TEMIC

Siliconix

D469A

Quad High-Current Power Driver

Features

- Wide Voltage Range
- High Current Drive
- Fast Rise and Fall Times
- Low Power Consumption
- Single Power Supply
- Low Output Impedance
- TTL/CMOS Inputs
- ESD Protection

Applications

- Motor Drives
- Power Supplies
- dc/dc Converters

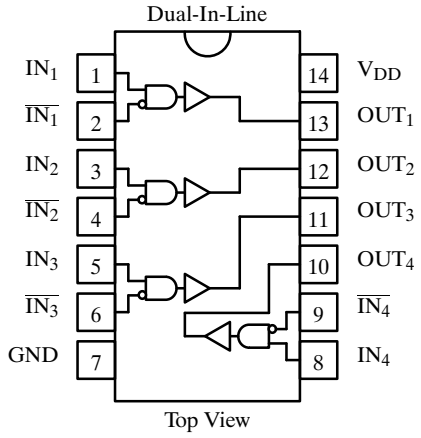
End Products

- Computers
- Printers
- Avionics
- Industrial Controllers
- Robotics
- Central Office Equipment

Description

The D469A is a quad monolithic high-current and high-speed driver designed to interface logic level signals to power MOSFETs, at voltages up to 15 V, in motor controls and other power control applications. This 4-channel power driver can source or sink up to 1.5 A.

Pin Configuration, Functional Block Diagram and Truth Table



Truth Table

IN_X	$\overline{IN_X}$	OUT_X
0	0	Low
0	1	Low
1	0	High
1	1	Low

Ordering Information

Temp Range	Package	Part Number
−40 to 85°C	14-Pin Plastic DIP	D469ADJ
−55 to 125°C	14-Pin Sidebraze	D469AAP
		D469AAP/883
		5962-9098301MCA

Absolute Maximum Ratings

Ambient Temperature Under Bias . . . . . −55 to 125°C
Voltage on Any Pin with Respect to Ground . . −0.3 to V_{DD} +0.3 V
Supply Voltage, V_{DD} . . . . . −0.3 to 18 V
Peak Output Current . . . . . ±1.5 A
DC Continuous Current (Any Output) . . . . . 100 mA
AC Time Average Current . . . . . 100 mA
Storage Temperature . . . . . −65 to 150°C
Operating Temperature (A Suffix) . . . . . −55 to 125°C
(D Suffix) . . . . . −40 to 85°C
Junction Temperature . . . . . 150°C

Power Dissipation (Package)[a]
14-Pin Plastic DIP[b] . . . . . 1000 mW
14-Pin Sidebraze[c] . . . . . 750 mW
Themal Impedance (Θ_{JA})
14-Pin Plastic DIP . . . . . 100°C/W (No Airflow)
14-Pin Sidebraze . . . . . 167°C/W(No Airflow)

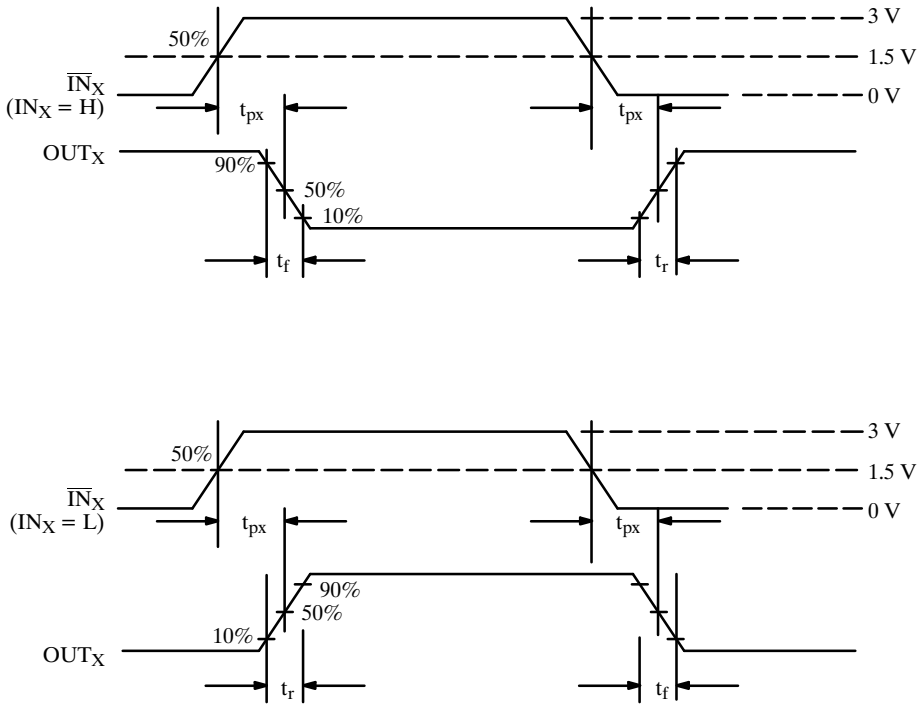
Notes
a. Device mounted with all leads soldered or welded to PC board.
b. Derate 10 mW/°C above 50°C.
c. Derate 6 mW/°C above 25°C.

