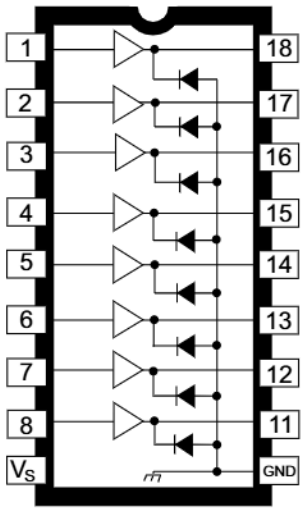
2981 AND 2982

Data Sheet 29310F

8-CHANNEL SOURCE DRIVERS

UDN2981A



Dwg. No. A-10, 243

Note that the UDN2980A series (dual in-line package) and UDN2980LW series (small-outline IC package) are electrically identical and share a common terminal number assignment.

ABSOLUTE MAXIMUM RATINGS
at 25°C Free-Air Temperature

Output Voltage Range, V_{CE} . . . . . **5 V to 50 V**
Input Voltage, V_{IN}
UDN2981A. . . . . **15 V**
UDN2982A, UDN2982LW, and,
A2982SLW . . . . . **20 V**
Output Current, I_{OUT} . . . . . **-500 mA**
Package Power Dissipation,
P_D . . . . . **See Graph**
Operating Temperature Range,
T_A . . . . . **-20°C to +85°C**
Storage Temperature Range,
T_S . . . . . **-55°C to +150°C**

Recommended for high-side switching applications that benefit from separate logic and load grounds, these devices encompass load supply voltages to 50 V and output currents to -500 mA. These 8-channel source drivers are useful for interfacing between low-level logic and high-current loads. Typical loads include relays, solenoids, lamps, stepper and/or servo motors, print hammers, and LEDs.

All devices may be used with 5 V logic systems — TTL, Schottky TTL, DTL, and 5 V CMOS. The UDN2981A, UDN2982A, and A2982SLW are electrically interchangeable, will withstand a maximum output off voltage of 50 V, and operate to a minimum of 5 V. All devices in this series integrate input current limiting resistors and output transient suppression diodes, and are activated by an active high input.

The suffix 'A' (all devices) indicates an 18-lead plastic dual in-line package with copper lead frame for optimum power dissipation. Under normal operating conditions, these devices will sustain 120 mA continuously for each of the eight outputs at an ambient temperature of +50°C and a supply of 15 V.

The suffix 'LW' (UDN2982LW only) indicates an 18-lead surface-mountable wide-body SOIC package; the A2982SLW is provided in a 20-lead wide-body SOIC package with improved thermal characteristics.

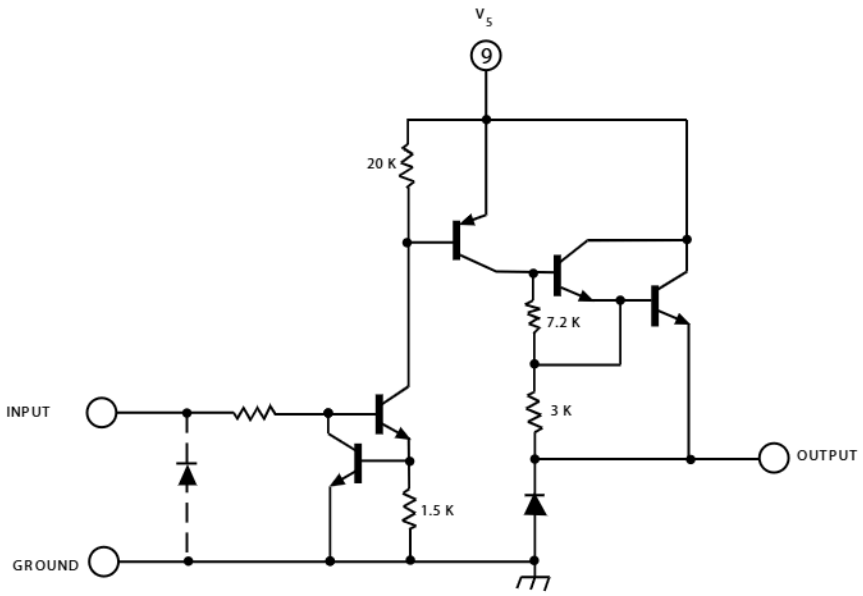
The UDN2982A, UDN2982LW, and A2982SLW drivers are also available for operation over an extended temperature range to -40°C. To order, change the prefix 'UDN' to 'UDQ' or the suffix 'SLW' to 'ELW'. These packages are available in Pb (lead) free variants (suffix '-T'), with 100% matte-tin leadframe plating.

