MIC4426/4427/4428

Dual 1.5A-Peak Low-Side MOSFET Driver

General Description

The MIC4426/4427/4428 family are highly-reliable dual low-side MOSFET drivers fabricated on a BiCMOS/DMOS process for low power consumption and high efficiency. These drivers translate TTL or CMOS input logic levels to output voltage levels that swing within 25mV of the positive supply or ground. Comparable bipolar devices are capable of swinging only to within 1V of the supply. The MIC4426/7/8 is available in three configurations: dual inverting, dual noninverting, and one inverting plus one noninverting output.

The MIC4426/4427/4428 are pin-compatible replacements for the MIC426/427/428 and MIC1426/1427/1428 with improved electrical performance and rugged design (Refer to the Device Replacement lists on the following page). They can withstand up to 500mA of reverse current (either polarity) without latching and up to 5V noise spikes (either polarity) on ground pins.

Primarily intended for driving power MOSFETs, MIC4426/7/8 drivers are suitable for driving other loads (capacitive, resistive, or inductive) which require low-impedance, high peak current, and fast switching time. Other applications include driving heavily loaded clock lines, coaxial cables, or piezoelectric transducers. The only load limitation is that total driver power dissipation must not exceed the limits of the package.

Note See MIC4126/4127/4128 for high power and narrow pulse applications.

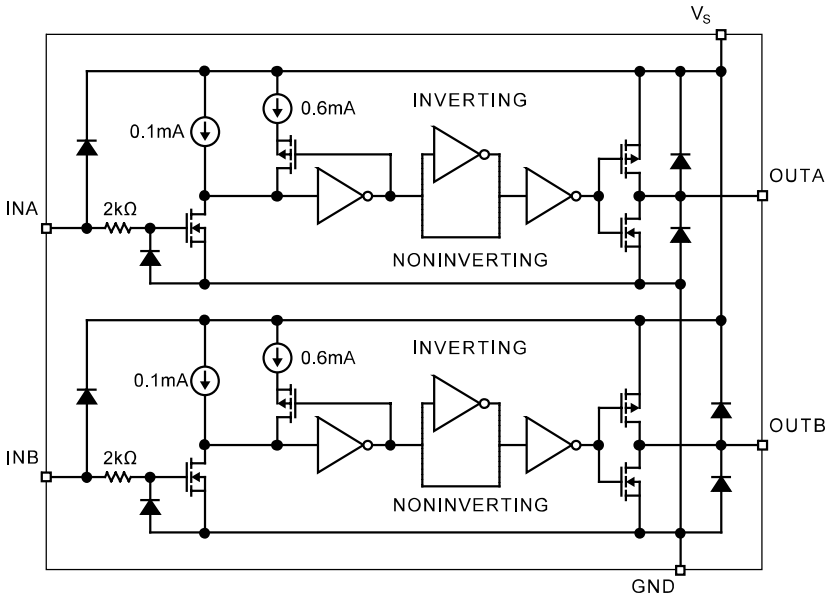
Features

- Bipolar/CMOS/DMOS construction
- Latch-up protection to >500mA reverse current
- 1.5A-peak output current
- 4.5V to 18V operating range
- Low quiescent supply current
  - 4mA at logic 1 input
  - 400µA at logic 0 input
- Switches 1000pF in 25ns
- Matched rise and rall times
- 7Ω output impedance
- <40ns typical delay
- Logic-input threshold independent of supply voltage
- Logic-input protection to –5V
- 6pF typical equivalent input capacitance
- 25mV max. output offset from supply or ground
- Replaces MIC426/427/428 and MIC1426/1427/1428
- Dual inverting, dual noninverting, and inverting/ noninverting configurations
- ESD protection

Applications

- MOSFET driver
- Clock line driver
- Coax cable driver
- Piezoelectic transducer driver

