Jameco Part Number 1762681

2981 AND 2982

8-CHANNEL SOURCE DRIVERS

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

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**

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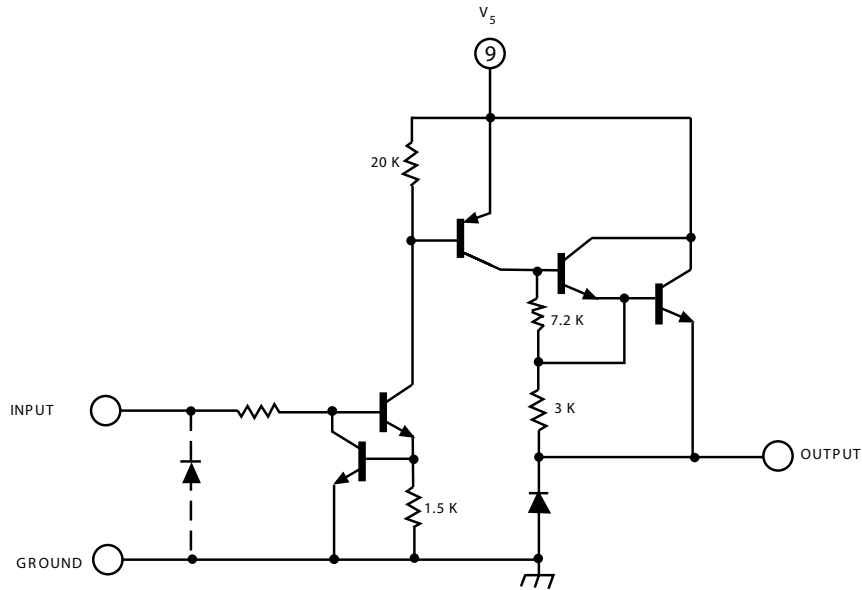Note that all devices are not available in all package styles.

Allegro® MicroSystems, Inc.

2981 AND 2982
8-CHANNEL
SOURCE DRIVERS

Selection Guide

Part Number	Pb-free[1]	Package	Packing	Ambient Temperature (°C)
A2982ELW-T	Yes	20-pin SOICW	37 per tube	–40 to 85
A2982ELWTR-T	Yes	20-pin SOICW	1000 per reel	–40 to 85
A2982SLW-T	Yes	20-pin SOICW	37 per tube	–20 to 85
A2982SLWTR-T	Yes	20-pin SOICW	1000 per reel	–20 to 85
UDN2981A-T	Yes	18-pin DIP	21 per tube	–20 to 85
UDN2982A-T	Yes	18-pin DIP	21 per tube	–20 to 85
UDN2982LW-T	Yes	18-pin SOICW	41 per tube	–20 to 85
UDN2982LWTR-T	Yes	18-pin SOICW	1000 per reel	–20 to 85
UDQ2982LW-T	Yes	18-pin SOICW	41 per tube	–40 to 85
UDQ2982LWTR-T	Yes	18-pin SOICW	1000 per reel	–40 to 85