FEATURES

- TTL, DTL, PMOS, or CMOS Compatible Inputs
- 500 mA Output Source Current Capability
- Transient-Protected Outputs
- Output Breakdown Voltage to 50 V
- DIP or SOIC Packaging

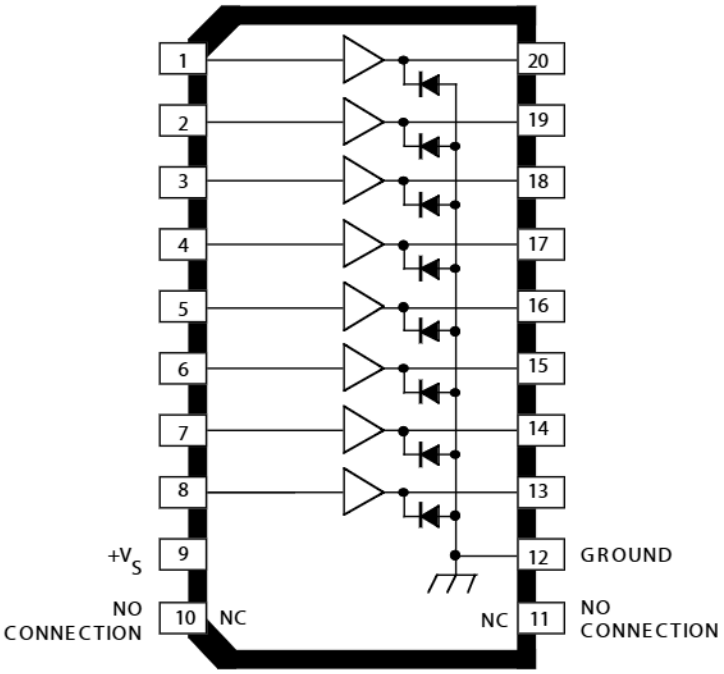
Always order by complete part number, e.g., **UDN2981A** .
Note that all devices are not available in all package styles.

One of Eight Drivers

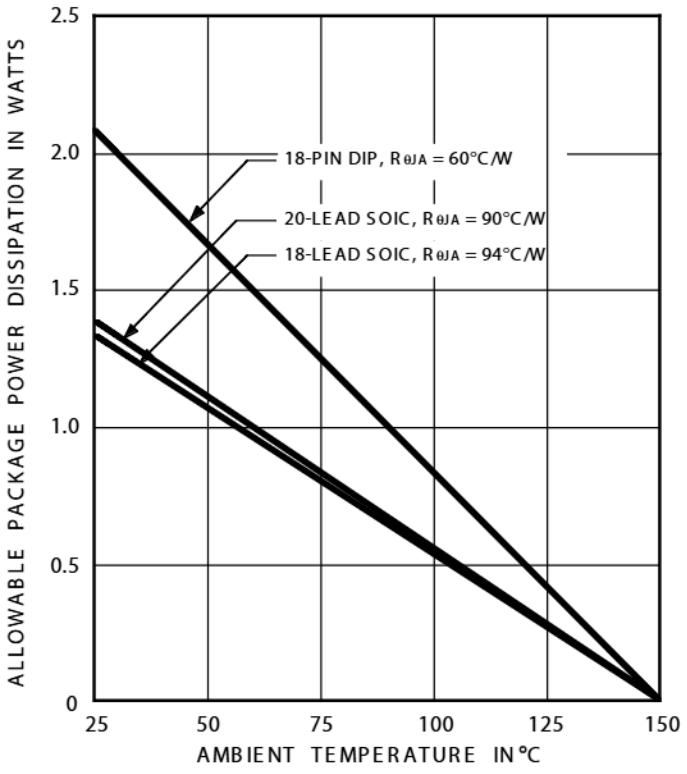


Dwg. No. A-10,242B

A2982SLW



Dwg. PP-064-2



Dwg. GP-022-4A

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ELECTRICAL CHARACTERISTICS at T_A = +25°C (unless otherwise specified).

