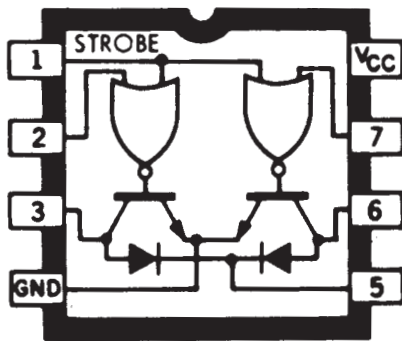


## DUAL PERIPHERAL AND POWER DRIVER — TRANSIENT PROTECTED OUTPUTS

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Dwg. No. A-9789

This “mini-DIP” dual peripheral and power driver is a bipolar monolithic integrated circuit incorporating NOR logic gates, high-current switching transistors, and transient suppression diodes on the same chip. The two output transistors are capable of simultaneously sinking 300 mA continuously at ambient temperatures of up to +70°C. In the OFF state, this driver will withstand at least 80 V.

The UDN5713M dual driver is ideally suited for interface between low-level or high-level logic and high-current/high-voltage loads. Typical applications include driving peripheral loads such as incandescent lamps, light-emitting diodes, memories, and heaters with a load current of up to 600 mA.

The integral transient suppression diodes allow the use of these drivers with inductive loads such as relays, solenoids, or stepping motors without the need for discrete diodes. Similar devices with four drivers per package are the 5703 and 5706.

### FEATURES

- DTL/TTL/PMOS/CMOS Compatible Inputs
- Low Input Current
- 300 mA Continuous Output Current
- Stand-off Voltage of 80 V

### ABSOLUTE MAXIMUM RATINGS

Supply Voltage, $V_{CC}$ .....	7.0 V
Input Voltage, $V_{IN}$ .....	30 V
Output Off-State Voltage, $V_{OFF}$ .....	80 V
Output On-State Sink Current, $I_{ON}$ .....	600 mA
Suppression Diode Off-State Voltage, $V_{OFF}$ .....	80 V
Suppression Diode On-State Current, $I_{ON}$ .....	600 mA
Power Dissipation at $T_A = 25^\circ\text{C}$ , $P_D$	
Package .....	1.5 W*
Each Driver .....	0.8 W
Operating Free-Air Temperature Range, $T_A$ .....	-20°C to +85°C
Storage Temperature Range, $T_S$ .....	-55°C to +150°C

\*Derate at the rate of 12.5 mW/°C above  
 $T_A = 25^\circ\text{C}$ .

Always order by complete part number, e.g., **UDN5713M**.

# 5713

## DUAL PERIPHERAL AND POWER DRIVER

### RECOMMENDED OPERATING CONDITIONS

	Min.	Nom.	Max.	Units
Supply Voltage ( $V_{CC}$ )	4.75	5.0	5.25	V
Operating Temperature Range	0	+25	+85	°C
Current into any output (ON state)	—	—	300	mA

### ELECTRICAL CHARACTERISTICS over operating temperature range (unless otherwise noted).

Characteristic	Symbol	Test Conditions					Limits			Notes	
		Temp.	$V_{CC}$	Driven Input	Other Input	Output	Min.	Typ.	Max.		Units
"1" Input Voltage	$V_{IN(1)}$	—	MIN	—	—	—	2.0	—	—	V	—
"0" Input Voltage	$V_{IN(0)}$	—	MIN	—	—	—	—	—	0.8	V	—
"0" Input Current at all Inputs except Strobe	$I_{IN(0)}$	—	MAX	0.4 V	30 V	—	—	-50	-100	μA	2
"0" Input Current at Strobe	$I_{IN(0)}$	—	MAX	0.4 V	30 V	—	—	-100	-200	μA	—
"1" Input Current at all Inputs except Strobe	$I_{IN(1)}$	—	MAX	30 V	0 V	—	—	—	10	μA	2
"1" Input Current at Strobe	$I_{IN(1)}$	—	MAX	30 V	0 V	—	—	—	20	μA	—
Input Clamp Voltage	$V_{IK}$	—	MIN	-12 mA	—	—	—	—	-1.5	V	—