[1]Pb-based variants are being phased out of the product line. Some variants cited in this footnote are in production but have been determined to be LAST TIME BUY or NOT FOR NEW DESIGN. This classification indicates that sale of this device is currently restricted to existing customer applications. The variants should not be purchased for new design applications because obsolescence in the near future is probable. Samples are no longer available. For LAST TIME BUY: status change: October 31, 2006. Deadline for receipt of LAST TIME BUY orders: April 27, 2007. These variants include: A2982ELW, A2982ELWTR, A2982SLW, A2982SLWTR, UDN2981A, and UDN2982A. For NOT FOR NEW DESIGN: status change: May 1, 2006. These variants include: UDN2982LW and UDN2982LWTR.
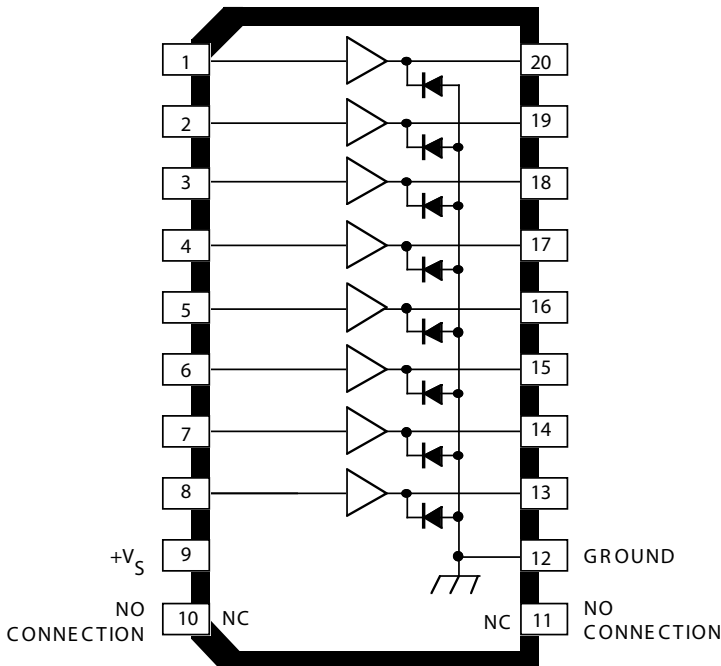
One of Eight Drivers

V_S

9

20 K

7.2 K

INPUT

3 K

1.5 K

OUTPUT

GROUND

Dwg. No. A-10,242USA

A2982SLW

1	20
2	19
3	18
4	17
5	16
6	15
7	14
8	13
+V_S 9	12 GROUND
NO CONNECTION 10 NC	NC 11 NO CONNECTION

Dwg. PP-064-2

ALLOWABLE PACKAGE POWER DISSIPATION IN WATTS

18-PIN DIP, $R_{\theta JA} = 65°C/W$

20-LEAD SOIC, $R_{\theta JA} = 90°C/W$

18-LEAD SOIC, $R_{\theta JA} = 94°C/W$

AMBIENT TEMPERATURE IN °C
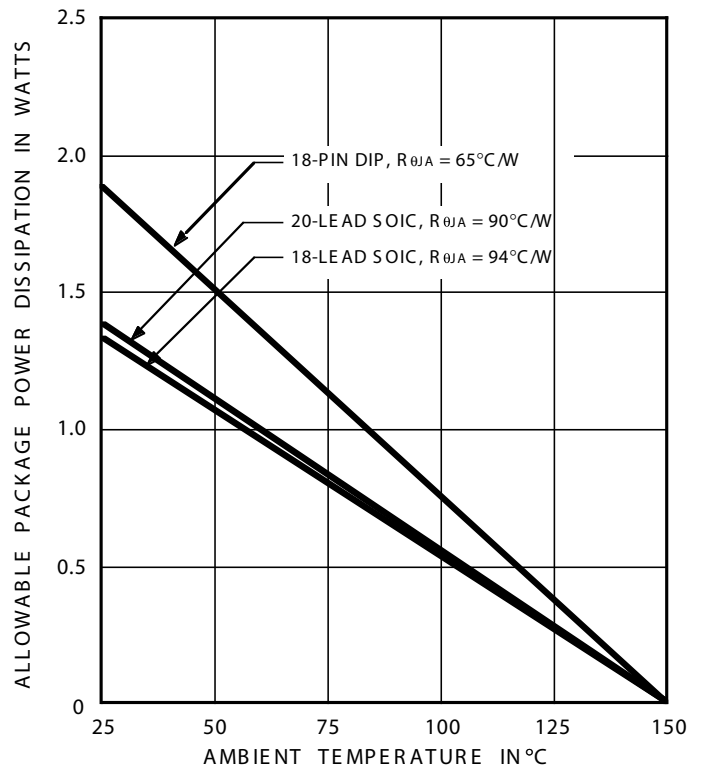
Dwg. GP-022-4A

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

Characteristic	Symbol	Applicable Devices	Test Conditions	Test Fig.	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	µA
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	µA
			V_{IN} = 3.85 V	3	—	310	450	µA
		2982†	V_{IN} = 2.4 V	3	—	140	200	µA
			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	µA
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	µs
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	µs

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.