Characteristic	Symbol	Applicable Devices	Test Conditions	Test Fig.	Limits Min.	Typ.	Max.	Units
Output Leakage Current	I_{CEX}	All	V_{IN} = 0.4 V*, V_S = 50 V, T_A = +70°C	1	—	—	200	∝A
Output Sustaining Voltage	$V_{CE(SUS)}$	All	I_{OUT} = -45 mA	—	35	—	—	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	All	V_{IN} = 2.4 V, I_{OUT} = -100 mA	2	—	1.6	1.8	V
			V_{IN} = 2.4 V, I_{OUT} = -225 mA	2	—	1.7	1.9	V
			V_{IN} = 2.4 V, I_{OUT} = -350 mA	2	—	1.8	2.0	V
Input Current	$I_{IN(ON)}$	UDN2981A	V_{IN} = 2.4 V	3	—	140	200	∝A
			V_{IN} = 3.85 V	3	—	310	450	∝A
		2982†	V_{IN} = 2.4 V	3	—	140	200	∝A
			V_{IN} = 12 V	3	—	1.25	1.93	mA
Output Source Current (Outputs Open)	I_{OUT}	UDN2981A	V_{IN} = 2.4 V, V_{CE} = 2.0 V	2	-350	—	—	mA
		2982†	V_{IN} = 2.4 V, V_{CE} = 2.0 V	2	-350	—	—	mA
Supply Current Leakage Current	I_S	All	V_{IN} = 2.4 V*, V_S = 50 V	4	—	—	10	mA
Clamp Diode	I_R	All	V_R = 50 V, V_{IN} = 0.4 V*	5	—	—	50	∝A
Clamp Diode	V_F	All	I_F = 350 mA	6	—	1.5	2.0	V
Turn-On Delay	t_{ON}	All	0.5 E_{IN} to 0.5 E_{OUT}, R_L = 100Ω, V_S = 35 V	—	—	0.3	2.0	∝s
Turn-Off Delay	t_{OFF}	All	0.5 E_{IN} to 0.5 E_{OUT}, R_L = 100Ω, V_S = 35 V, See Note	—	—	2.0	10	∝s

NOTES: Turn-off delay is influenced by load conditions. Systems applications well below the specified output loading may require timing considerations for some designs, i.e., multiplexed displays or when used in combination with sink drivers in a totem pole configuration.

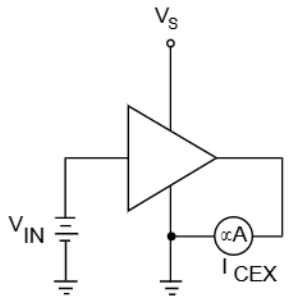
Negative current is defined as coming out of (sourcing) the specified device terminal.

* All inputs simultaneously.

† Complete part number includes a prefix (A or UDN) and a suffix (A or SLW) as follows: UDN2981A, UDN2982A, UDN2982LW, or A2982SLW.