### SWITCHING CHARACTERISTICS at $V_{CC} = 5.0$ V, $T_A = 25^\circ$ C

Characteristic	Symbol	Test Conditions	Limits			Notes	
			Min.	Typ.	Max.		Units
Turn-on Delay Time	$t_{pd0}$	$V_S = 70$ V, $R_L = 465 \Omega$ (10 Watts), $C_L = 15$ pF	—	200	500	ns	3
Turn-off Delay Time	$t_{pd1}$	$V_S = 70$ V, $R_L = 465 \Omega$ (10 Watts), $C_L = 15$ pF	—	300	750	ns	3

- NOTES: 1. Typical values are at  $V_{CC} = 5.0$  V,  $T_A = 25^\circ$  C.  
 2. Each input tested separately.  
 3. Voltage values shown in the test circuit waveforms are with respect to network ground terminal.  
 4. Capacitance values specified include probe and test fixture capacitance.

### INPUT PULSE CHARACTERISTICS

$V_{IN(0)} = 0$ V	$t_f = 7$ ns	$t_p = 1$ μs
$V_{IN(1)} = 3.5$ V	$t_r = 14$ ns	PRR = 500 kHz

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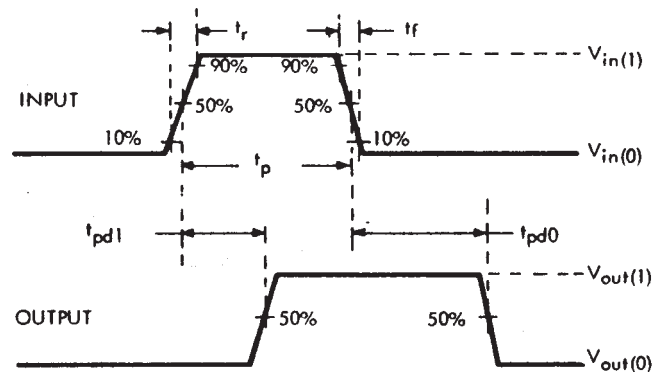
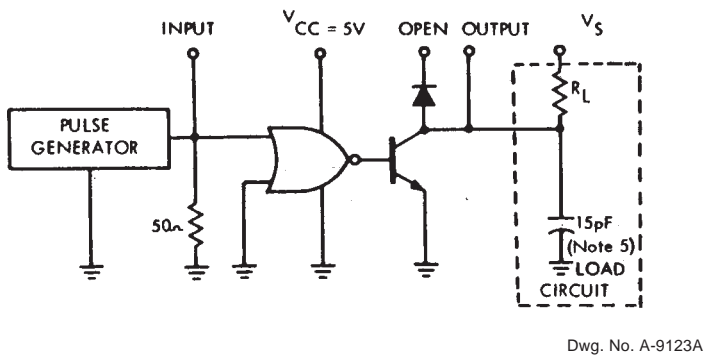
## DUAL PERIPHERAL AND POWER DRIVER

### ELECTRICAL CHARACTERISTICS over operating temperature range (unless otherwise noted).

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Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V <sub>CC</sub>	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
"1" Output Reverse Current	I <sub>OFF</sub>	—	MIN	2.0 V	0 V	80 V	—	—	100	μA	—
		—	OPEN	2.0 V	0 V	80 V	—	—	100	μA	—
"0" Output Voltage	V <sub>ON</sub>	—	MIN	0.8 V	0.8 V	150 mA	—	0.35	0.5	V	—
		—	MIN	0.8 V	0.8 V	300 mA	—	0.5	0.7	V	—
Diode Leakage Current	I <sub>LK</sub>	NOM	NOM	0 V	0 V	OPEN	—	—	200	μA	3
Diode Forward Voltage Drop	V <sub>D</sub>	NOM	NOM	V <sub>CC</sub>	V <sub>CC</sub>	—	—	1.5	1.75	V	4
"1" Level Supply Current	I <sub>CC(1)</sub>	NOM	MAX	5.0 V	5.0 V	—	—	8.0	13	mA	1, 2
"0" Level Supply Current	I <sub>CC(0)</sub>	NOM	MAX	0 V	0 V	—	—	36	50	mA	1, 2

