

on loading is that total power dissipation in the IC must be kept within the power dissipation limits of the package.

The MIC446X series drivers are built using a BCD process. They will not latch under any conditions within their power and voltage ratings. They are not subject to damage when up

to 5V of noise spiking (either polarity) occurs on the ground line. They can accept up to half an amp of inductive kickback current (either polarity) into their outputs without damage or logic upset.

## Ordering Information

Part Number		Temperature Range	Package
Standard	Pb-Free		
MIC44xxCN*	MIC44xxZN*	0°C to +70°C	14-pin Plastic DIP
MIC44xxCWM*	MIC44xxZWM*	0°C to +70°C	16-pin Wide SOIC
MIC44xxBN*	MIC44xxYN*	−40°C to +85°C	14-pin Plastic DIP
MIC44xxBWM*	MIC44xxYWM*	−40°C to +85°C	16-pin Wide SOIC

\* xx identifies input logic:

67 — NAND      68 — AND      69 — AND with 1 inverting input

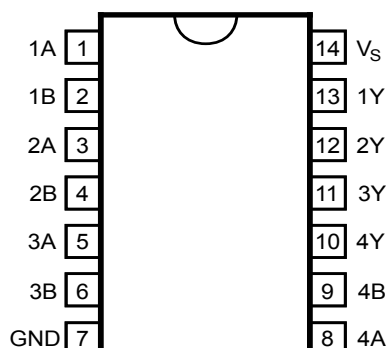
\*\*Pb-Free industrial grade PDIP available in MIC4468 & MIC4469 only.

## Truth Table

Part No.	Inputs		Output Y
	A	B	
MIC4467 (Each Driver)	L	X	H
	X	L	H
	H	H	L
MIC4468 (Each Driver)	H	H	H
	L	X	L
	X	L	L
MIC4469 (Each Driver)	L	X	L
	X	H	L
	H	L	H

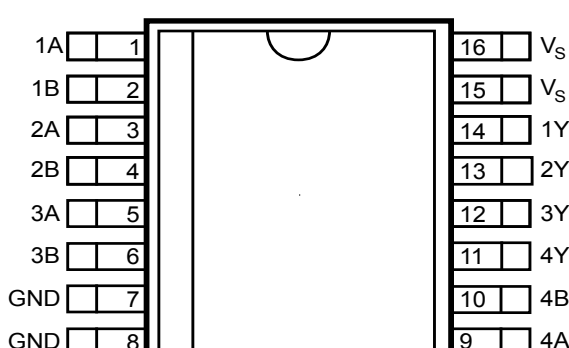
## Pin Configurations

14-Pin DIP (N)



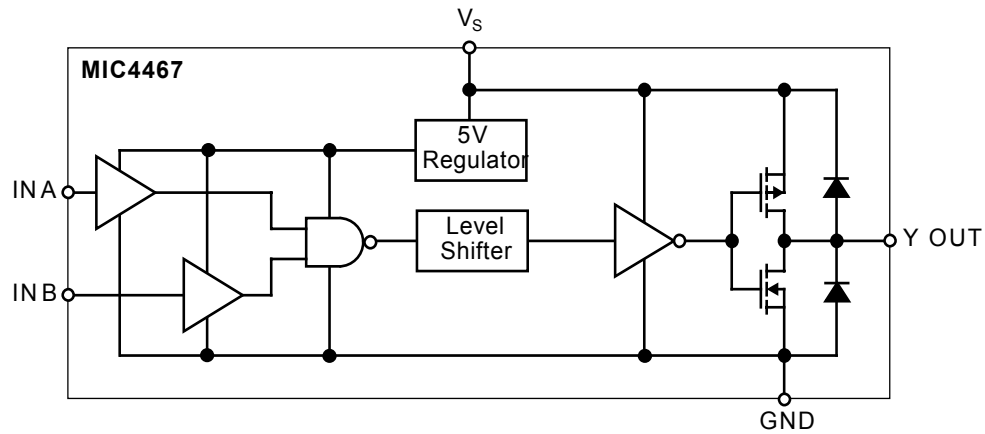
TOP VIEW

16-Pin Wide SOIC (WM)