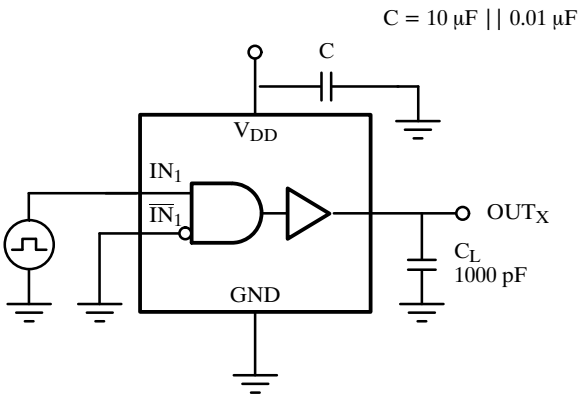
Specifications

Parameter	Symbol	Test Conditions Unless Otherwise Specified V_{DD} = 15 V T_A = Operating Temperature Range	Limit			Unit
			Min[a]	Typ[b]	Max[a]	
Input						
Input Voltage High	V_{INH}		2.4			V
Input Voltage Low	V_{INL}				0.8	
Input Current, Input Voltage High	I_{INH}	$V_{IN} = V_{DD}$		0.001	10	μA
Input Current, Input Voltage Low	I_{INL}	V_{IN} = 0 V	−10	−0.001		
Output						
Output Voltage High	V_{OUTH}	I_{OUT} = −100 mA, One Output at a Time	13	14.44		V
		I_{OUT} = −10 mA	14.8	14.95		
Output Voltage Low	V_{OUTL}	I_{OUT} = 100 mA, One Output at a Time		0.33	1	
		I_{OUT} = 10 mA		0.033	0.1	
Output Source Current	I_{OS+}			1.5		A
Output Sink Current	I_{OS1}			−1.5		
Output Resistance	R_{OUT}	I_{OUT} = 10 mA		3.5		Ω
		I_{OUT} = −10 mA		5.5		
Dynamic						
Propagation Delay	t_{px}	C_L = 1000 pF (See Figure 1)		30	80	ns
Rise Time	t_r			10		
Fall Time	t_f			10		
Input Capacitance	C_{in}			5		pF
Supply						
Supply Current	I_{DD}	$IN_X = \overline{IN_X}$ = 0 V, V_{DD} = 15.75 V		1.4	20	mA
		$IN_X = \overline{IN_X}$ = 3 V, V_{DD} = 15.75 V		1.4	30	
		f = 100 kHz, V_{DD} = 15.75 V, C_L = 1000 pF One Output at a Time		7	20	

Notes
a. The algebraic convention whereby the most negative value is a minimum and the most positive a maximum.
b. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

AC Test Conditions



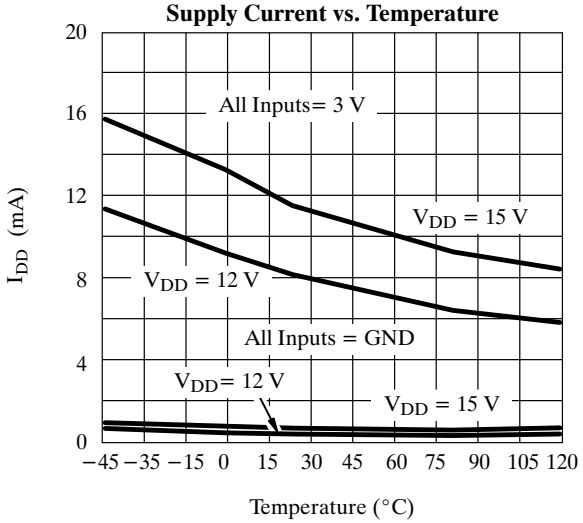


Note: Test repeated for inverting input.