All unused inputs must be connected to ground. Pulldown resistors (≈ 10 kΩ) are recommended for inputs that are allowed to float while power is being applied to V_S.

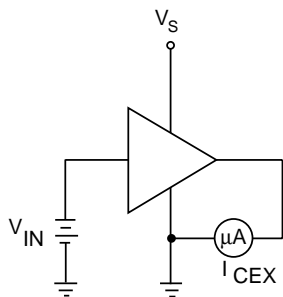Negative current is defined as coming out of (sourcing) the specified device terminal.

* All inputs simultaneously.

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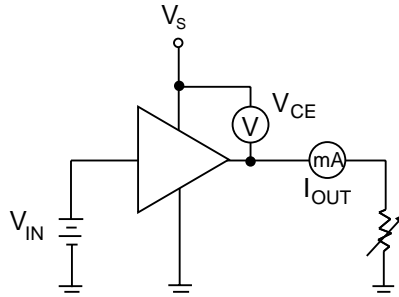UDN2981A, UDN2982A, UDN2982LW, or A2982SLW.
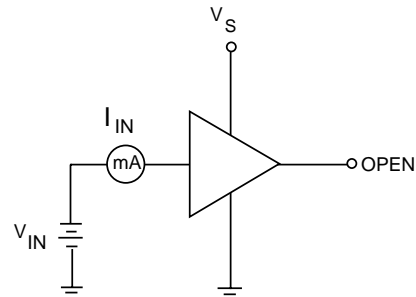
TEST FIGURES

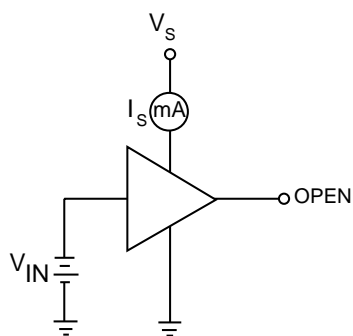### Figure 1

Dwg. No. A-11,083

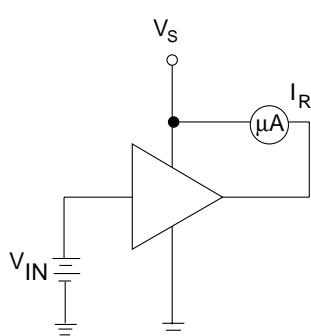### Figure 2

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
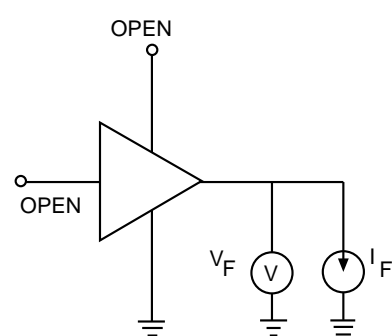
Dwg. No. A-11,088

Allowable peak collector current
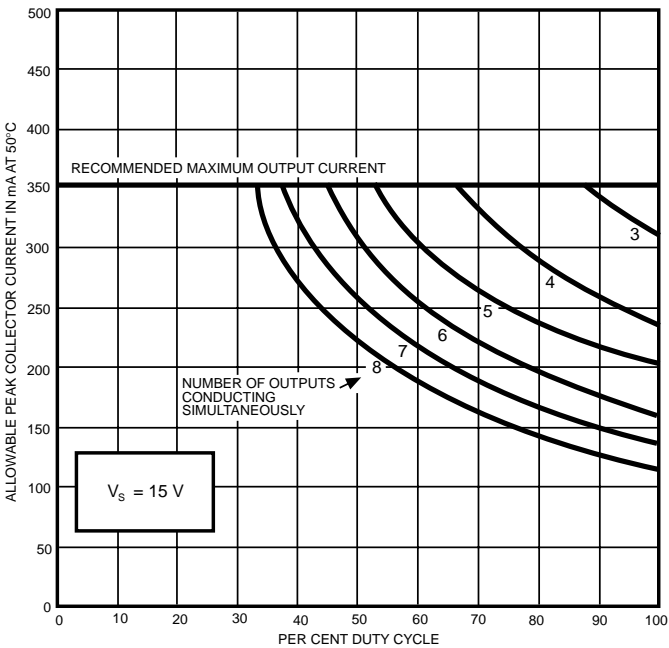## as a function of duty cycle

