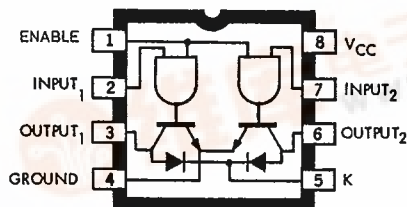


# SERIES 5740

T-52-17

## DUAL PERIPHERAL/POWER DRIVERS —TRANSIENT-PROTECTED OUTPUTS

### UDN5742M



Dwg. No. A-9790B

Peripheral and power drivers combining dual logic gates, high-current saturated output transistors, and transient-suppression diodes is the Series UDN5740M. These monolithic dual drivers surpass the interface requirements normally associated with standard logic buffers and are ideally suited for interface between low-level logic and high-current inductive loads. Internal transient-suppression diodes allow their use with loads such as stepping motors, relays, or solenoids. Additional (non-inductive) applications include driving peripheral loads such as light-emitting diodes, memories, heaters, and incandescent lamps with peak load currents of up to 700 mA.

The Series UDN5740M is capable of sinking 600 mA continuously for a single output (57% duty cycle for both outputs). The outputs may be paralleled for higher load-current capability. In the OFF state, the drivers will withstand at least 70 V.

All devices in this series are supplied in a miniature 8-pin dual-in-line plastic package with a copper lead frame for superior package power dissipation ratings.

### FEATURES

- DTL/TTL/PMOS/CMOS Compatible
- Low Input Current
- Output Current to 700 mA
- 70 V Output Standoff Voltage

### ABSOLUTE MAXIMUM RATINGS

Output Off-State Voltage, $V_{OFF}$	70 V
Output On-State Sink Current, $I_{ON}$	700 mA
Supply Voltage, $V_{CC}$	7.0 V
Input Voltage, $V_{IN}$	30 V
Suppression Diode Off-State Voltage, $V_{OFF}$	70 V
Suppression Diode On-State Current, $I_{ON}$	700 mA
Allowable Package Power Dissipation, $P_D$	1.5 W*
Operating Free-Air Temperature Range, $T_A$	-20°C to +85°C
Storage Temperature Range, $T_S$	-55°C to +150°C

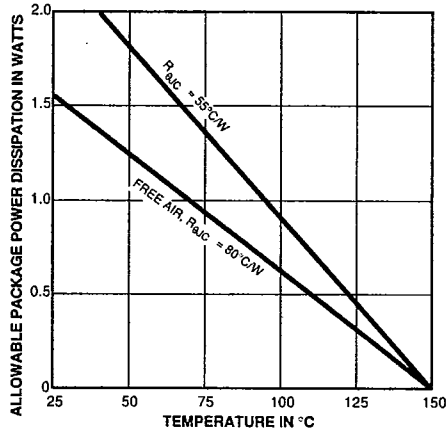
\*Derate at the rate of 12.5 mW/°C above  $T_A = +25^\circ\text{C}$ .

Always order by complete part number:

Part Number	Description
UDN5741M	Dual AND Driver
UDN5742M	Dual NAND Driver
UDN5743M	Dual OR Driver
UDN5744M	Dual NOR Driver

**SERIES 5740**  
**DUAL PERIPHERAL/POWER DRIVERS**

T-52-17



Dwg. GP-009-1

**RECOMMENDED OPERATING CONDITIONS**

Operating Condition	Min.	Nom.	Max.	Units
Supply Voltage, $V_{CC}$	4.75	5.00	5.25	V
Output Current, $I_{ON}$	—	—	600	mA
Operating Temperature Range	0	+25	+85	°C

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

Characteristic	Symbol	Test Conditions	Limits			Notes
			Min.	Max.	Units	
Turn-on Delay Time	$t_{pd0}$	$V_S = 30\text{ V}$ , $R_L = 100\ \Omega$ (10 W), $C_L = 15\ \text{pF}$	—	750	ns	1,2
Turn-off Delay Time	$t_{pd1}$	$V_S = 30\text{ V}$ , $R_L = 100\ \Omega$ (10 W), $C_L = 15\ \text{pF}$	—	1000	ns	1,2

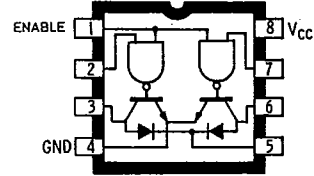
- NOTES: 1. Capacitance value specified includes probe and test fixture capacitance.  
2. Voltage values shown in the test circuit waveforms are with respect to network ground terminal.