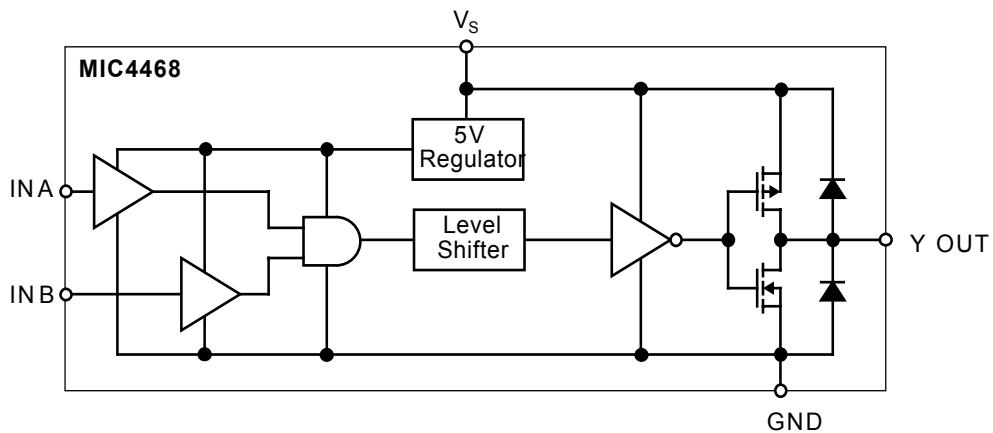


TOP VIEW

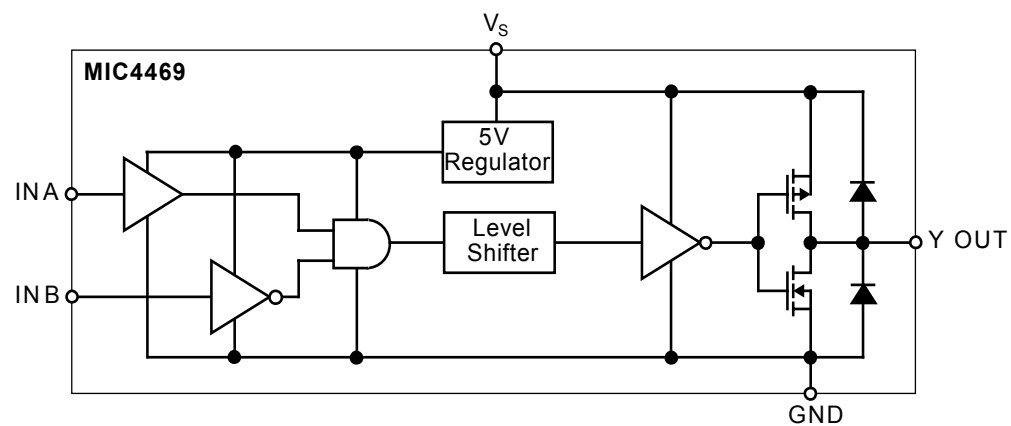
## Block Diagrams



Functional Diagram for One Driver (Four Drivers per Package—Ground Unused Inputs)



Functional Diagram for One Driver (Four Drivers per Package—Ground Unused Inputs)



Functional Diagram for One Driver (Four Drivers per Package—Ground Unused Inputs)

**Absolute Maximum Ratings** (Notes 1 and 2)

Supply Voltage	22V	Power Dissipation	
Input Voltage	(GND – 5V) to ( $V_S + 0.3V$ )	N Package (14-Pin Plastic DIP)	1.5W
Maximum Chip Temperature		WM Package (16-Pin Wide SOIC)	1W
Operating	150°C	Package Thermal Resistance	
Storage	–65° to +150°C	N Package (14-Pin Plastic DIP) $\theta_{JA}$	80°C/W
Maximum Load Temperature		WM Package (16-Pin Wide SOIC) $\theta_{JA}$	120°C/W
(10 sec, for soldering)	300°C		
Operating Ambient Temperature			
C Version	0° to +70°C		
B Version	–40° to +85°C		

