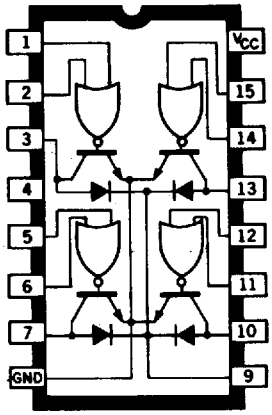
5703 AND 5706

T-52-17

QUAD 2-INPUT PERIPHERAL/POWER DRIVERS —TRANSIENT-PROTECTED OUTPUTS

UDN5703A



Dwg. No. A-9869

ABSOLUTE MAXIMUM RATINGS at T_A = +25°C

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-StateVoltage, V_{OFF} ..... **80 V**
Suppression Diode On-State Current, I_{ON} ..... **600 mA**
Power Dissipation, P_D ..... **2.0 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 16.7 mW/°C above T_A = +25°C

These 16-lead quad 2-input peripheral/power drivers are bipolar monolithic integrated circuits containing AND or OR logic gates, high-current switching transistors, and transient-suppression diodes on the same chip. The four output transistors are capable of simultaneously sinking 300 mA continuously at ambient temperatures of up to +70°C. In the OFF state, these drivers will withstand at least 80 V.

Series UDN5700A quad drivers are 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.

The integral transient-suppression diodes allow their use with inductive loads such as relays, solenoids, or stepping motors without the need of discrete diodes.

Both devices are furnished in 16-pin DIP packages with copper leadframes for improved thermal characteristics. The UDN5703A is also available for operation between -40°C and +85°C. To order, change its prefix from 'UDN' to 'UDQ'.

FEATURES

- Two Logic Types
- DTL/TTL/PMOS/CMOS Compatible Inputs
- Low Input Current
- 300 mA Continuous Output Current
- Standoff Voltage of 80 V

Always order by complete part number:

Part Number	Description
UDN5703A	Quad OR Driver
UDN5706A	Quad AND Driver

5703 AND 5706
QUAD PERIPHERAL/POWER DRIVERS

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	$I_{IN(0)}$	—	MAX	0.4 V	30 V	—	—	-50	-100	µA	2
"1" Input Current	$I_{IN(1)}$	—	MAX	30 V	0 V	—	—	—	10	µA	2
Input Clamp Voltage	V_{LK}	—	MIN	-12 mA	—	—	—	—	-1.5	V	

SWITCHING CHARACTERISTICS at V_{CC} = 5.0 V, T_A = 25°C

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

NOTES: 1. Typical values are at V_{CC} = 5.0 V, T_A = 25°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

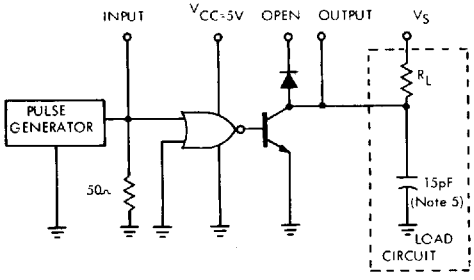
$V_{IN(0)}$ = 0 V	t_f = 7 ns	t_p = 1µs
$V_{IN(1)}$ = 3.5 V	t_r = 14 ns	PRR = 500 kHz

5703 AND 5706
QUAD PERIPHERAL/POWER DRIVERS

UDN5703A QUAD OR DRIVER
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" Output Reverse Current	I_{OFF}	—	MIN	2.0 V	0 V	80 V	—	—	100	µA	—
		—	OPEN	2.0 V	0 V	80 V	—	—	100	µA	—
"0" Output Voltage	V_{ON}	—	MIN	0.8 V	0.8V	150 mA	—	0.35	0.5	V	—
		—	MIN	0.8 V	0.8V	300 mA	—	0.5	0.7	V	—
Diode Leakage Current	I_{LK}	NOM	NOM	0 V	0 V	OPEN	—	—	200	µA	3
Diode Forward Voltage Drop	V_D	NOM	NOM	V_{CC}	V_{CC}	—	—	1.5	1.75	V	4
"1" Level Supply Current	$I_{CC(1)}$	NOM	MAX	5.0 V	5.0 V	—	—	16	25	mA	1, 2
"0" Level Supply Current	$I_{CC(0)}$	NOM	MAX	0 V	0 V	—	—	72	100	mA	1, 2