Functional Diagram



Ordering Information

Part Number		Temperature Range	Package	Configuration
Standard	Pb-Free			
MIC4426BM	MIC4426YM	–40°C to +85°C	8-Pin SOIC	Dual Inverting
MIC4426CM	MIC4426ZM	–0°C to +70°C	8-Pin SOIC	Dual Inverting
MIC4426BMM	MIC4426YMM	–40°C to +85°C	8-Pin MSOP	Dual Inverting
MIC4426BN	MIC4426YN	–40°C to +85°C	8-Pin PDIP	Dual Inverting
MIC4426CN	MIC4426ZN	–0°C to +70°C	8-Pin PDIP	Dual Inverting
MIC4427BM	MIC4427YM	–40°C to +85°C	8-Pin SOIC	Dual Non-Inverting
MIC4427CM	MIC4427ZM	–0°C to +70°C	8-Pin SOIC	Dual Non-Inverting
MIC4427BMM	MIC4427YMM	–40°C to +85°C	8-Pin MSOP	Dual Non-Inverting
MIC4427BN	MIC4427YN	–40°C to +85°C	8-Pin PDIP	Dual Non-Inverting
MIC4427CN	MIC4427ZN	–0°C to +70°C	8-Pin PDIP	Dual Non-Inverting
MIC4428BM	MIC4428YM	–40°C TO +85°C	8-Pin SOIC	Inverting + Non-Inverting
MIC4428CM	MIC4428ZM	–0°C to +70°C	8-Pin SOIC	Inverting + Non-Inverting
MIC4428BMM	MIC4428YMM	–40°C to +85°C	8-Pin MSOP	Inverting + Non-Inverting
MIC4428BN	MIC4428YN	–40°C to +85°C	8-Pin PDIP	Inverting + Non-Inverting
MIC4428CN	MIC4428ZN	–0°C to +70°C	8-Pin PDIP	Inverting + Non-Inverting

Note

DESC standard military drawing 5962-88503 available;

MIC4426, CERDIP 8-Pin	SMD#: 5962-8850307PA	Micrel Part Number: 5952-8850307PA
MIC4427, CERDIP 8-Pin	SMD#: 5962-8850308PA	Micrel Part Number: 5952-8850308PA
MIC4428, CERDIP 8-Pin	SMD#: 5962-8850309PA	Micrel Part Number: 5952-8850309PA

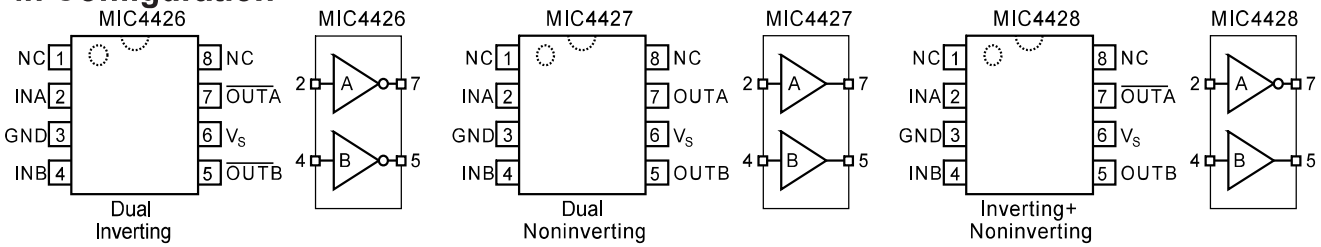
MIC426/427/428 Device Replacement

Discontinued Number	Replacement
MIC426CM	MIC4426BM
MIC426BM	MIC4426BM
MIC426CN	MIC4426BN
MIC426BN	MIC4426BN
MIC427CM	MIC4427BM
MIC427BM	MIC4427BM
MIC427CN	MIC4427BN
MIC427BN	MIC4427BN
MIC428CM	MIC4428BM
MIC428BM	MIC4428BM
MIC428CN	MIC4428BN
MIC428BN	MIC4428BN

MIC1426/1427/1428 Device Replacement

Discontinued Number	Replacement
MIC1426CM	MIC4426BM
MIC1426BM	MIC4426BM
MIC1426CN	MIC4426BN
MIC1426BN	MIC4426BN
MIC1427CM	MIC4427BM
MIC1427BM	MIC4427BM
MIC1427CN	MIC4427BN
MIC1427BN	MIC4427BN
MIC1428CM	MIC4428BM
MIC1428BM	MIC4428BM
MIC1428CN	MIC4428BN
MIC1428BN	MIC4428BN

Pin Configuration



Pin Description

Pin Number	Pin Name	Pin Function
1, 8	NC	not internally connected
2	INA	Control Input A: TTL/CMOS compatible logic input.
3	GND	Ground
4	INB	Control Input B: TTL/CMOS compatible logic input.
5	OUTB	Output B: CMOS totem-pole output.
6	V_S	Supply Input: +4.5V to +18V
7	OUTA	Output A: CMOS totem-pole output.