

# 7180

T-52-13-09

## GAS-DISCHARGE DISPLAY SEGMENT DRIVER

The UDN7180A segment driver is a monolithic high-voltage bipolar integrated circuit for interfacing between MOS or other low-voltage circuits and the cathode of gas-discharge display panels.

These drivers reduce substantially the number of discrete components required with panels (Beckman, Burroughs, Dale, Matsushita, NEC, Pantek, etc) in calculator, clock and instrumentation applications.

The UDN7180A driver requires external current limiting and is intended for higher-current applications or where individual outputs are operated at different current levels (i.e. with alpha-numeric displays). All inputs have pull-down resistors for direct connection to open-drain PMOS logic.

This device provides output currents suitable for display segments in a wide variety of display sizes and number of display digits. Either a fixed split supply operation or a feedback-controlled scheme is allowed.

The UDN7180A driver can be used in a wide variety of low-level to high-voltage applications utilizing gas-discharge displays such as those found in calculators, clocks, point-of sale terminals, and instruments. Its high reliability combined with minimum size, ease of installation, and the cost advantages of a complete monolithic interface make it the ideal choice in many applications.

### FEATURES

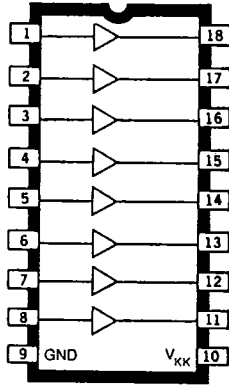
- Reliable Monolithic Construction
- High Output Breakdown Voltage
- Low Power
- TTL/MOS Compatible Inputs

### ABSOLUTE MAXIMUM RATINGS at + 25°C

Supply Voltage, $V_{KK}$ .....	-115 V
Input Voltage, $V_{IN}$ .....	+20 V
Output Current, $I_{OUT}$ .....	20 mA
Power Dissipation, $P_D$ .....	2.2 W*
Operating Temperature Range,	
$T_A$ .....	-20°C to +85°C
Storage Temperature Range,	
$T_S$ .....	-65°C to +150°C

\*Derate at the rate of 18 mW/°C above 25°C

Due to the high input impedance of these devices, they are susceptible to static discharge damage sometimes associated with handling and testing. Therefore, techniques similar to those used for handling MOS devices should be employed.



Dwg. No. A-9640A

Always order by complete part number: **UDN7180A**.

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**ELECTRICAL CHARACTERISTICS at  $T_A = +25^\circ\text{C}$ ,  $V_{KK} = 110\text{ V}$  (unless otherwise specified).**

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Output ON Voltage	$V_{ON}$	All inputs at 2.4 V, $I_{ON} = 14\text{ mA}$	-105	-108	—	V
Output OFF Voltage	$V_{OFF}$	All inputs at 0.4 V, Reference $V_{KK}$	76	84	—	V
Output Current ( $I_{SENSE}$ )	$I_{ON}$	All inputs at 0.4 V, $V_{KK} = -110\text{ V}$ , Test output held at -66 V	-95	-120	-155	$\mu\text{A}$
Input High Current	$I_{IH}$	Test input at 2.4 V, Other inputs at 0 V	—	100	200	$\mu\text{A}$
Input Low Current	$I_{IL}$	Test input at 0.4 V, One input at 2.4 V, Other inputs at 0.4 V	—	1.0	10	$\mu\text{A}$
Supply Current	$I_{KK}$	All inputs at 0 V	—	-125	-175	$\mu\text{A}$

- NOTES: 1. All voltage measurements are referenced to pin 9 unless otherwise specified.  
 2. All voltage measurements made with 10M $\Omega$  DVM or VTVM.  
 3. Recommended  $V_{KK}$  operating range -85 to -110 V.  
 4. Positive (negative) current is defined as going into (coming out of) the specified device pin.

### PARTIAL SCHEMATIC