Series UDN2980A
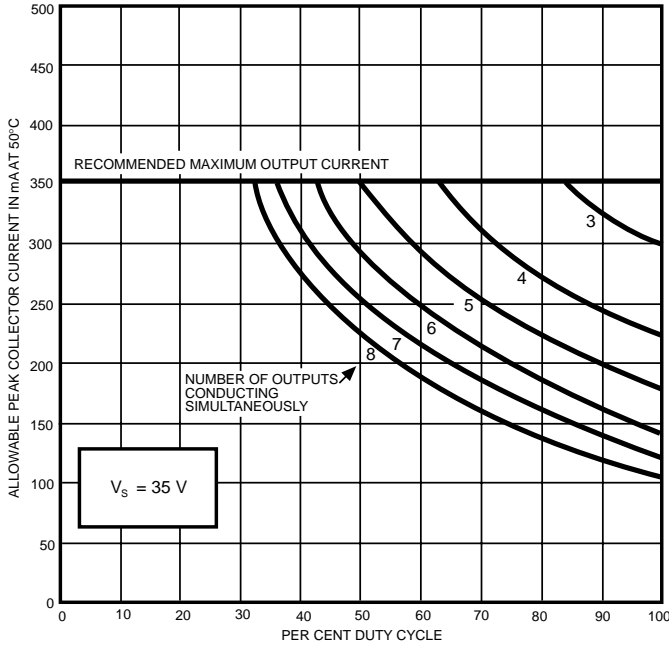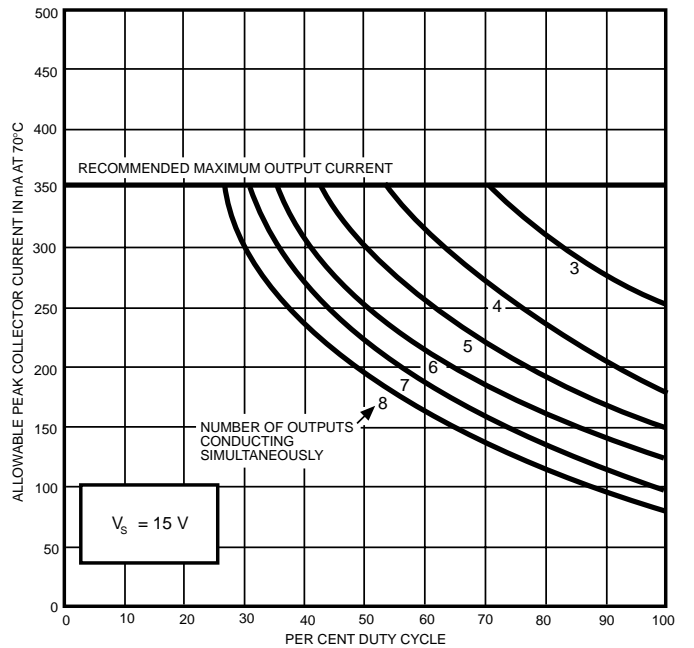