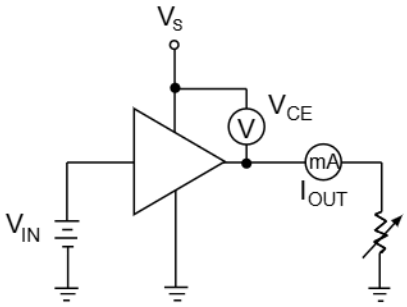
TEST FIGURES

Figure 1



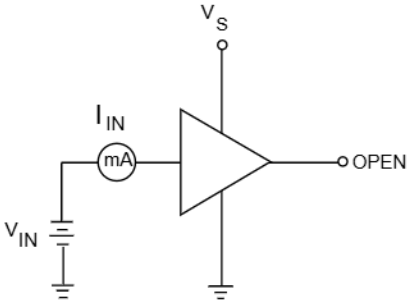
Dwg. No. A-11,083

Figure 2



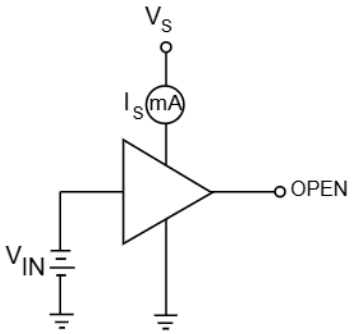
Dwg. No. A-11,084

Figure 3



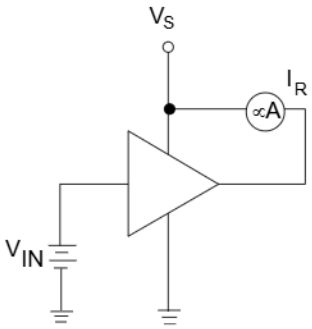
Dwg. No. A-11,085

Figure 4



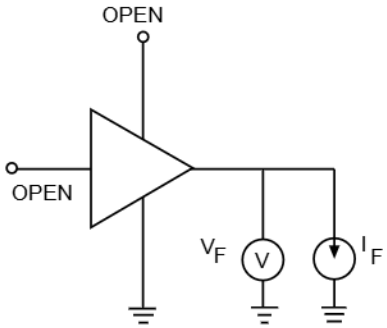
Dwg. No. A-11,086

Figure 5



Dwg. No. A-11,087

Figure 6

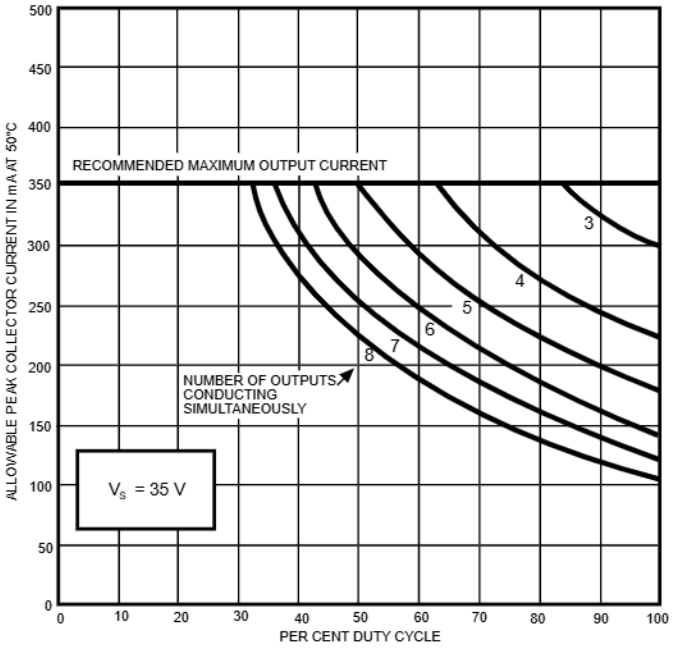


Dwg. No. A-11,088

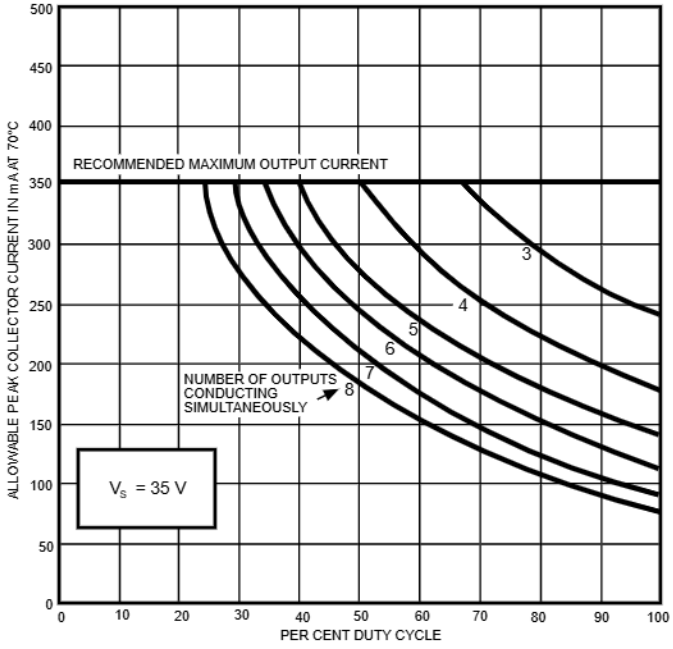
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Allowable peak collector current as a function of duty cycle