NOTES: 1. Typical values are at $V_{CC} = 5.0$ V; $T_A = 25°C$.
2. Per package
3. Diode leakage current measured at $V_R = V_{off\ (min)}$.
4. Diode forward voltage drop measured at $I_f = 300$ mA.
5. Capacitance values specified include probe and test fixture capacitance.



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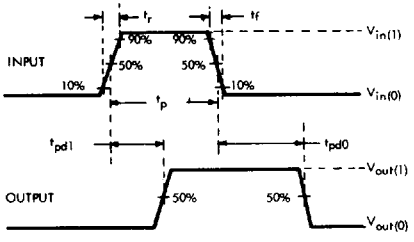

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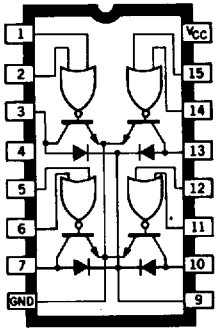


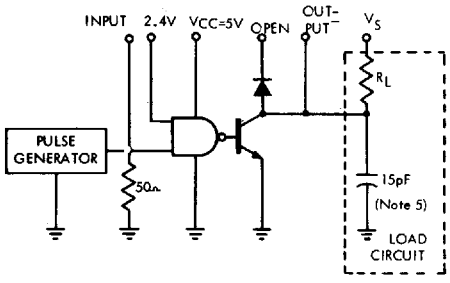
Dwg. No. A-9869

5703 AND 5706
QUAD PERIPHERAL/POWER DRIVERS

UDN5706A QUAD AND DRIVER
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" Output Reverse Current	I_{OFF}	—	MIN	2.0 V	2.0 V	80 V	—	—	100	µA	—
		—	OPEN	2.0 V	2.0 V	80 V	—	—	100	µA	—
"0" Output Voltage	V_{ON}	—	MIN	0.8 V	V_{CC}	150 mA	—	0.35	0.5	V	—
		—	MIN	0.8 V	V_{CC}	300 mA	—	0.5	0.7	V	—
Diode Leakage Current	I_{LK}	NOM	NOM	0 V	0 V	OPEN	—	—	200	µA	3
Diode Forward Voltage Drop	V_D	NOM	NOM	V_{CC}	V_{CC}	—	—	1.5	1.75	V	4
"1" Level Supply Current	$I_{CC(1)}$	NOM	MAX	5.0 V	5.0 V	—	—	16	24	mA	1, 2
"0" Level Supply Current	$I_{CC(0)}$	NOM	MAX	0 V	0 V	—	—	70	98	mA	1, 2

NOTES: 1. Typical values are at V_{CC} = 5.0 V, T_A = 25°C.
2. Per package
3. Diode leakage current measured at $V_R = V_{off(min)}$.
4. Diode forward voltage drop measured at I_f = 300 mA.
5. Capacitance values specified include probe and test fixture capacitance.



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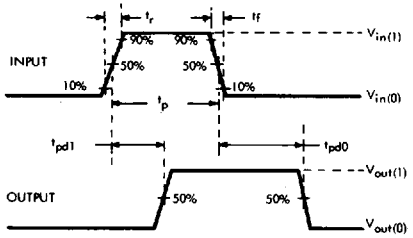

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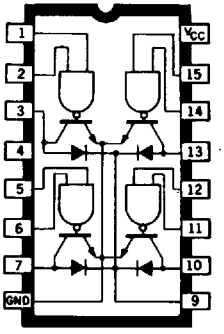

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