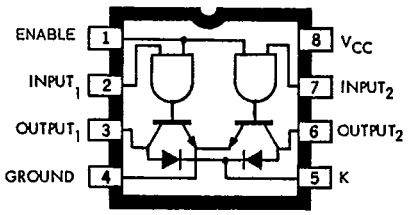
SERIES 5740

T-52-17

DUAL PERIPHERAL/POWER DRIVERS —TRANSIENT-PROTECTED OUTPUTS

UDN5742M



Dwg. No. A-9790B

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,
V_{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°C.

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

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

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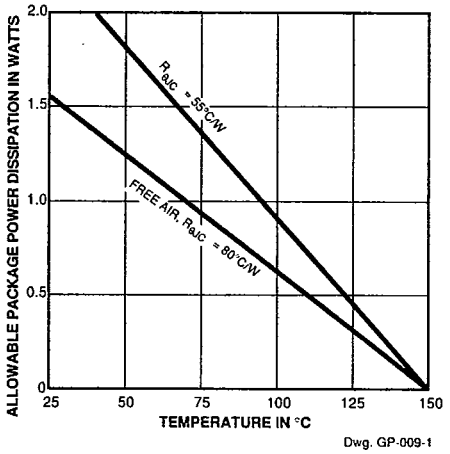

Dwg. GP-009-1

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°C, V_{CC} = 5.0 V

Characteristic	Symbol	Test Conditions	Limits			Notes
			Min.	Max.	Units	
Turn-on Delay Time	t_{pd0}	V_S = 30 V, R_L = 100 Ω (10 W), C_L = 15 pF	—	750	ns	1,2
Turn-off Delay Time	t_{pd1}	V_S = 30 V, R_L = 100 Ω (10 W), C_L = 15 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 V	$t_f \leq 7$ ns	t_p = 1 µs
$V_{IN(1)}$ = 3.5 V	$t_r \leq 14$ ns	PRR = 500 kHz

SERIES 5740
DUAL PERIPHERAL/POWER DRIVERS

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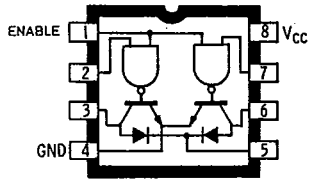


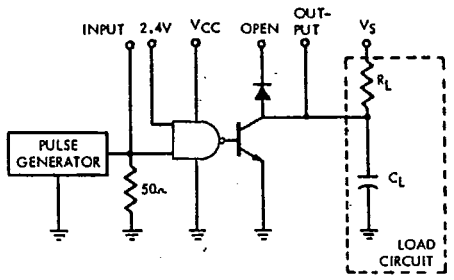
Dwg. No. A-9791A

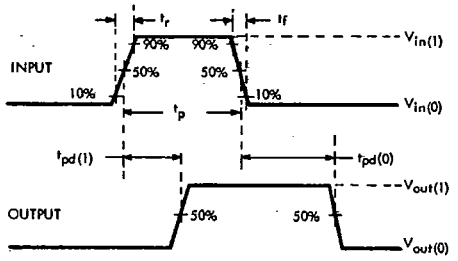
UDN5741M

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

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V_{CC}	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I_{CEX}	—	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	$V_{CE(SAT)}$	—	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	$V_{IN(1)}$	—	4.75	—	—	—	2.0	—	—	V	—
	$V_{IN(0)}$	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	$I_{IN(0)}$	—	5.25	0.4 V	30 V	—	—	-5.0	-10	µA	1
	$I_{IN(1)}$	—	5.25	30 V	0 V	—	—	5.0	10	µA	1
Enable Input Current	$I_{IN(0)}$	—	5.25	0.4 V	30 V	—	—	-10	-20	µA	—
	$I_{IN(1)}$	—	5.25	30 V	0 V	—	—	10	20	µA	—
Input Clamp Voltage	V_{CLAMP}	—	4.75	-12 mA	—	—	—	—	-1.5	V	—
Diode Leakage Current	I_R	+25°C	5.0	0 V	0 V	Open	—	—	100	µA	2
Diode Forward Voltage	V_F	+25°C	5.0	5.0 V	5.0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	$I_{CC(1)}$	+25°C	5.25	5.0 V	5.0 V	—	—	1.0	3.0	mA	—
	$I_{CC(0)}$	+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_R = 70 V.