Series UDN2980A

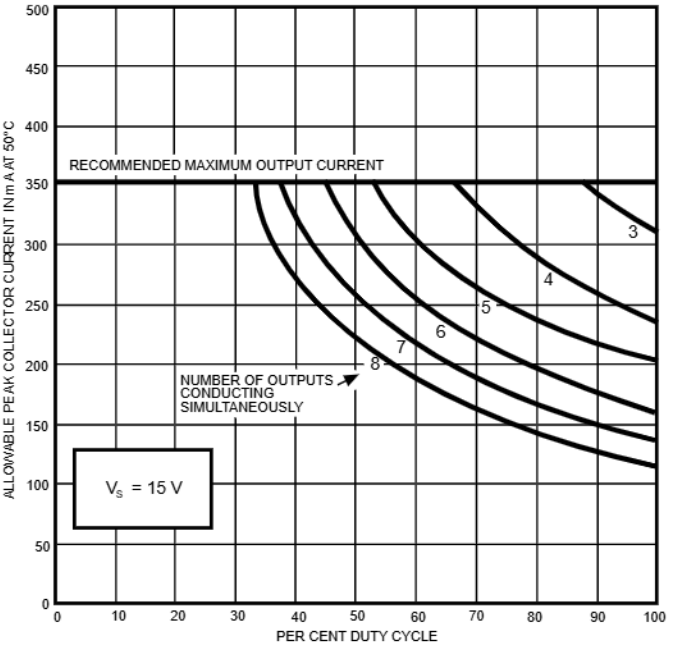


Dwg. No. A-11,106B

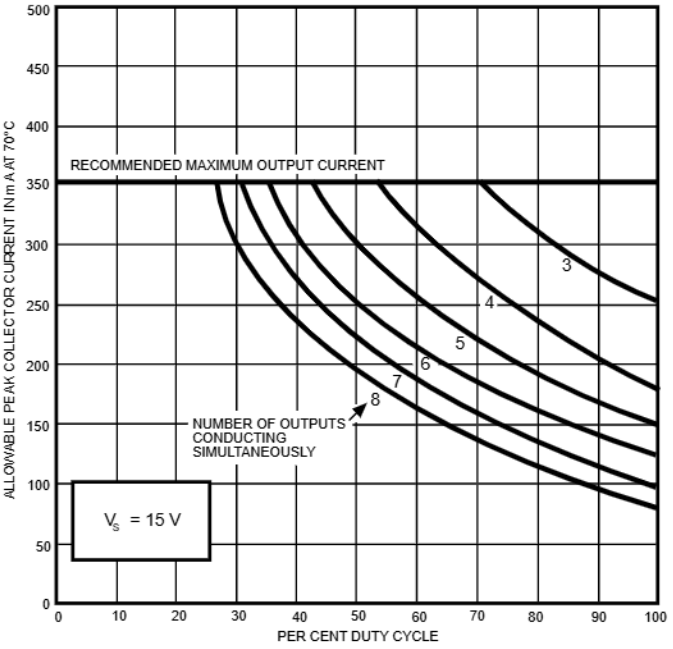


Dwg. No. A-11,111B

UDN2981A and UDN2982A

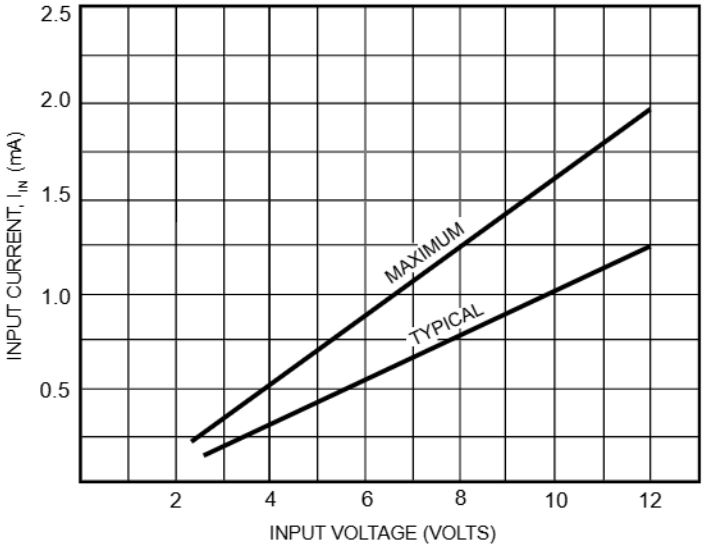


Dwg. No. A-11,107B



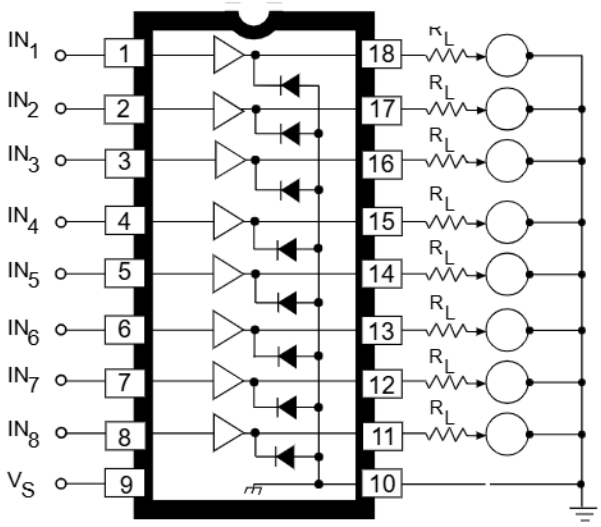
Dwg. No. A-11,108B

Input current as a function of input voltage