**INPUT-PULSE CHARACTERISTICS**

$V_{IN(0)} = 0\text{ V}$	$t_i \leq 7\text{ ns}$	$t_p = 1\ \mu\text{s}$
$V_{IN(1)} = 3.5\text{ V}$	$t_r \leq 14\text{ ns}$	PRR = 500 kHz

**SERIES 5740**  
**DUAL PERIPHERAL/POWER DRIVERS**

T-52-17

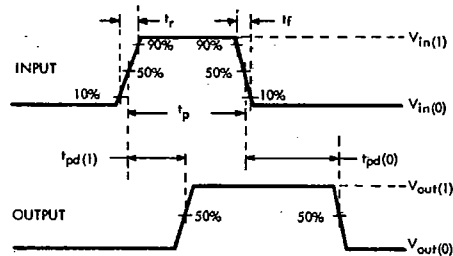
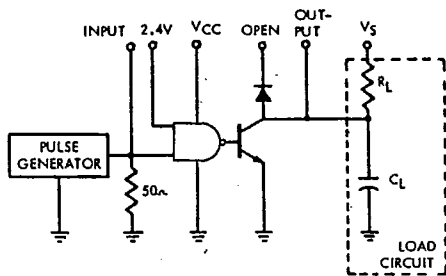


Dwg. No. A-9791A

**UDN5741M**  
**ELECTRICAL CHARACTERISTICS over recommended operating temperature range**  
**(unless otherwise noted).**

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V <sub>CC</sub>	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I <sub>CEX</sub>	—	4.75	2.0 V	2.0 V	70 V	—	—	100	μA	—
			Open	2.0 V	2.0 V	70 V	—	—	100	μA	—
Output Voltage	V <sub>CE(SAT)</sub>	—	4.75	0.8 V	4.75 V	300 mA	—	0.3	0.6	V	—
			4.75	2.0 V	4.75 V	600 mA	—	0.7	1.0	V	—
Input Voltage	V <sub>IN(1)</sub>	—	4.75	—	—	—	2.0	—	—	V	—
	V <sub>IN(0)</sub>	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	30 V	—	—	-5.0	-10	μA	1
	I <sub>IN(1)</sub>	—	5.25	30 V	0 V	—	—	5.0	10	μA	1
Enable Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	30 V	—	—	-10	-20	μA	—
	I <sub>IN(1)</sub>	—	5.25	30 V	0 V	—	—	10	20	μA	—
Input Clamp Voltage	V <sub>CLAMP</sub>	—	4.75	-12 mA	—	—	—	—	-1.5	V	—
Diode Leakage Current	I <sub>R</sub>	+25°C	5.0	0 V	0 V	Open	—	—	100	μA	2
Diode Forward Voltage	V <sub>F</sub>	+25°C	5.0	5.0 V	5.0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	I <sub>CC(1)</sub>	+25°C	5.25	5.0 V	5.0 V	—	—	1.0	3.0	mA	—
	I <sub>CC(0)</sub>	+25°C	5.25	0 V	0 V	—	—	20	25	mA	—

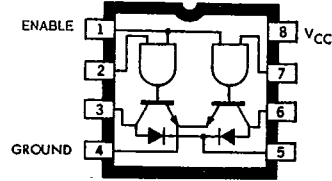
NOTES: 1. Except ENABLE input, each input tested separately.  
 2. Diode leakage current measured at V<sub>R</sub> = 70 V.