**Electrical Characteristics:** Measured at  $T_A = 25^\circ\text{C}$  with  $4.5V \leq V_S \leq 18V$  unless otherwise specified. (**Note 3**)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>INPUT</b>						
$V_{IH}$	Logic 1 Input Voltage		2.4	1.3		V
$V_{IL}$	Logic 0 Input Voltage			1.2	0.8	V
$I_{IN}$	Input Current	$0 \leq V_{IN} \leq V_S$	–1		1	$\mu\text{A}$
<b>OUTPUT</b>						
$V_{OH}$	High Output Voltage	$I_{LOAD} = 10\text{mA}$	$V_S - 0.15$			V
$V_{OL}$	Low Output Voltage	$I_{LOAD} = 10\text{mA}$			0.15	V
$R_O$	Output Resistance	$I_{OUT} = 10\text{mA}$ , $V_S = 18V$		5	15	$\Omega$
$I_{PK}$	Peak Output Current			1.2		A
I	Latch-Up Protection Withstand Reverse Current		>500			mA
<b>SWITCHING TIME</b>						
$t_R$	Rise Time	Test Figure 1		14	25	ns
$t_F$	Fall Time	Test Figure 1		13	25	ns
$t_{D1}$	Delay Time	Test Figure 1		30	75	ns
$t_{D2}$	Delay Time	Test Figure 1		45	75	ns
<b>POWER SUPPLY</b>						
$I_S$	Power Supply Current Supply			0.2	4	mA

**Note 3.** Specification for packaged product only.

**Electrical Characteristics:**

Measured over operating temperature range with  $4.5\text{V} \leq V_S \leq 18\text{V}$  unless otherwise specified.

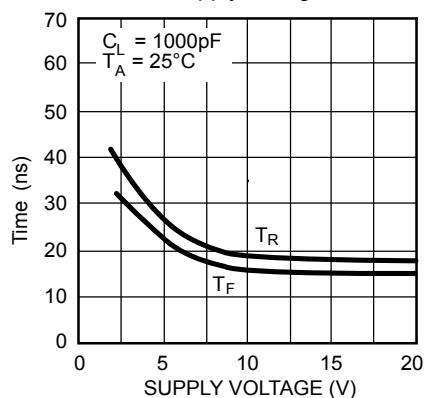
Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>INPUT</b>						
$V_{IH}$	Logic 1 Input Voltage		2.4	1.4		V
$V_{IL}$	Logic 0 Input Voltage			1.0	0.8	V
$I_{IN}$	Input Current	$0 \leq V_{IN} \leq V_S$	-1		1	$\mu\text{A}$
<b>OUTPUT</b>						
$V_{OH}$	High Output Voltage	$I_{LOAD} = 10\text{ mA}$	$V_S - 0.3$			V
$V_{OL}$	Low Output Voltage	$I_{LOAD} = 10\text{ mA}$			0.3	V
$R_O$	Output Resistance	$I_{OUT} = 10\text{ mA}$ , $V_S = 18\text{V}$		7	30	$\Omega$
$I_{PK}$	Peak Output Current			1.2		A
I	Latch-Up Protection Withstand Reverse Current		500			mA
<b>SWITCHING TIME</b>						
$t_R$	Rise Time	Test Figure 1		17	50	ns
$t_F$	Fall Time	Test Figure 1		16	50	ns
$t_{D1}$	Delay Time	Test Figure 1		35	100	ns
$t_{D2}$	Delay Time	Test Figure 1		55	100	ns
<b>POWER SUPPLY</b>						
$I_S$	Power Supply Current Supply			0.4	8	mA

**NOTE 1:** Functional operation above the absolute maximum stress ratings is not implied.

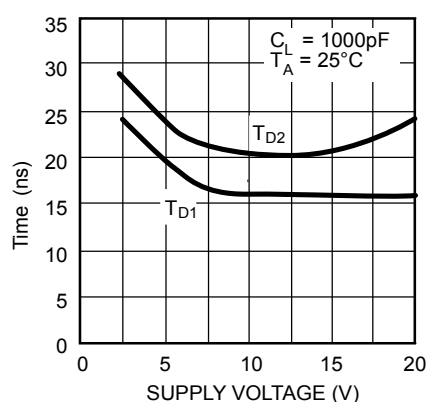
**NOTE 2:** Static sensitive device. Store only in conductive containers. Handling personnel and equipment should be grounded to prevent static damage.

