



# MIC94002

## Dual P-Channel MOSFET

Not Recommended for New Designs

### General Description

The MIC94002 contains two silicon gate P-channel MOSFETs designed for low on-resistance, high-side switch applications.

The MIC94002 has a maximum on-resistance of 0.4Ω at 4.5V gate-to-source voltage. On-resistance can also be reduced to half by connecting both MOSFETs in parallel.

Improved ESD protection is provided by the gate protection network shown in the schematic diagram.

The MIC94002 is supplied in a low-profile version of the 8-lead SOIC package.

The MIC94002 can be assembled with the body not shorted to the sources for use in analog switch applications. Contact the factory for more information.

### Features

- 15V minimum drain-to-source breakdown
- 0.4Ω maximum on-resistance at 4.5V gate-to-source voltage (each MOSFET)
- Functional at 2.7V gate-to-source voltage
- 0.063" maximum height

### Applications

- High-side switch
- Power management
- Stepper motor control
- 1.8" PCMCIA disk drive V<sub>CC</sub> switch

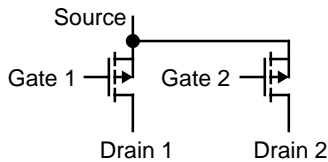
### Ordering Information

Part Number	Temperature Range*	Package
MIC94002BLM	-55°C to +150°C	8-lead SOIC†

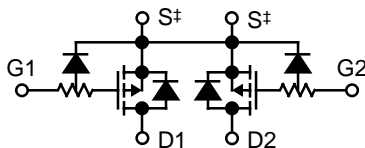
\* Operating Junction Temperature

† Low Profile Leads, see Package Information

### Schematic Information

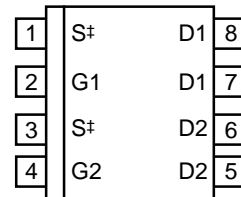


#### Schematic Symbols



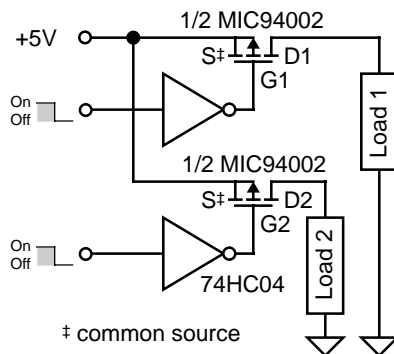
#### Schematic Diagram

### Pin Configuration



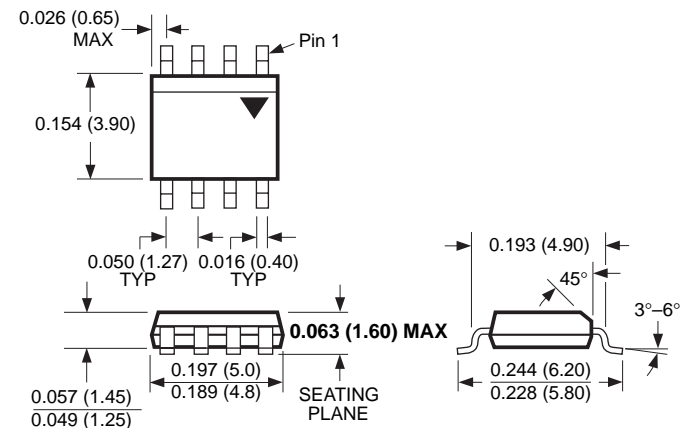
#### 8-lead Low-Profile SOIC Package (LM)

### Typical Application



#### Dual Power Switch Application

### Package Information



### Absolute Maximum Ratings

Voltage and current values are negative. Signs not shown for clarity.

Drain-to-Source Voltage .....	15V
Gate-to-Source Voltage .....	15V
Continuous Drain Current (each MOSFET, both on)	
$T_A = 25^\circ\text{C}$ .....	1.2A
$T_A = 100^\circ\text{C}$ .....	0.7A
Operating Junction Temperature .....	-55°C to +150°
Storage Temperature .....	-55°C to +150°C

### Total Power Dissipation

$T_A = 25^\circ\text{C}$ .....	1W
$T_A = 100^\circ\text{C}$ .....	0.4W

### Thermal Resistance

$\theta_{JA}$ .....	125°C/W
$\theta_{JC}$ .....	76°C/W

### Lead Temperature

1/16" from case, 10s .....	+300°C
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### Electrical Characteristics Note 1 $T_A = 25^\circ\text{C}$ unless noted. All values are negative. Signs not shown for clarity.

Symbol	Parameter	Condition	Min	Typ	Max	Units
$V_{BDSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	15			V
$V_{GS}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1		3	V
$I_{GSS}$	Gate-Body Leakage	$V_{DS} = 0\text{V}, V_{GS} = 15\text{V}$ , <b>Note 3</b>			100	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}$			25	$\mu\text{A}$
		$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, T_J = 125^\circ\text{C}$			250	$\mu\text{A}$
$I_{D(ON)}$	On-State Drain Current	$V_{DS} \geq 10\text{V}, V_{GS} = 10\text{V}$ , <b>Note 2</b>		5.5		A
$R_{DS(ON)}$	Drain-Source On-State Resist.	$V_{GS} = 4.5\text{V}, I_D = 50\text{mA}$		0.35	0.40	$\Omega$
$g_{FS}$	Forward Transconductance	$V_{DS} = 15\text{V}, I_D = 1\text{A}$ , <b>Note 2</b>		0.7		S

**Note 1** Values for each MOSFET

**Note 2** Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

**Note 3** ESD gate protection diode conducts during positive gate-to-source voltage excursions.

### Typical Characteristics

