

# 2585

## 8-CHANNEL SOURCE DRIVER

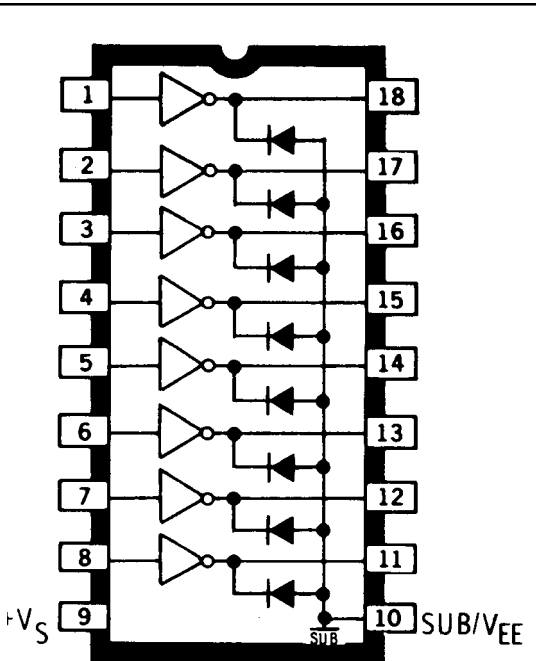
This versatile integrated circuit will work with many combinations of logic- and load-voltage levels, meeting interface requirements beyond the capabilities of standard logic buffers. The UDN2585A and A2585SLW source drivers can drive incandescent, LED, or vacuum fluorescent displays. Internal transient-suppression diodes permit the drivers to be used with inductive loads such as relays, solenoids, dc and stepping motors, and magnetic print hammers.

The UDN2585A and A2585SLW are drivers designed for applications requiring low output saturation voltages. Typical loads are low-voltage LEDs and incandescent displays. The eight non-Darlington, 25 V outputs will simultaneously sustain continuous load currents of -120 mA at ambient temperatures to +70°C.

These drivers are packaged in plastic DIPs (suffix A) or surface-mountable wide-body SOICs (suffix LW), and are rated for operation over the temperature range of -20°C to +85°C.

### FEATURES

- TTL, CMOS, PMOS, NMOS Compatible
- High Output-Current Rating
- Internal Transient Suppression
- Efficient Input/Output Structure
- Through-Hole and Surface-Mount Packages



Dwg. No. A-11,359

### ABSOLUTE MAXIMUM RATINGS at 25°C Free-Air Temperature

Output Voltage, $V_{CE}$ .....	25 V
Supply Voltage, $V_S$ (ref. sub.) .....	25 V
Input Voltage, $V_{IN}$ (ref. $V_S$ ) .....	-20 V
Total Output Current, ( $I_C + I_S$ ) .....	-250 mA
Substrate Current $I_{SUB}$ .....	2.0 A
Package Power Dissipation, $P_D$ (single output) .....	1.0 W
(total package) .....	See Graph
Operating Temperature Range, $T_A$ .....	-20°C to +85°C
Storage Temperature Range, $T_S$ .....	-55°C to +150°C

Always order by complete part number, e.g., **UDN2585A**.

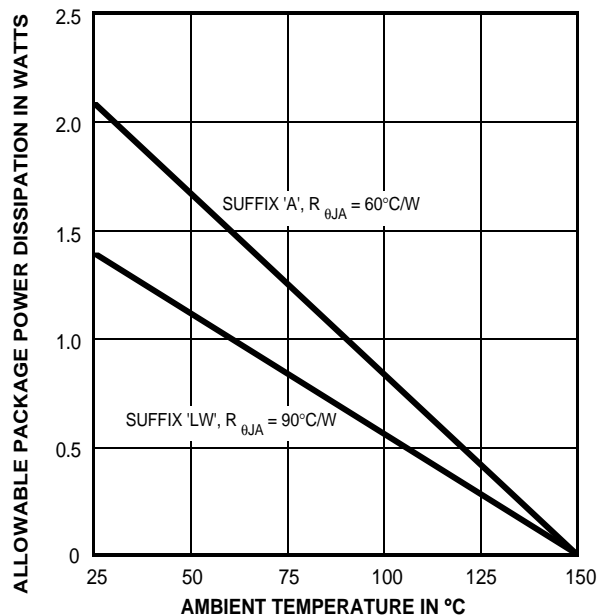
# 2585 8-CHANNEL SOURCE DRIVER

For simplification, these devices are characterized on the following pages with specific voltages for inputs, logic supply ( $V_S$ ), load supply ( $V_{EE}$ ), and collector supply ( $V_{CC}$ ). The more common application of the UDN2585A and A2585SLW are with positive-referenced logic supplies. In application, the devices are capable of operation over a wide range of logic and supply voltage levels:

