

UDN-2596A THROUGH UDN-2599A 8-CHANNEL SATURATED SINK DRIVERS

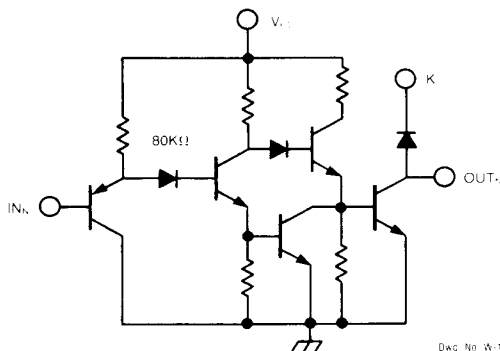
FEATURES

- Low Output on Voltages
- Up to 1.0A Sink Capability
- 50V Min. Output Breakdown
- Output Transient-Suppression Diodes
- Output Pull-Down for Fast Turn-Off
- TTL, CMOS Compatible Inputs

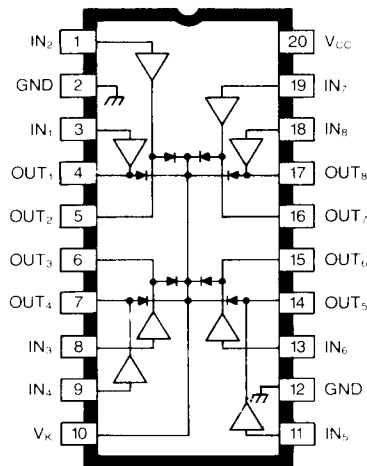
Low output saturation voltages at high load currents are provided by UDN-2596A through UDN-2599A sink driver ICs. These devices can be used as interface buffers between standard low-power digital logic (particularly MOS) and high-power loads such as relays, solenoids, stepping motors, and LED or incandescent displays. The eight saturated sink drivers in each device feature high-voltage, high-current open-collector outputs. Transient suppression clamp diodes and a minimum 35V output sustaining voltage allow their use with many inductive loads.

The saturated (non-Darlington) NPN outputs provide low collector-emitter voltage drops as well as improved turn-off times due to an active pull-down function within the output predrive section. The UDN-2596A and UDN-2598A are for use with output loads to 500mA while the UDN-2597A and UDN-2599A are for use with loads to 1 A. Adjacent outputs may be paralleled for higher load currents.

ONE OF EIGHT DRIVERS



Dwg. No. W-100



Dwg. No. W-100

Inputs require very low input current and are activated by a low logic level consistent with the much greater sinking capability associated with NMOS, CMOS, and TTL logic. The UDN-2596A and UDN-2597A are rated for use with 5V logic levels while the UDN-2598A and UDN-2599A are for use with 10V to 12V logic levels.

All devices are furnished in 20-pin DIP packages with copper leadframes for improved thermal characteristics.

ABSOLUTE MAXIMUM RATINGS at $T_A = +25^\circ\text{C}$

Output Voltage, V_{CE}	50V
Output Current, I_{OUT}	
(UDN-2596/98A)	500mA
(UDN-2597/99A)	1.0A
Supply Voltage, V_{CC}	
(UDN-2596/97A)	7.0V
(UDN-2598/99A)	15V
Input Voltage, V_{IN}	
(UDN-2596/97A)	7.0V
(UDN-2598/99A)	15V
Package Power Dissipation, P_D	2.27W*
Operating Temperature Range, T_A	-20°C to $+85^\circ\text{C}$
Storage Temperature Range, T_S	-65°C to $+150^\circ\text{C}$

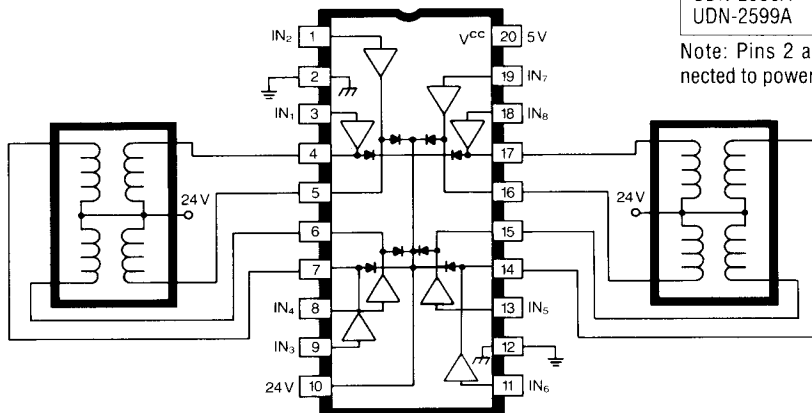
*Derate at the rate of 18.2mW/°C above $T_A = 25^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS at $T_A = +25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$ (UDN-2596/97A) or 12V (UDN-2598/99A)

Characteristics	Symbol	Applicable Devices*	Test Conditions	Limits		
				Min.	Max.	Units
Output Leakage Current	I_{CEX}	All	$V_{OUT} = 50\text{V}$, $V_{IN} = 2.4\text{V}$	—	10	μA
Output Sustaining Voltage	$V_{CE(SUS)}$	2596/98	$I_{OUT} = 300\text{mA}$, $L = 2\text{mH}$	35	—	V
		2597/99	$I_{OUT} = 750\text{mA}$, $L = 2\text{mH}$	35	—	V
Output Saturation Voltage	$V_{CE(SAT)}$	2596/98	$I_{OUT} = 300\text{mA}$	—	0.5	V
		2597/99	$I_{OUT} = 750\text{mA}$	—	1.0	V
Clamp Diode Leakage Current	I_R	All	$V_R = 50\text{V}$	—	10	μA
Clamp Diode Forward Voltage	V_F	2596/98	$I_F = 300\text{mA}$	—	1.8	V
		2597/99	$I_F = 750\text{mA}$	—	1.8	V
Logic Input Current	$I_{IN(0)}$	2596/97	$V_{IN} = 0.8\text{V}$	—	-15	μA
		2598/99	$V_{IN} = 0.8\text{V}$	—	-50	μA
	$I_{IN(1)}$	2596/97	$V_{IN} = 2.4\text{V}$	—	10	μA
		2598/99	$V_{IN} = 12\text{V}$	—	10	μA
Supply Current (per driver)	$I_{CC(ON)}$	2596/98	$V_{IN} = 0.8\text{V}$	—	6.0	mA
		2597/99	$V_{IN} = 0.8\text{V}$	—	22	mA
	$I_{CC(OFF)}$	2596/97	$V_{IN} = 2.4\text{V}$	—	1.3	mA
		2598/99	$V_{IN} = 2.4\text{V}$	—	2.0	mA
Turn-On Delay	t_{pd0}	All	$0.5E_{IN}$ to $0.5E_{OUT}$	—	3.0	μs
Turn-Off Delay	t_{pd1}	All	$0.5E_{IN}$ to $0.5E_{OUT}$	—	2.0	μs

*Complete part number includes prefix UDN- and suffix A. e.g. UDN-2596A.

**TYPICAL APPLICATION
DUAL STEPPER MOTOR DRIVE**



RECOMMENDED OPERATING CONDITIONS

Type Number	Logic	I_{OUT}
UDN-2596A	5.0V	300mA
UDN-2597A	5.0V	750mA
UDN-2598A	10-12V	300mA
UDN-2599A	10-12V	750mA

Note: Pins 2 and 12 must both be connected to power ground.

Dwg. No. W-102A