MIC2981/2982

High-Voltage High-Current Source Driver Array

General

The MIC2981/82 is an 8-channel, high-voltage, high-current source driver array ideal for switching high-power loads from logic-level TTL, CMOS, or PMOS control signals.

These drivers can manage multiple loads of up to 50V and 500mA, limited only by package power dissipation.

Micrel's MIC2981/82 features inputs compatible with 5V TTL and 5V to 15V CMOS or PMOS logic outputs. Micrel's dual-marked device replaces either UDN2981 or UDN2982 devices.

The MIC2981/82 is available in the 18-pin plastic DIP and 18-lead wide SOP package. Both devices operate in the industrial temperature range.

Features

- Output voltage to 50V
- Output current to 500mA
- Transient-protected outputs
- Integral clamp diodes
- TTL, CMOS, or PMOS compatible inputs

Applications

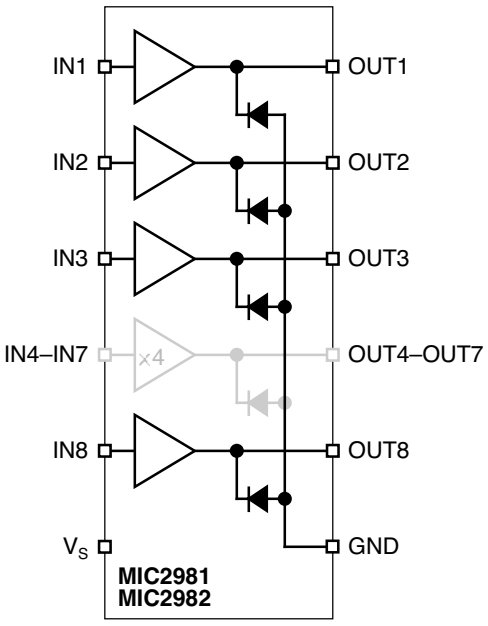
- Relay and solenoid switching
- Stepping motor
- LED and incandescent displays

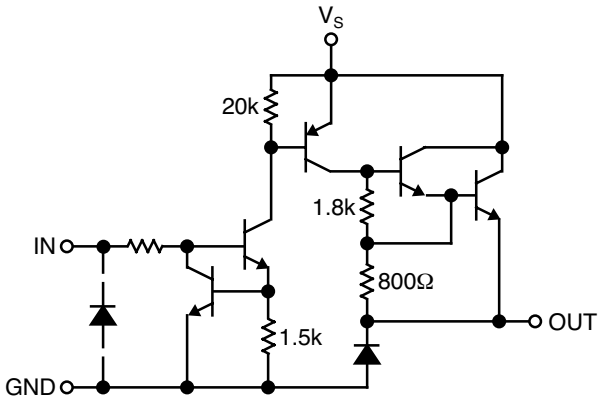
Ordering Information

Reference	Part Number Manufacturing*	PbFree	Temperature Range	Package
MIC2981BN**	MIC2981/82BN	MIC2981/82YN	–40°C to +85°C	18-pin DIP
MIC2982BN**	MIC2981/82BN	MIC2981/82YN	–40°C to +85°C	18-pin DIP
MIC2981BWM**	MIC2981/82BWM	MIC2981/82YWM	–40°C to +85°C	18-pin wide SOP
MIC2982BWM**	MIC2981/82BWM	MIC2981/82YWM	–40°C to +85°C	18-pin wide SOP

* Order entry P/N.
**Orders for MIC2981BN or MIC2982BN will be filled with dual-marked MIC2981/82BN.
**Orders for MIC2981YN or MIC2982YN will be filled with dual-marked MIC2981/82YN.
**Orders for MIC2981BWM or MIC2982BWM will be filled with dual-marked MIC2981/82BWM.
**Orders for MIC2981YWM or MIC2982YWM will be filled with dual-marked MIC2981/82YWM.

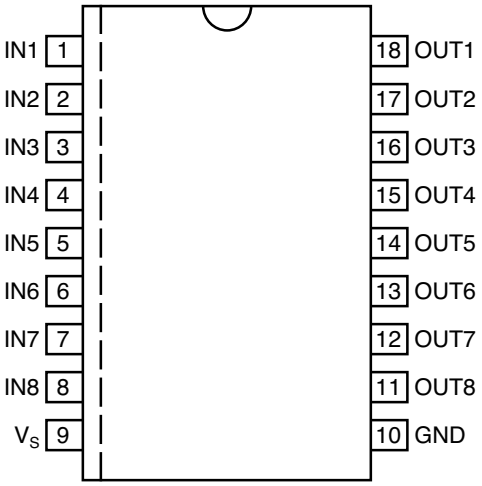
Functional Diagrams





Typical MIC2891/2982 Source Driver

Pin Configuration



18-Pin DIP (N)
18-Pin Wide SOP (WM)

Pin Description

Pin No.	Pin No.	Pin Name Pin Function
1–8	IN1–IN8	Input 1 through Input 8: Base drive to driver input transistor.
9	V_S	Supply Input
10	GND	Ground
11–18	OUT8–OUT1	Output 8 through Output 1: Emitter of Darlington driver output.

Absolute Maximum Ratings

Supply Voltage (V_S) 50V
Output Voltage (V_{CE}) 50V
Continuous Output Current (I_C) 500mA
Input Voltage (V_{IN})
MIC2981/82 ..... 30V
Ground Current (I_{GND}) 3A
Junction Temperature (T_J) ..... +150°C
Storage Temperature (T_S) ..... –65°C to +150°C

Operating Ratings

Supply Voltage (V_S) ..... 5V to 50V
Ambient Temperature (T_A) ..... –40°C to +85°C
Package Thermal Resistance
PDIP θ_{JA} ..... 56°C/W
SOP θ_{JA} ..... 84°C/W

Electrical Characteristics(Note 3)

V_S = 50V, T_A = +25°C, unless noted.