## TYPICAL OPERATING VOLTAGES

$V_S$	$V_{IN(ON)}$	$V_{IN(OFF)}$	$V_{CC}$	$V_{EE(MAX)}$	Device Types
0 V	-15 V to -3.6 V	-0.5 V to 0 V	NA	-25 V	UDN2585A & A2585SLW
+5 V	0 V to +1.4 V	+4.5 V to +5 V	NA	-20 V	UDN2585A & A2585SLW
+12 V	0 V to +8.4 V	+11.5 V to +12 V	NA	-13 V	UDN2585A & A2585SLW
+15 V	0 V to +11.4 V	+14.5 V to +15 V	NA	-10V	UDN2585A & A2585SLW

NOTE: The substrate must be tied to the most negative point in the external circuit to maintain isolation between drivers and to provide for normal circuit operation.



Dwg. GS-009-1A

# 2585 8-CHANNEL SOURCE DRIVER

## UDN2585A and A2585SLW

**ELECTRICAL CHARACTERISTICS at  $T_A = +25^\circ\text{C}$ ,  $V_S = 0\text{ V}$ ,  $V_{EE} = -20\text{ V}$  (unless otherwise noted).**

Characteristic	Symbol	Test Conditions	Limits		
			Min.	Max.	Units
Output Leakage Current	$I_{CEX}$	$V_{IN} = -0.5\text{ V}$ , $V_{OUT} = V_{EE} = -25\text{ V}$	—	50	$\mu\text{A}$
		$V_{IN} = -0.4\text{ V}$ , $V_{OUT} = V_{EE} = -25\text{ V}$ , $T_A = 70^\circ\text{C}$	—	100	$\mu\text{A}$
Output Sustaining Voltage	$V_{CE(SUS)}$	$V_{IN} = -0.4\text{ V}$ , $I_{OUT} = -25\text{ mA}$ , Note 1	15	—	V
Output Saturation Voltage	$V_{CE(SAT)}$	$V_{IN} = -4.6\text{ V}$ , $I_{OUT} = -60\text{ mA}$	—	1.1	V
		$V_{IN} = -4.6\text{ V}$ , $I_{OUT} = -120\text{ mA}$	—	1.2	V
Input Current	$I_{IN(ON)}$	$V_{IN} = -4.6\text{ V}$ , $I_{OUT} = -120\text{ mA}$	—	-1.6	mA
		$V_{IN} = -14.6\text{ V}$ , $I_{OUT} = -120\text{ mA}$	—	-5.0	mA
Input Voltage	$V_{IN(ON)}$	$I_{OUT} = -120\text{ mA}$ , $V_{CE} \leq 1.2\text{ V}$ , Note 3	—	-4.6	V
	$V_{IN(OFF)}$	$I_{OUT} = -100\text{ }\mu\text{A}$ , $T_A = 70^\circ\text{C}$	-0.4	—	V
Clamp Diode Leakage Current	$I_R$	$V_R = 25\text{ V}$ , $T_A = 70^\circ\text{C}$	—	50	$\mu\text{A}$
Clamp Diode Forward Voltage	$V_F$	$I_F = 120\text{ mA}$	—	2.0	V
Input Capacitance	$C_{IN}$		—	25	pF
Turn-On Delay	$t_{PHL}$	$0.5 E_{IN}$ to $0.5 E_{OUT}$	—	5.0	$\mu\text{s}$
Turn-Off Delay	$t_{PLH}$	$0.5 E_{IN}$ to $0.5 E_{OUT}$	—	5.0	$\mu\text{s}$

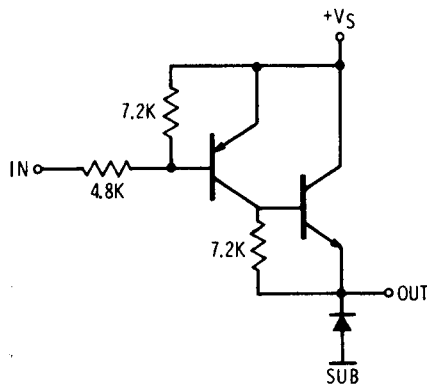
NOTES: 1. Pulsed test,  $t_p \leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$ .

2. Negative current is defined as coming out of the specified device pin.

3. The  $V_{IN(ON)}$  voltage limit guarantees a minimum output source current per the specified conditions.

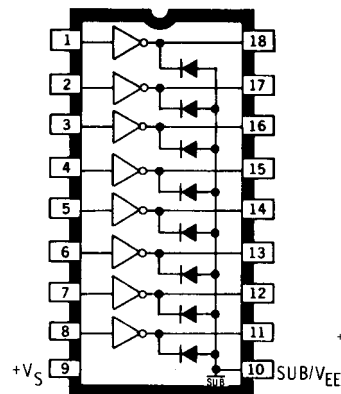
4. The substrate must always be tied to the most negative point and must be at least 4.0 V below  $V_S$ .