Dwg. No. A-7628D

**SERIES 5740**  
**DUAL PERIPHERAL/POWER DRIVERS**

T-52-17



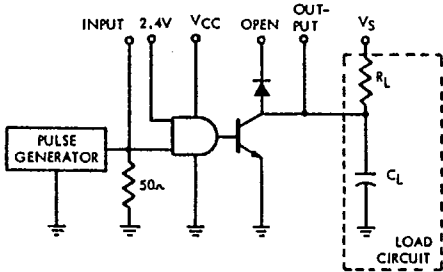
**UDN5742M**

Dwg. No. A-9790B

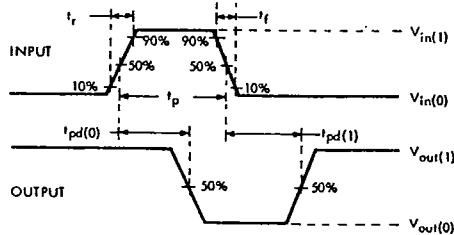
**ELECTRICAL CHARACTERISTICS over recommended operating temperature range (unless otherwise noted).**

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V <sub>CC</sub>	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I <sub>CEX</sub>	—	4.75	0.8 V	4.75 V	70 V	—	—	100	μA	—
			Open	0.8 V	4.75 V	70 V	—	—	100	μA	—
Output Voltage	V <sub>CE(SAT)</sub>	—	4.75	2.0 V	2.0 V	300 mA	—	0.3	0.6	V	—
			4.75	2.0 V	2.0 V	600 mA	—	0.7	1.0	V	—
Input Voltage	V <sub>IN(1)</sub>	—	4.75	—	—	—	2.0	—	—	V	—
	V <sub>IN(0)</sub>	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	30 V	—	—	-5.0	-10	μA	1
	I <sub>IN(1)</sub>	—	5.25	30 V	0 V	—	—	5.0	10	μA	1
Enable Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	30 V	—	—	-10	-20	μA	—
	I <sub>IN(1)</sub>	—	5.25	30 V	0 V	—	—	10	20	μA	—
Input Clamp Voltage	V <sub>CLAMP</sub>	—	4.75	-12 mA	—	—	—	—	-1.5	V	—
Diode Leakage Current	I <sub>R</sub>	+25°C	5.0	5.0 V	5.0 V	Open	—	—	100	μA	2
Diode Forward Voltage	V <sub>F</sub>	+25°C	5.0	0 V	0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	I <sub>CC(1)</sub>	+25°C	5.25	0 V	0 V	—	—	1.0	3.0	mA	—
	I <sub>CC(0)</sub>	+25°C	5.25	5.0 V	5.0 V	—	—	20	25	mA	—

NOTES: 1. Except ENABLE input, each input tested separately.  
 2. Diode leakage current measured at V<sub>R</sub> = 70 V.



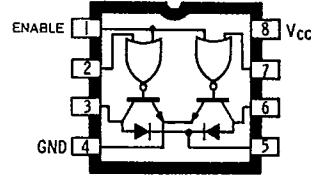
Dwg. No. A-11.746A



Dwg. No. A-7900B

**SERIES 5740**  
**DUAL PERIPHERAL/POWER DRIVERS**

T-52-17



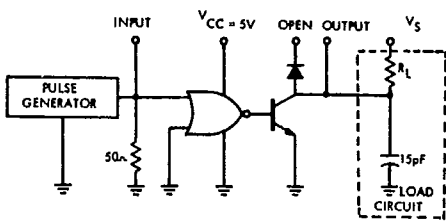
**UDN5743M**

Dwg. No. A-9789A

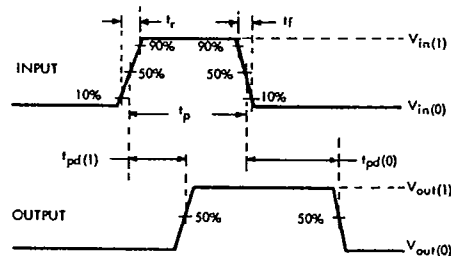
**ELECTRICAL CHARACTERISTICS over recommended operating temperature range (unless otherwise noted).**