## Typical Characteristics

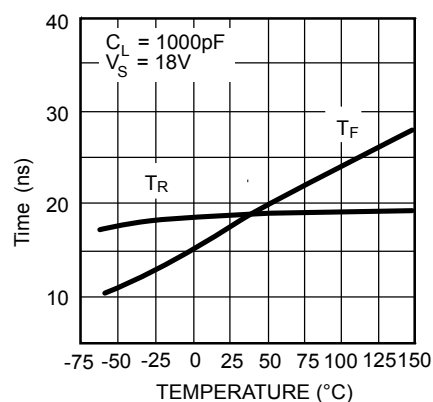
Rise and Fall Time vs. Supply Voltage



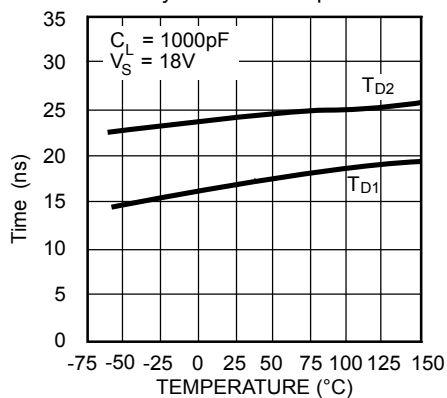
Delay Time vs. Supply Voltage



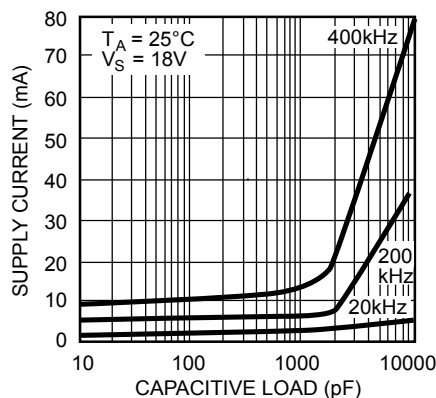
Rise and Fall Time vs. Temperature



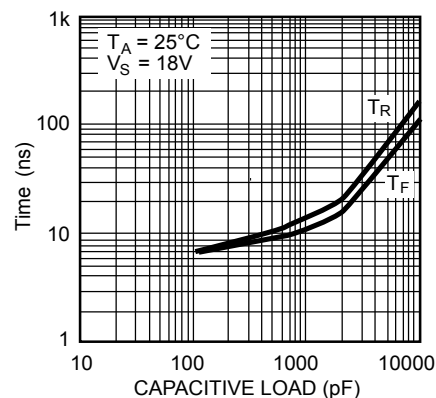
Delay Time vs. Temperature



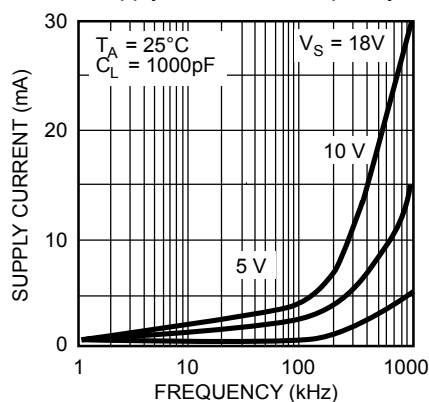