Symbol	Parameter	Condition	Min	Typ	Max	Units
I_{CEX}	Output Leakage Current	V_{IN} = 0.4V, T_A = +70°C, **Note 1**			200	µA
$V_{CE(sus)}$	Output Sustaining Voltage	I_{OUT} = 45mA	35			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{IN} = 2.4V, I_{OUT} = 100mA V_{IN} = 2.4V, I_{OUT} = 225mA V_{IN} = 2.4V, I_{OUT} = 350mA		1.7 1.8 1.9	2.0 2.1 2.2	V V V
$I_{IN(on)}$	Input Current	MIC2981 V_{IN} = 2.4V V_{IN} = 3.85		140 310	200 450	µA µA
		MIC2982 V_{IN} = 2.4V V_{IN} = 12V		140 1.25	200 1.93	µA mA
I_{OUT}	Output Source Current	V_{IN} = 2.4V, V_{CE} = 2.2V	350			mA
I_S	Supply Current	V_{IN} = 2.4, OUT1–8 = open, **Note 1**			10	mA
t_{ON}	Turn-On Delay	0.5E_{IN} to 0.5E_{OUT}, R_L = 100Ω, V_S = 35V,		1.0	2.0	µs
t_{OFF}	Turn-Off Delay	0.5E_{IN} to 0.5E_{OUT}, R_L = 100Ω, V_S = 35V, **Note 2**		5.0	10	µs
I_R	Clamp Diode Leakage Current	V_R = 50V, V_{IN} = 0.4V, **Note 1**			50	µA
V_F	Clamp Diode Forward Voltage	I_F = 350mA		1.5	2.0	V

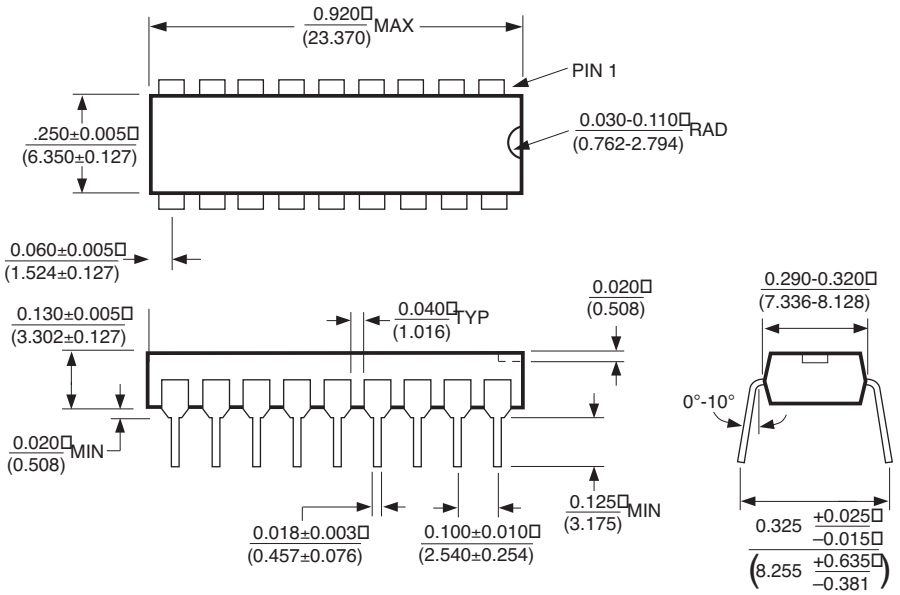
General Note: Devices are ESD protected; however, handling precautions are recommended.

Note 1: Applied to all 8 inputs simultaneously.

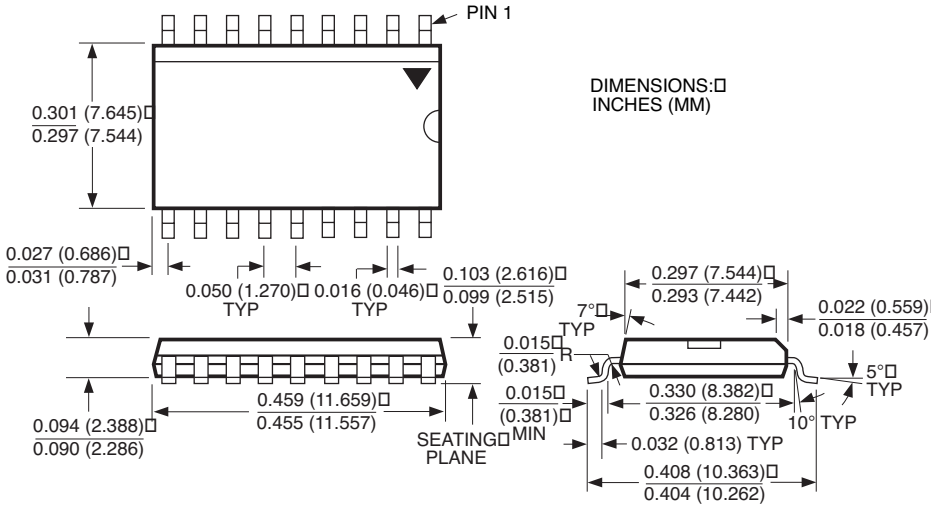
Note 2: Load conditions affect turnoff delay.

Note 3: Specification for packaged product only.

Package Information



18-Pin Plastic DIP (N)



18-Pin Wide SOP (WM)

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