Dwg. No. A-11,115B

Typical electrosensitive printer application

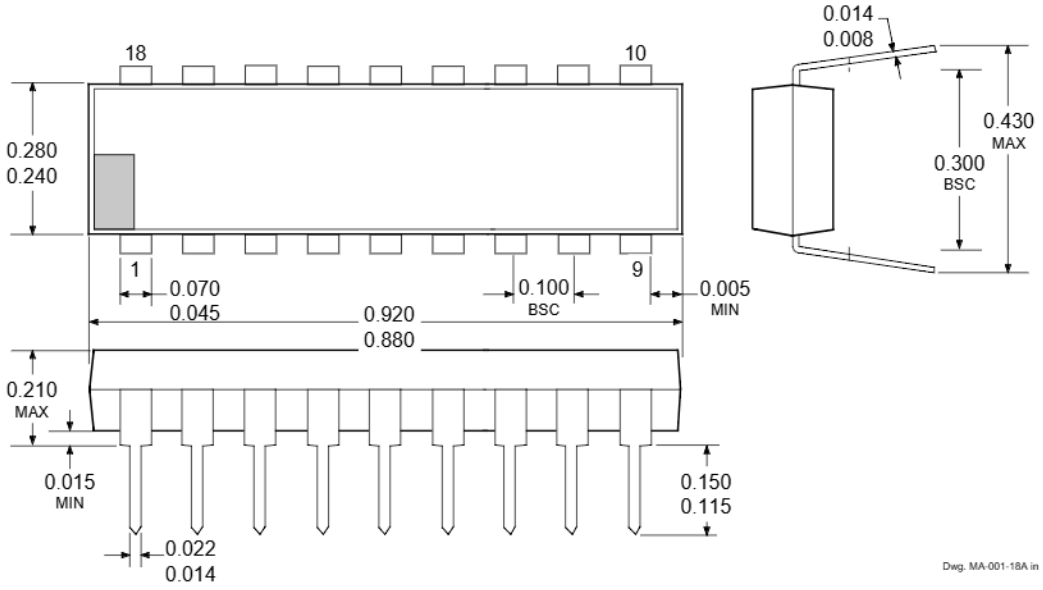


Dwg. No. A-11,113A

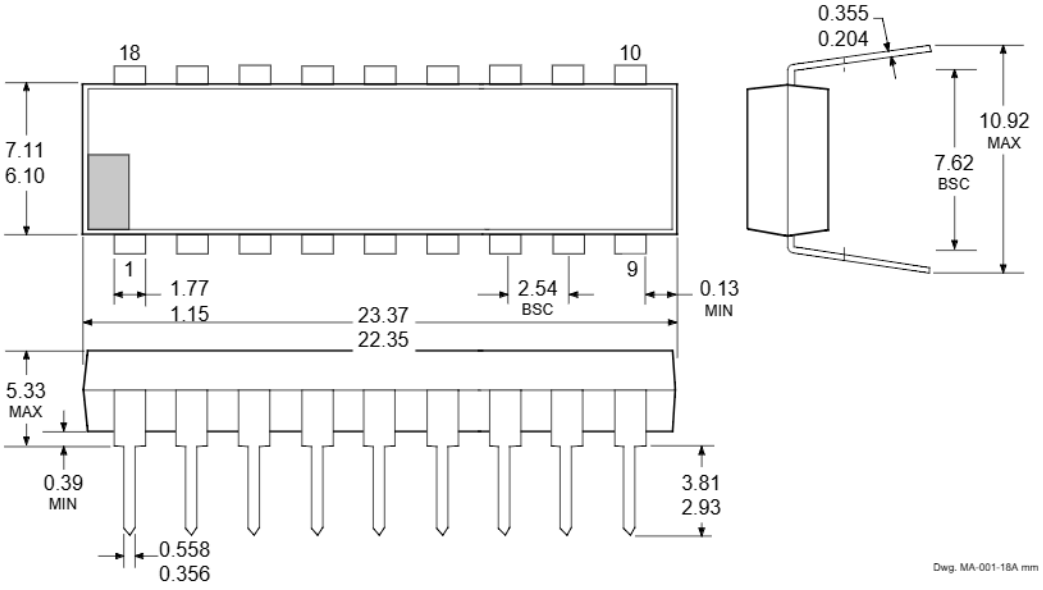
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UDN2981A and UDN2982A

Dimensions in Inches
(controlling dimensions)



Dimensions in Millimeters
(for reference only)