Supply Current vs. Capacitive Load



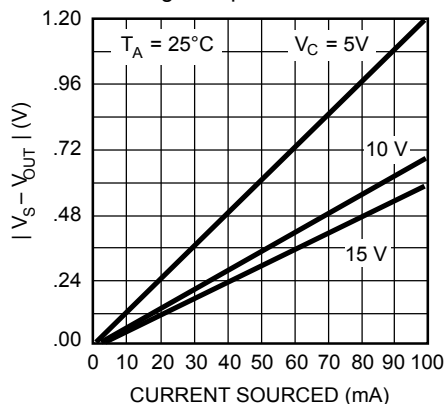
Rise and Fall Time vs. Capacitive Load



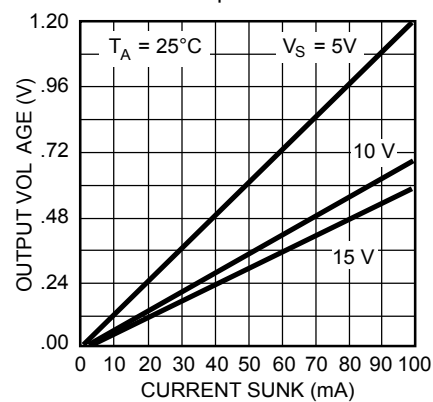
Supply Current vs. Frequency

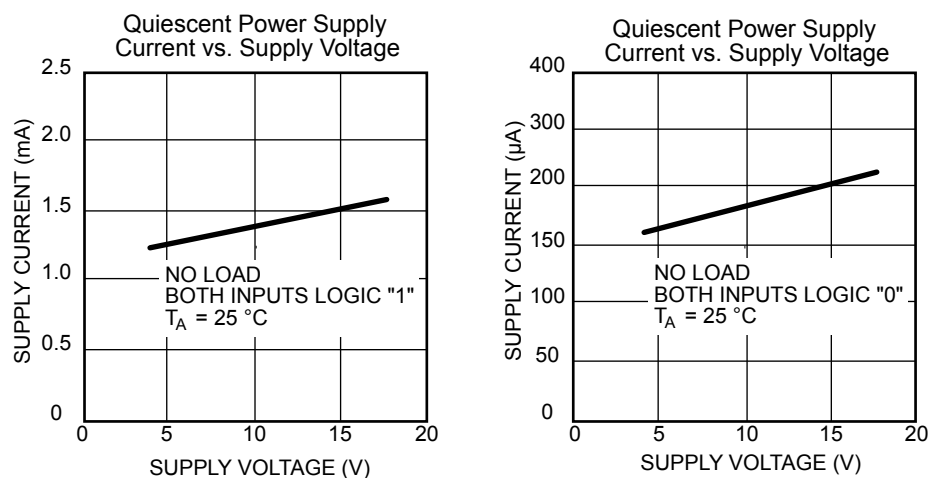


High Output vs. Current

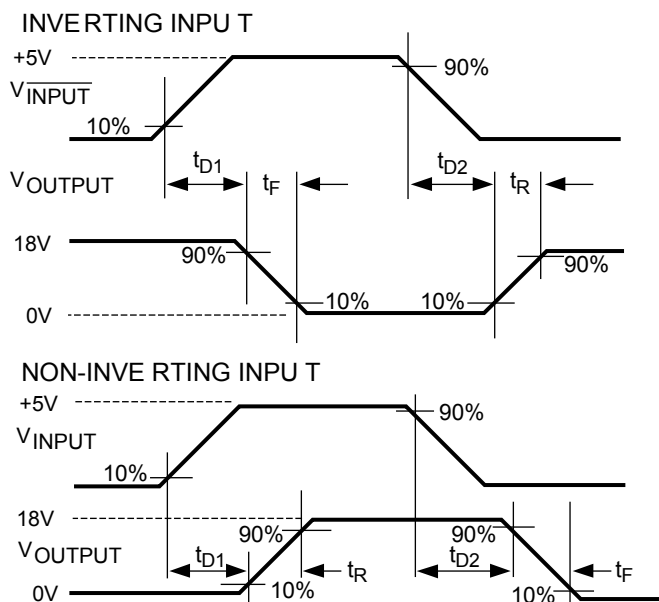
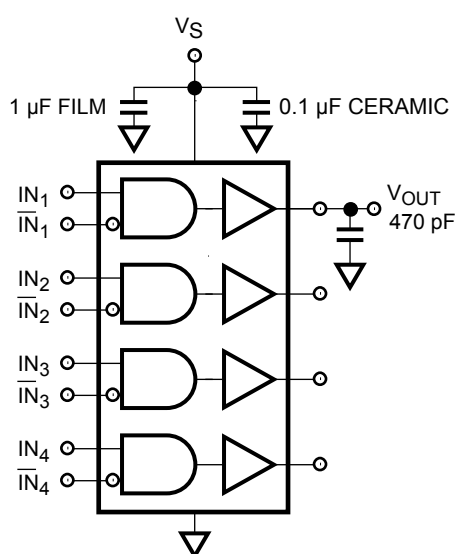