### PARTIAL SCHEMATIC



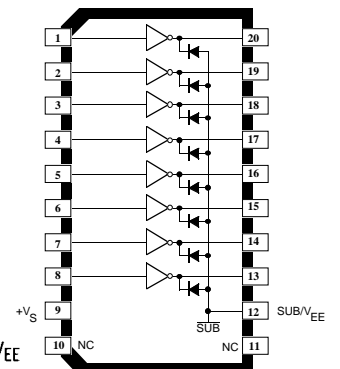
Dwg. No. A-11,360

### UDN2585A



Dwg. No. A-11,359

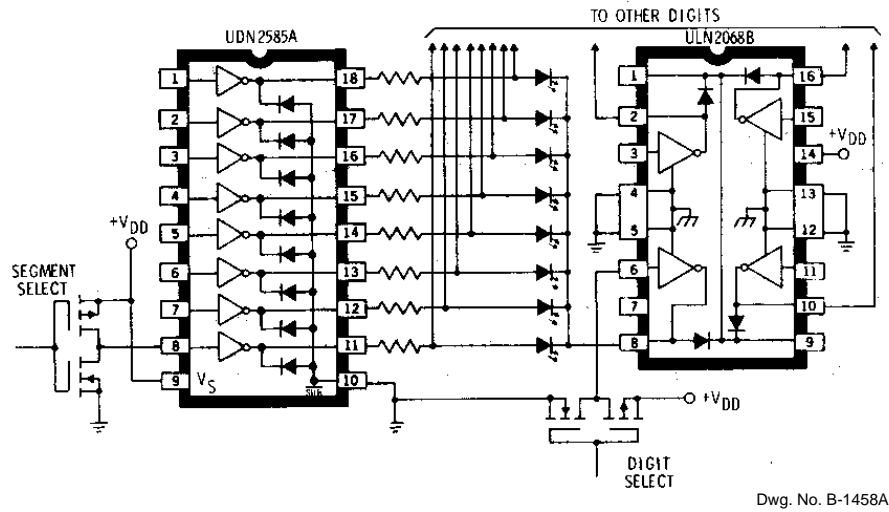
### A2585SLW



Dwg. PP-064

# 2585 8-CHANNEL SOURCE DRIVER

## TYPICAL APPLICATION



## COMMON-CATHODE LED DRIVER

*The products described here are manufactured under one or more U.S. patents or U.S. patents pending.*

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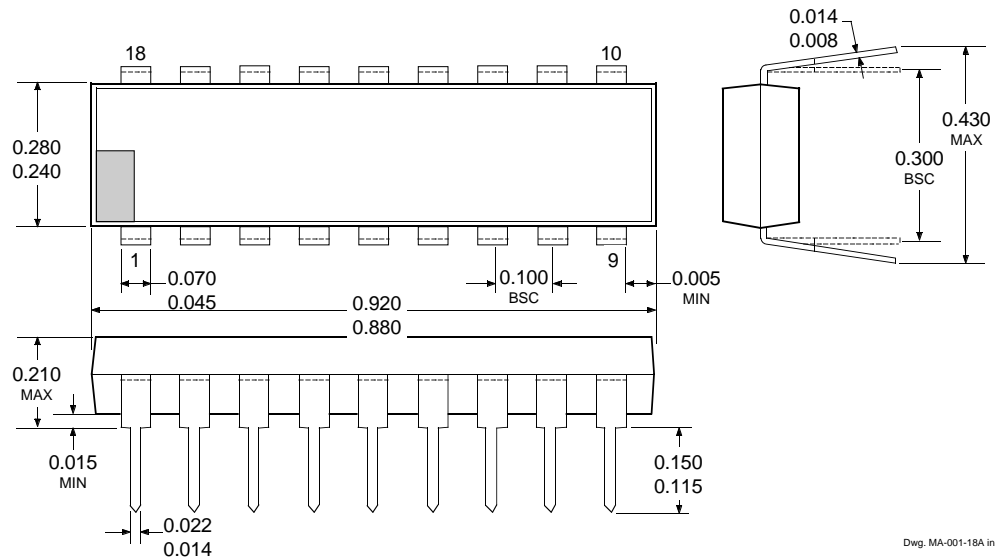
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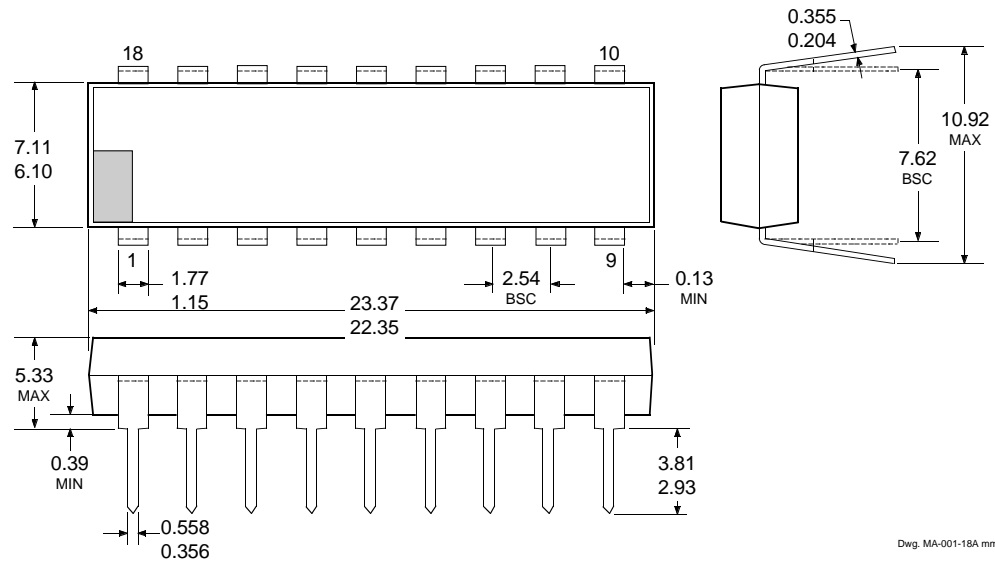
# 2585 8-CHANNEL SOURCE DRIVER

