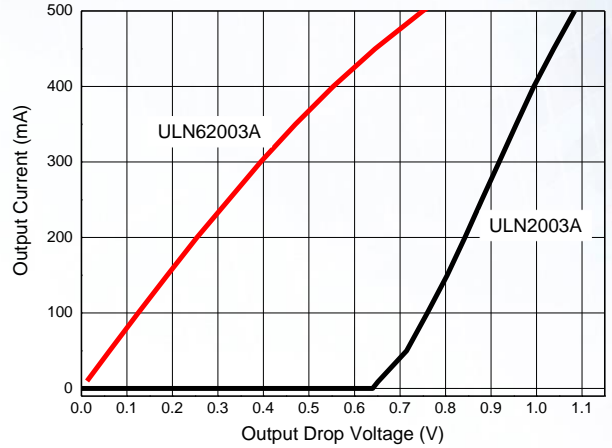
Applications

- Steppers and DC brushed motor drivers
- Lamps and LED display drivers
- Relay drivers
- Appliances

Typical Application



Output Voltage Drop Comparison



Transistor Array Portfolio

Part Number	Channels	Output Stage	Input Compatibility	Max Output Voltage (V)	Max Output Current (mA)	Typical 100mA V_{DROP} (V)	Delay Time (ns)	Operating Temperature Range (°C)	Packages
ULN62003A	7	D MOSFET	5V TTL, CMOS	50	500	0.2	400	-40 to 125	SO-16
ULN2002A	7	Darlington Transistor	14~25V PMOS	50	500	0.9	250	-40 to 105	PDIP-16, SO-16
ULN2003A	7	Darlington Transistor	5V TTL, CMOS	50	500	0.9	250	-40 to 105	PDIP-16, SO-16
ULN2003F12	4	Darlington Transistor	5V TTL, CMOS	20	1000	0.75	50	-40 to 125	U-DFN3030-10
ULN2003V12	7	Darlington Transistor	5V TTL, CMOS	20	1000	0.75	50	-40 to 125	SO-16, TSSOP-16
ULN2004A	7	Darlington Transistor	6~15V CMOS, PMOS	50	500	0.9	250	-40 to 105	PDIP-16, SO-16

Ordering Information

Orderable Part Number	Package	Moisture Sensitivity	Packing	
			Qty.	Carrier
ULN62003AS16-13	SO16	MSL-3	4000	Tape & Reel