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V <sub>CC</sub>	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I <sub>CEX</sub>	—	4.75	2.0 V	0 V	70 V	—	—	100	μA	—
			Open	2.0 V	0 V	70 V	—	—	100	μA	—
Output Voltage	V <sub>CE(SAT)</sub>	—	4.75	0.8 V	0.8 V	300 mA	—	0.3	0.6	V	—
			4.75	0.8 V	0.8 V	600 mA	—	0.7	1.0	V	—
Input Voltage	V <sub>IN(1)</sub>	—	4.75	—	—	—	2.0	—	—	V	—
	V <sub>IN(0)</sub>	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	30 V	—	—	-5.0	-10	μA	1
	I <sub>IN(1)</sub>	—	5.25	30 V	0 V	—	—	5.0	10	μA	1
Enable Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	30 V	—	—	-10	-20	μA	—
	I <sub>IN(1)</sub>	—	5.25	30 V	0 V	—	—	10	20	μA	—
Input Clamp Voltage	V <sub>CLAMP</sub>	—	4.75	-12 mA	—	—	—	—	1.5	V	—
Diode Leakage Current	I <sub>R</sub>	+25°C	0	0 V	0 V	Open	—	—	100	μA	2
Diode Forward Voltage	V <sub>F</sub>	+25°C	5.0	5.0 V	5.0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	I <sub>CC(1)</sub>	+25°C	5.25	5.0 V	5.0 V	—	—	1.0	3.0	mA	—
	I <sub>CC(0)</sub>	+25°C	5.25	0 V	0 V	—	—	20	25	mA	—

NOTES: 1. Except ENABLE input, each input tested separately.  
 2. Diode leakage current measured at V<sub>R</sub> = 70 V.



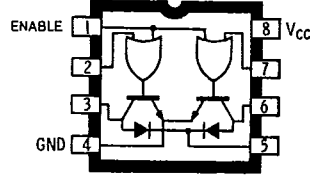
Dwg. No. A-13,219A



Dwg. No. A-7628D

**SERIES 5740**  
**DUAL PERIPHERAL/POWER DRIVERS**

T-52-17

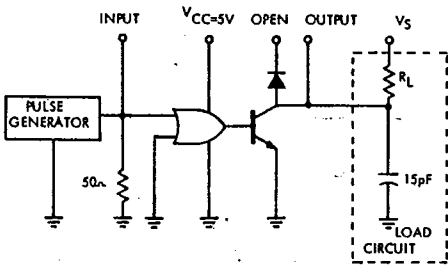


Dwg. No. A-9788A

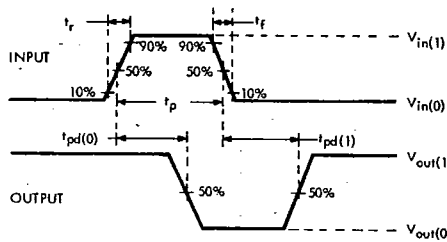
**UDN5744M**  
**ELECTRICAL CHARACTERISTICS over recommended operating temperature range**  
 (unless otherwise noted).

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V <sub>CC</sub>	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I <sub>CEX</sub>	—	4.75	0.8 V	0.8 V	70 V	—	—	100	μA	—
			Open	0.8 V	0.8 V	70 V	—	—	100	μA	—
Output Voltage	V <sub>CE(SAT)</sub>	—	4.75	2.0 V	0 V	300 mA	—	0.3	0.6	V	—
			4.75	2.0 V	0 V	600 mA	—	0.7	1.0	V	—
Input Voltage	V <sub>IN(1)</sub>	—	4.75	—	—	—	2.0	—	—	V	—
	V <sub>IN(0)</sub>	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	0 V	—	—	-5.0	-10	μA	1
	I <sub>IN(1)</sub>	—	5.25	30 V	30 V	—	—	5.0	10	μA	1
Enable Input Current	I <sub>IN(0)</sub>	—	5.25	0.4 V	0 V	—	—	-10	-20	μA	—
	I <sub>IN(1)</sub>	—	5.25	30 V	30 V	—	—	10	20	μA	—
Input Clamp Voltage	V <sub>CLAMP</sub>	—	4.75	-12 mA	—	—	—	—	-1.5	V	—
Diode Leakage Current	I <sub>R</sub>	+25°C	5.0	5.0 V	5.0 V	Open	—	—	100	μA	2
Diode Forward Voltage	V <sub>F</sub>	+25°C	5.0	0 V	0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	I <sub>CC(1)</sub>	+25°C	5.25	0 V	0 V	—	—	1.0	3.0	mA	—
	I <sub>CC(0)</sub>	+25°C	5.25	5.0 V	5.0 V	—	—	20	25	mA	—

NOTES: 1. Except ENABLE input, each input tested separately.  
 2. Diode leakage current measured at V<sub>R</sub> = 70 V.



Dwg. No. A-13,218A



Dwg. No. A-7900B