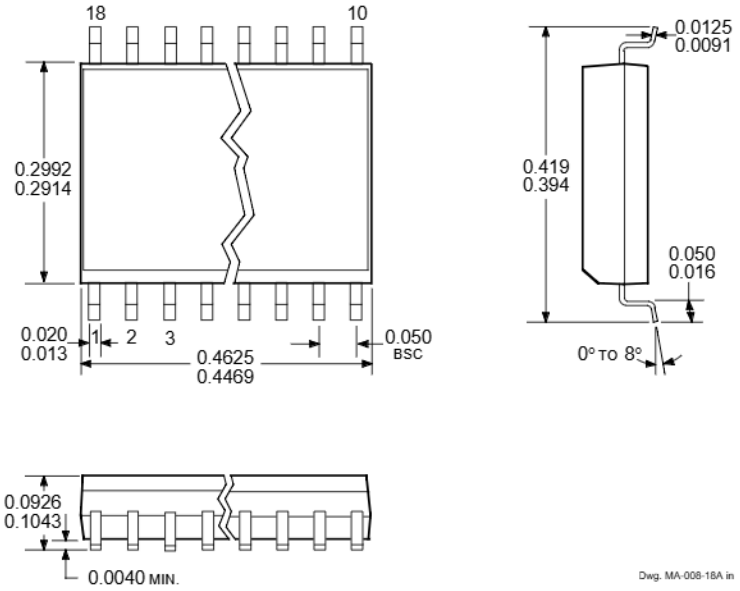
NOTES: 1. Exact body and lead configuration at vendor's option within limits shown.
2. Lead spacing tolerance is non-cumulative.
3. Lead thickness is measured at seating plane or below.
4. Supplied in standard sticks/tubes of 21 devices.

UDN2982LW

(add "TR" to part number for tape and reel)