Dwg. No. A-11,106B
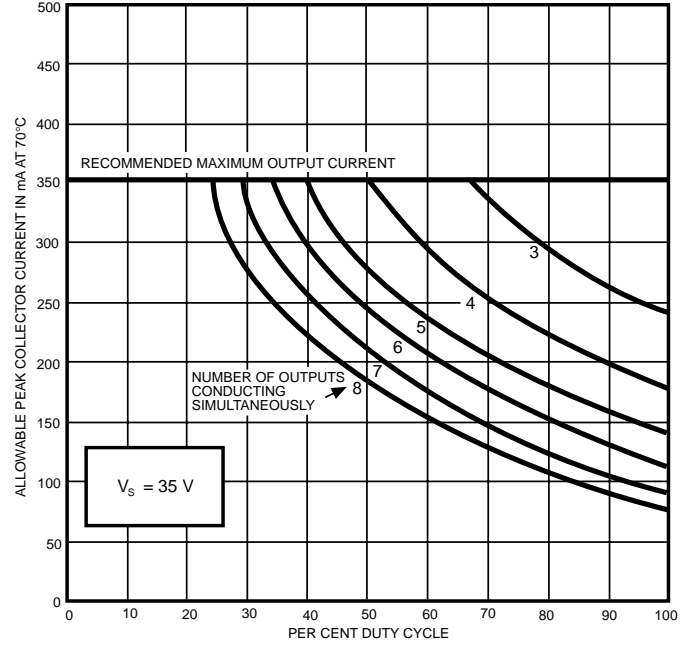
Dwg. No. A-11,111B

UDN2981A and UDN2982A

Dwg. No. A-11,107B

Dwg. No. A-11,108B

2981 AND 2982
8-CHANNEL
SOURCE DRIVERS

Input current as a function of input voltage

INPUT CURRENT, I_{IN} (mA)

2.5

2.0

1.5

MAXIMUM

1.0

TYPICAL

0.5

2   4   6   8   10   12

INPUT VOLTAGE (VOLTS)
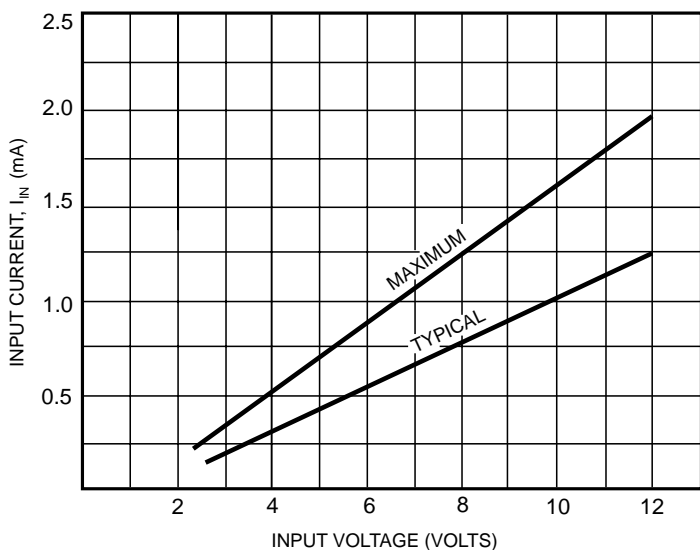
Dwg. No. A-11,115B

Typical electrosensitive printer application

IN$_1$ — 1 — 18 — R$_L$
IN$_2$ — 2 — 17 — R$_L$
IN$_3$ — 3 — 16 — R$_L$
IN$_4$ — 4 — 15 — R$_L$
IN$_5$ — 5 — 14 — R$_L$
IN$_6$ — 6 — 13 — R$_L$
IN$_7$ — 7 — 12 — R$_L$
IN$_8$ — 8 — 11 — R$_L$
V$_S$ — 9 — 10
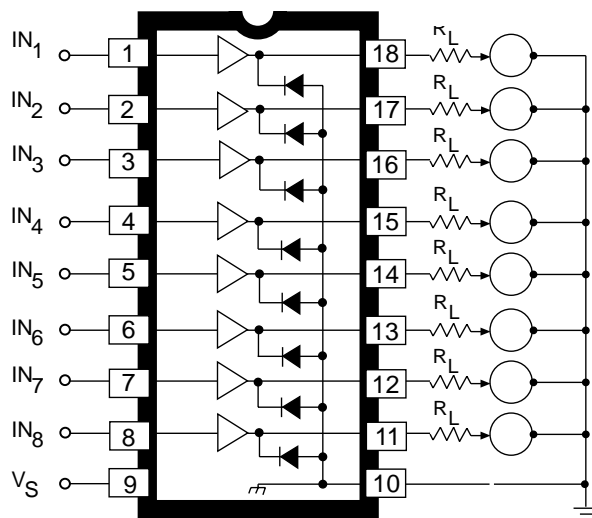
Dwg. No. A-11,113A