## UDN2585A

Dimensions in Inches  
(controlling dimensions)



Dimensions in Millimeters  
(for reference only)

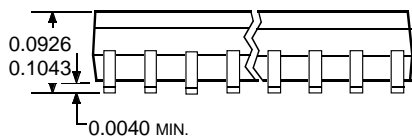
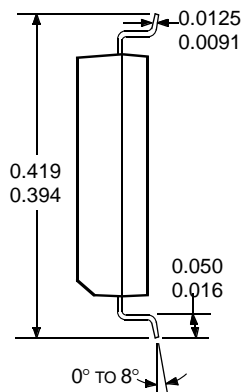
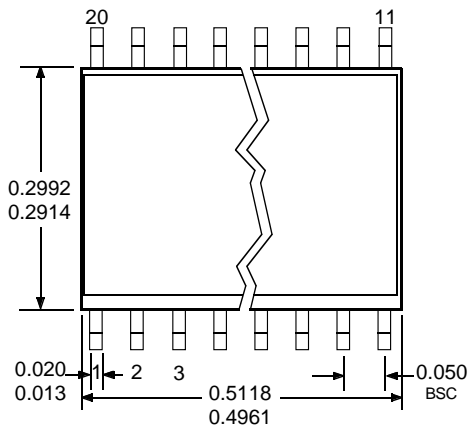


- NOTES: 1. Exact body and lead configuration at vendor's option within limits shown.  
 2. Lead spacing tolerance is non-cumulative.  
 3. Lead thickness is measured at seating plane or below.  
 4. Supplied in standard sticks/tubes of 21 devices.

**2585**  
**8-CHANNEL**  
**SOURCE DRIVER**

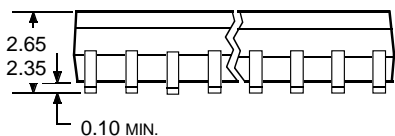
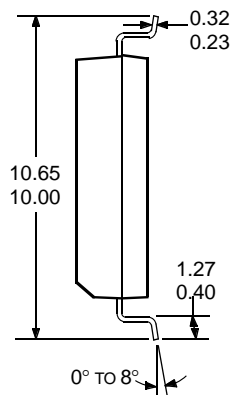
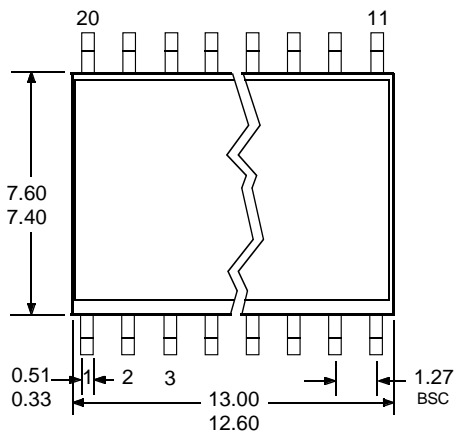
**A2585SLW**

**Dimensions in Inches**  
 (for reference only)



Dwg. MA-008-20 in

**Dimensions in Millimeters**  
 (controlling dimensions)



Dwg. MA-008-20 mm

- NOTES: 1. Exact body and lead configuration at vendor's option within limits shown.  
 2. Lead spacing tolerance is non-cumulative.  
 3. Supplied in standard sticks/tubes of 37 devices or add "TR" to part number for tape and reel.