Low Output vs. Current

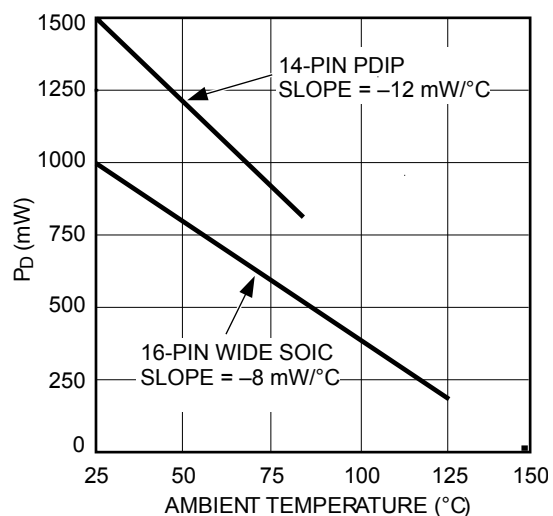




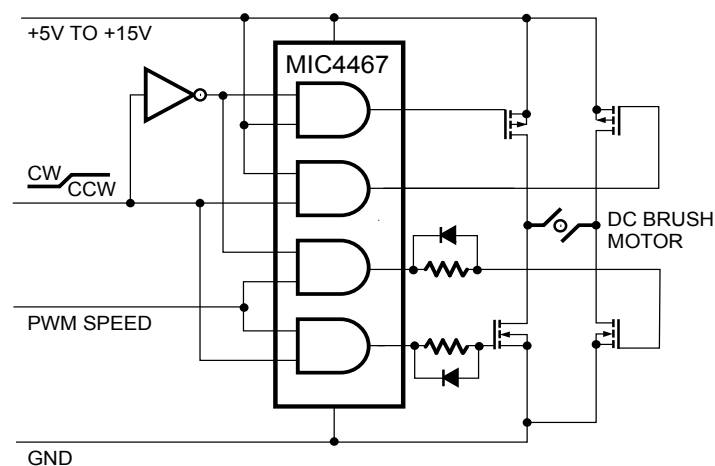
Test Figure 1



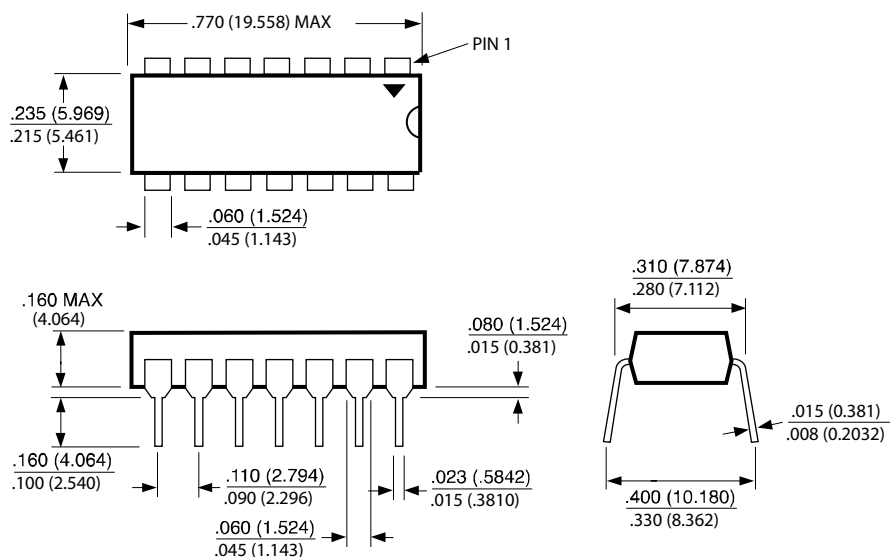
## Package Power Dissipation



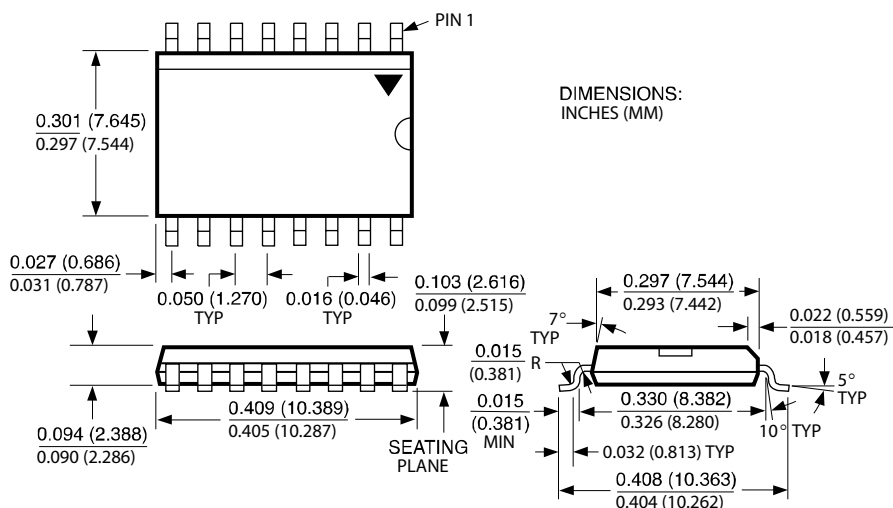
## Quad Driver Drives H Bridge to Control Motor Speed and Direction



## Package Information



**14-Pin Plastic DIP (N)**



**16-Pin Wide SOP (WM)**

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