UDN2981A and UDN2982A

Dimensions in Inches
(controlling dimensions)

```
   18                              10

  0.280                                          0.014
  0.240                                          0.008
                                                              0.430
                                                               MAX
                                                      0.300
                                                       BSC
   1    0.070              0.100         9
        0.045              BSC               0.005
                   0.920                      MIN
                   0.880
  0.210
   MAX

  0.015                                  0.150
   MIN                                   0.115

        0.022
        0.014
```

Dwg. MA-001-18A in
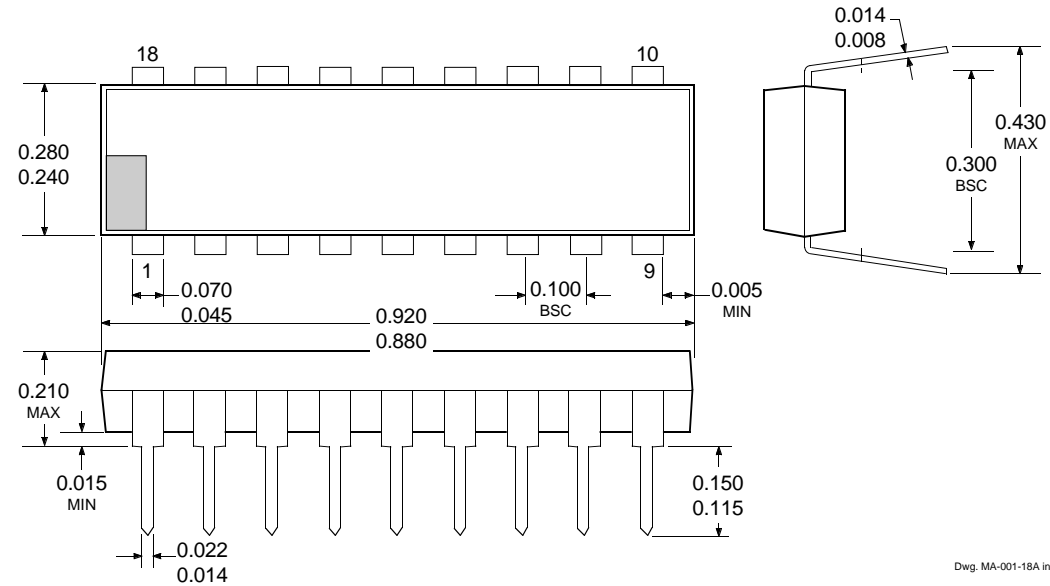
Dimensions in Millimeters
(for reference only)
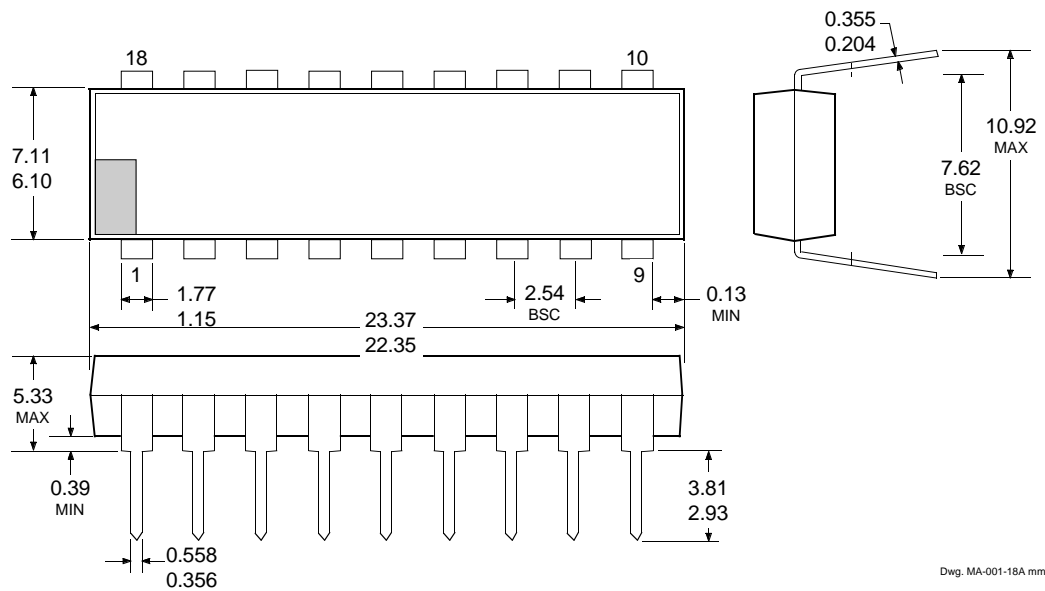
```
   18                              10

  7.11                                          0.355
  6.10                                          0.204
                                                              10.92
                                                               MAX
                                                      7.62
                                                       BSC
   1    1.77               2.54         9
        1.15               BSC               0.13
                   23.37                      MIN
                   22.35
  5.33
   MAX

  0.39                                   3.81
   MIN                                   2.93

        0.558
        0.356
```
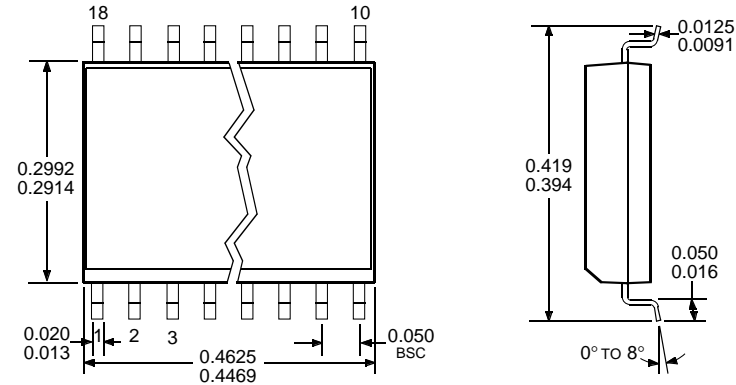
Dwg. MA-001-18A mm