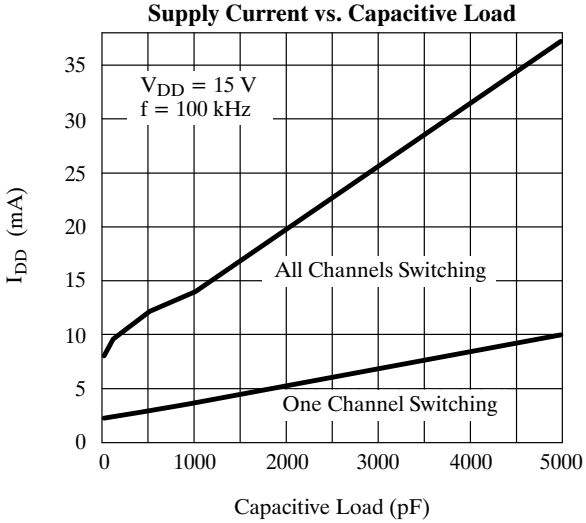
Figure 1. Switching Time Test Circuit

Typical Characteristics

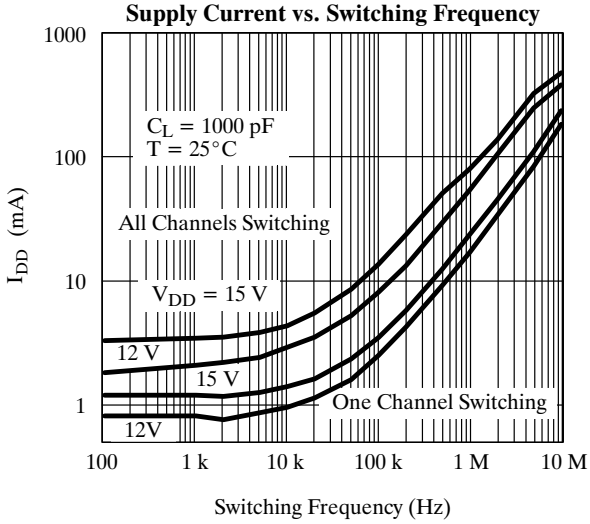
Supply Current vs. Temperature



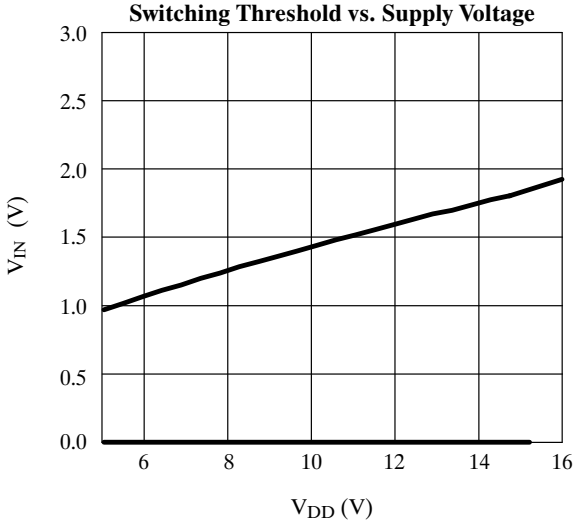
Supply Current vs. Capacitive Load



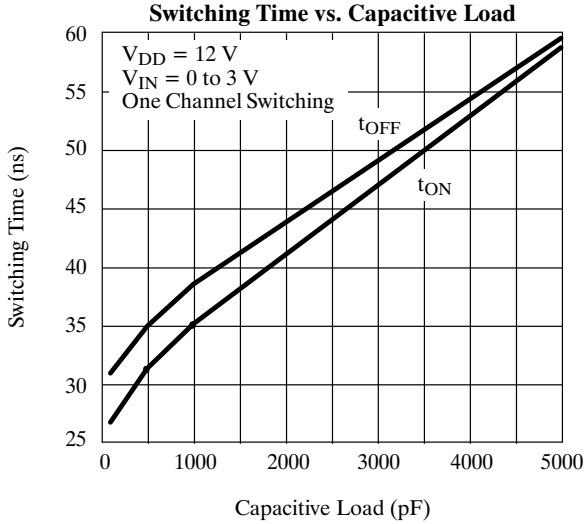
Supply Current vs. Switching Frequency



Switching Threshold vs. Supply Voltage



Switching Time vs. Capacitive Load



Switching Time vs. Capacitive Load