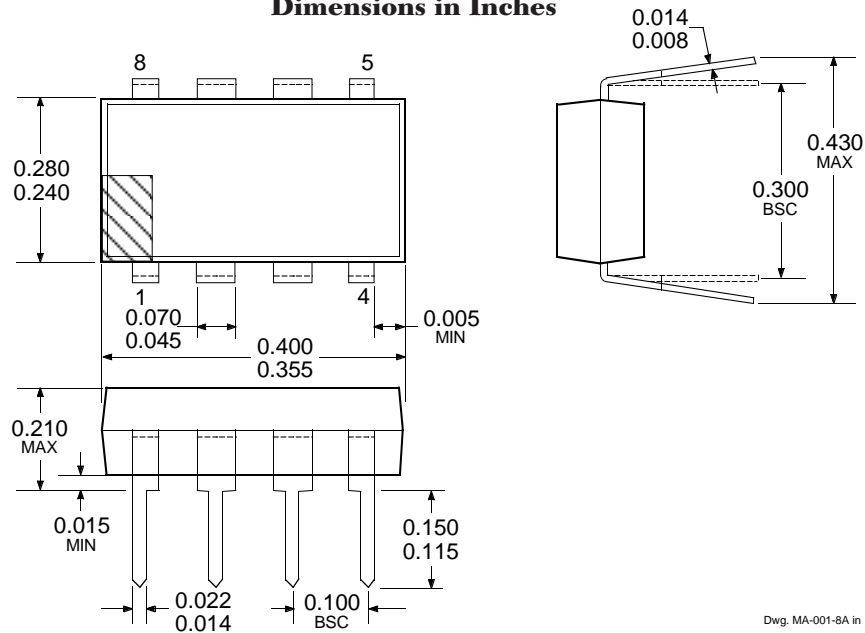
- NOTES: 1. Typical values are at V<sub>CC</sub> = 5.0 V, T<sub>A</sub> = 25°C.  
 2. Per package.  
 3. Diode leakage current measured at V<sub>R</sub> = 80 V.  
 4. Diode forward voltage drop measured at I<sub>F</sub> = 300 mA.  
 5. Capacitance values specified include probe and test fixture capacitance.



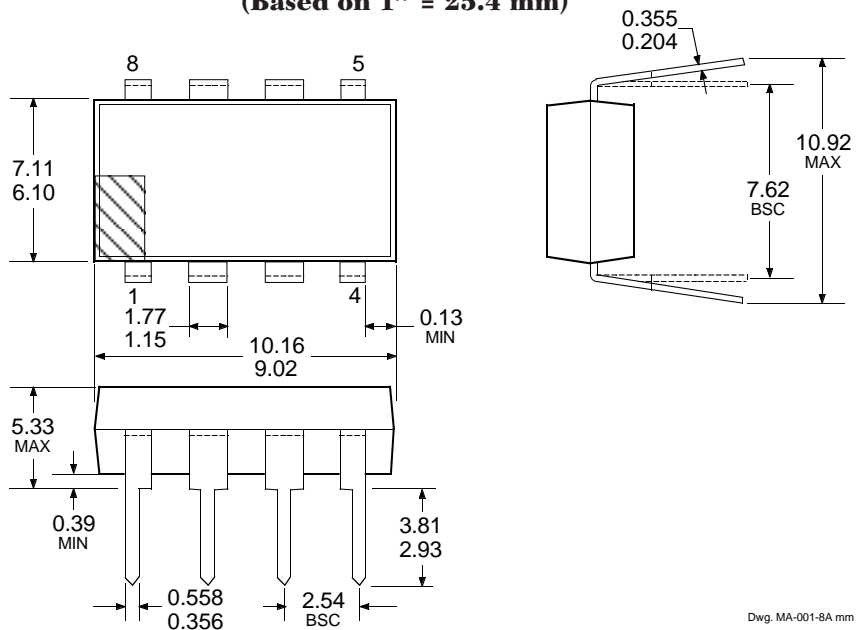
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## Dimensions in Inches

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## Dimensions in Millimeters (Based on 1" = 25.4 mm)



Allegro MicroSystems, Inc. reserves the right to make, from time to time, such departures from the detail specifications as may be required to permit improvements in the design of its products.

- NOTES: 1. Lead thickness is measured at seating plane or below.  
2. Lead spacing tolerance is non-cumulative.  
3. Exact body and lead configuration at vendor's option within limits shown.

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