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)

18   10

0.2992
0.2914

0.020   1   2   3   0.050
0.013   0.4625   BSC
                   0.4469

0.0125
0.0091

0.419
0.394

0.050
0.016

0° TO 8°

0.0926
0.1043

0.0040 MIN.

Dwg. MA-008-18A in

Dimensions in Millimeters
(controlling dimensions)

18   10

7.60
7.40

0.51   1   2   3   1.27
0.33   11.75   BSC
                   11.35

0.32
0.23

10.65
10.00

1.27
0.40

0° TO 8°

2.65
2.35

0.10 MIN.
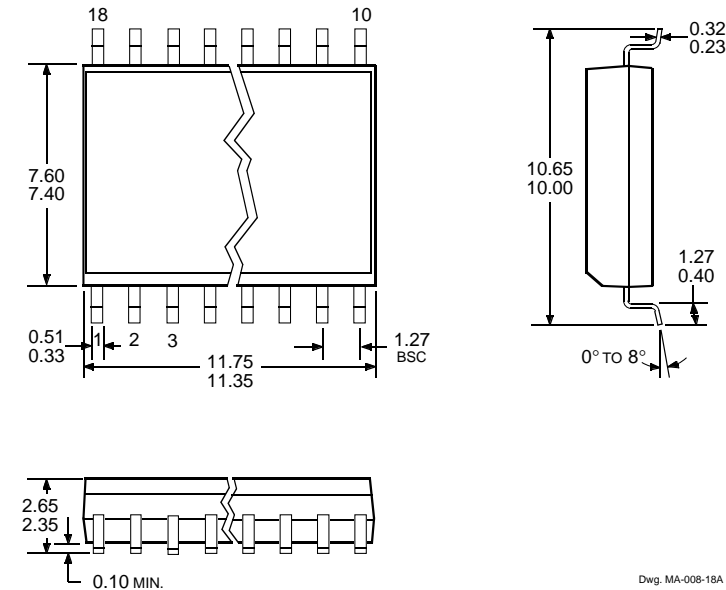
Dwg. MA-008-18A mm

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.
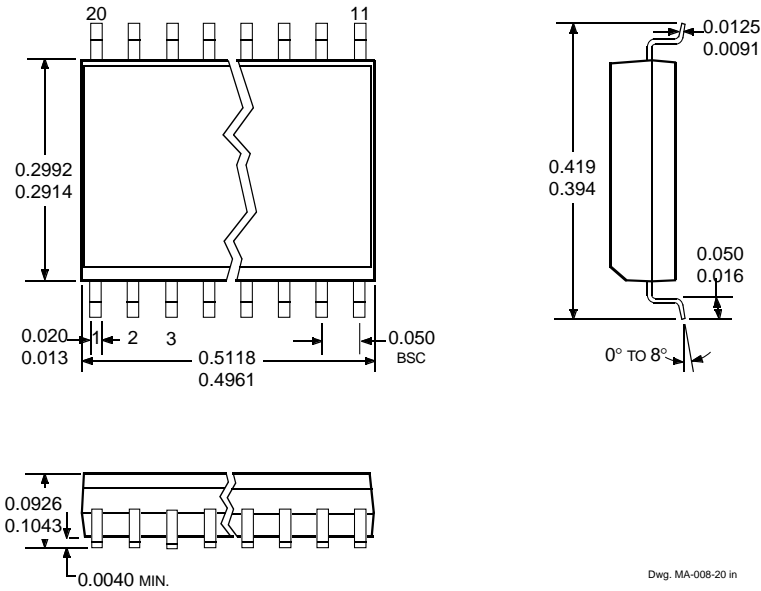
A2982SLW
(add "TR" to part number for tape and reel)
Dimensions in Inches
(for reference only)

20   11

0.2992
0.2914

0.020   1 2   3   0.050
0.013   0.5118   BSC
             0.4961