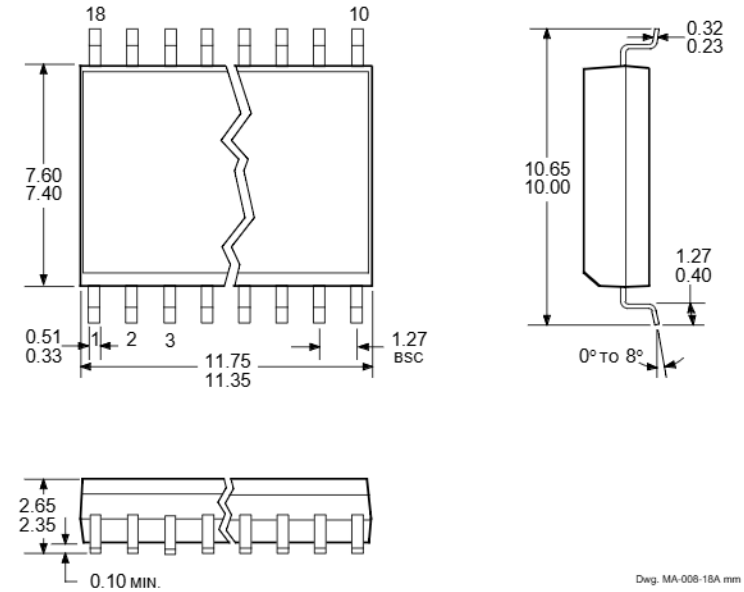
Dimensions in Inches

(for reference only)



Dimensions in Millimeters

(controlling dimensions)



NOTES: 1. Exact body and lead configuration at vendor's option within limits shown.
2. Lead spacing tolerance is non-cumetive.
3. Supplied in standard sticks/tubes of 41 devices or add "TR" to part number for tape and reel.

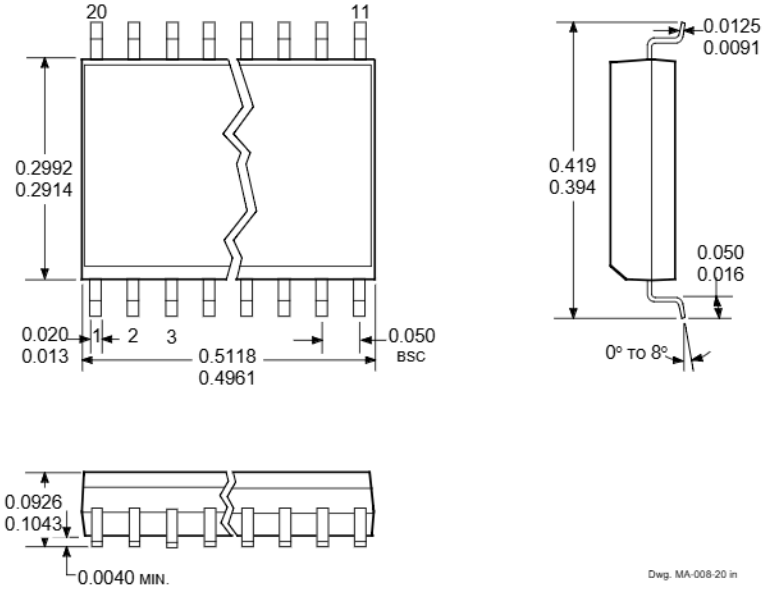
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A2982SLW

(add "TR" to part number for tape and reel)

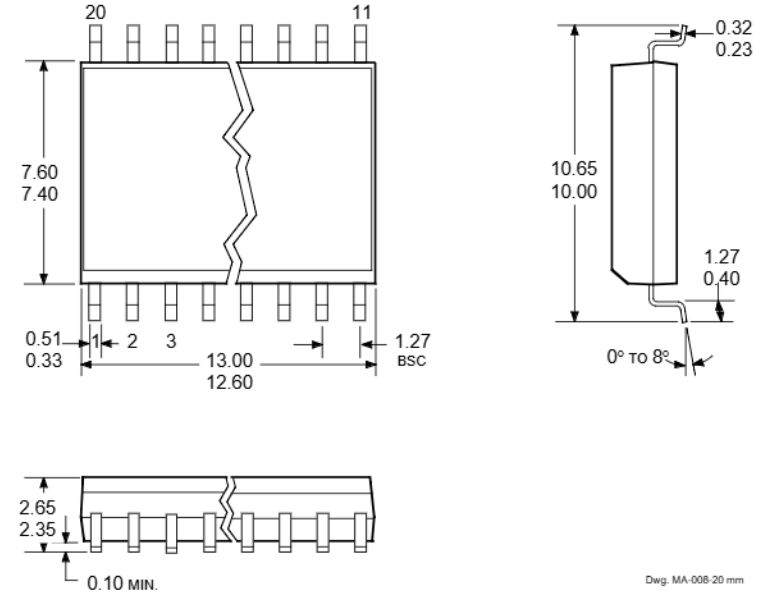
Dimensions in Inches

(for reference only)



Dimensions in Millimeters

(controlling dimensions)



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.

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