0.0125
0.0091

0.419
0.394

0.050
0.016

0° TO 8°

0.0926
0.1043

0.0040 MIN.

Dwg. MA-008-20 in

Dimensions in Millimeters
(controlling dimensions)

20   11

7.60
7.40

0.51   1 2   3   1.27
0.33   13.00   BSC
             12.60

0.32
0.23

10.65
10.00

1.27
0.40

0° TO 8°

2.65
2.35

0.10 MIN.

Dwg. MA-008-20 mm
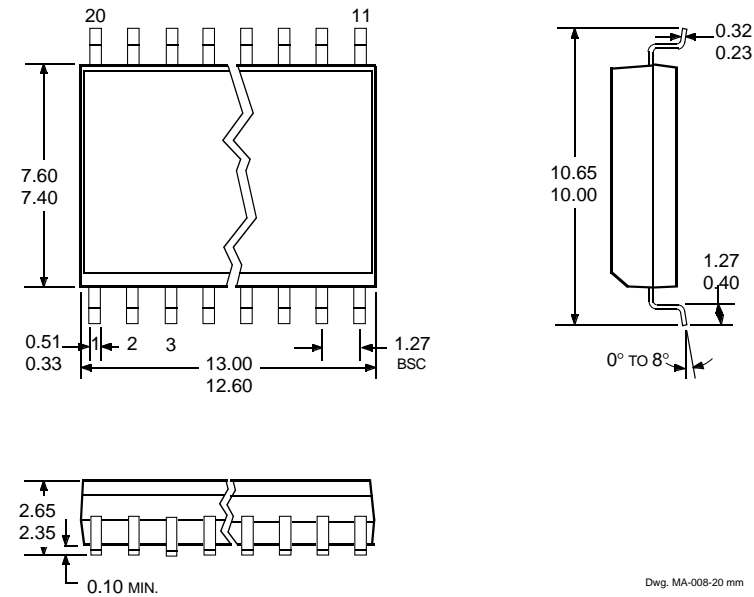
NOTES: 1. Exact body and lead configuration at vendor's option within limits shown.
        2. Lead spacing tolerance is non-cumulative.
        3. Supplied in standard sticks/tubes of 37 devices or add "TR" to part number for tape and reel.

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8-CHANNEL
SOURCE DRIVERS

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www.allegromicro.com

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