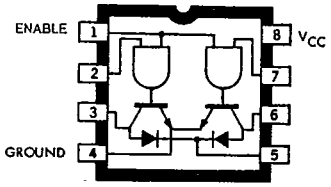




Dwg. No. A-7628D

SERIES 5740
DUAL PERIPHERAL/POWER DRIVERS

T-52-17



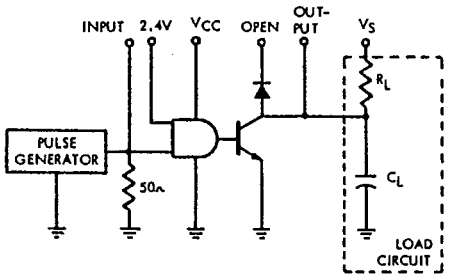
Dwg. No. A-9790B

UDN5742M

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

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V_{CC}	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I_{CEX}	—	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	$V_{CE(SAT)}$	—	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	$V_{IN(1)}$	—	4.75	—	—	—	2.0	—	—	V	—
	$V_{IN(0)}$	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	$I_{IN(0)}$	—	5.25	0.4 V	30 V	—	—	-5.0	-10	µA	1
	$I_{IN(1)}$	—	5.25	30 V	0 V	—	—	5.0	10	µA	1
Enable Input Current	$I_{IN(0)}$	—	5.25	0.4 V	30 V	—	—	-10	-20	µA	—
	$I_{IN(1)}$	—	5.25	30 V	0 V	—	—	10	20	µA	—
Input Clamp Voltage	V_{CLAMP}	—	4.75	-12 mA	—	—	—	—	-1.5	V	—
Diode Leakage Current	I_R	+25°C	5.0	5.0 V	5.0 V	Open	—	—	100	µA	2
Diode Forward Voltage	V_F	+25°C	5.0	0 V	0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	$I_{CC(1)}$	+25°C	5.25	0 V	0 V	—	—	1.0	3.0	mA	—
	$I_{CC(0)}$	+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_R = 70 V.



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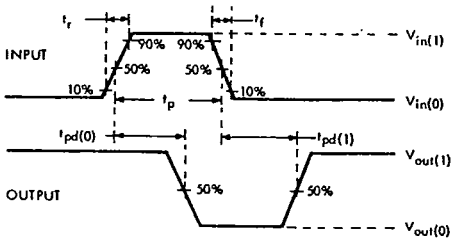
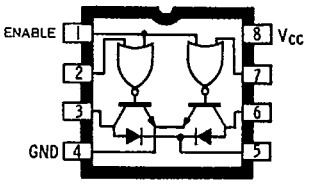


Dwg. No. A-7900B

SERIES 5740
DUAL PERIPHERAL/POWER DRIVERS

T-52-17



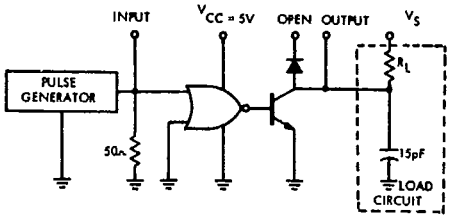
Dwg. No. A-9789A

UDN5743M

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

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V_{CC}	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I_{CEX}	—	4.75	2.0 V	0 V	70 V	—	—	100	µA	—
			Open	2.0 V	0 V	70 V	—	—	100	µA	—
Output Voltage	$V_{CE(SAT)}$	—	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	$V_{IN(1)}$	—	4.75	—	—	—	2.0	—	—	V	—
	$V_{IN(0)}$	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	$I_{IN(0)}$	—	5.25	0.4 V	30 V	—	—	-5.0	-10	µA	1
	$I_{IN(1)}$	—	5.25	30 V	0 V	—	—	5.0	10	µA	1
Enable Input Current	$I_{IN(0)}$	—	5.25	0.4 V	30 V	—	—	-10	-20	µA	—
	$I_{IN(1)}$	—	5.25	30 V	0 V	—	—	10	20	µA	—
Input Clamp Voltage	V_{CLAMP}	—	4.75	-12 mA	—	—	—	—	1.5	V	—
Diode Leakage Current	I_R	+25°C	0	0 V	0 V	Open	—	—	100	µA	2
Diode Forward Voltage	V_F	+25°C	5.0	5.0 V	5.0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	$I_{CC(1)}$	+25°C	5.25	5.0 V	5.0 V	—	—	1.0	3.0	mA	—
	$I_{CC(0)}$	+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_R = 70 V.



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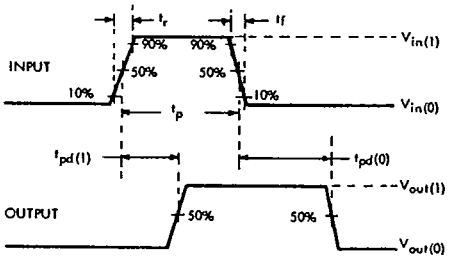
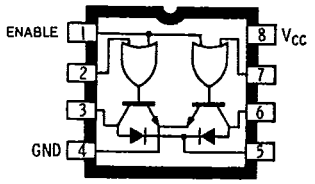


Dwg. No. A-7628D

SERIES 5740
DUAL PERIPHERAL/POWER DRIVERS

T-52-17



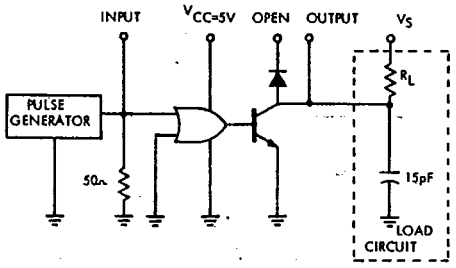
Dwg. No. A-9788A

UDN5744M

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

Characteristic	Symbol	Test Conditions					Limits				Notes
		Temp.	V_{CC}	Driven Input	Other Input	Output	Min.	Typ.	Max.	Units	
Output Reverse Current	I_{CEX}	—	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	$V_{CE(SAT)}$	—	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	$V_{IN(1)}$	—	4.75	—	—	—	2.0	—	—	V	—
	$V_{IN(0)}$	—	4.75	—	—	—	—	—	0.8	V	—
Input Current	$I_{IN(0)}$	—	5.25	0.4 V	0 V	—	—	-5.0	-10	µA	1
	$I_{IN(1)}$	—	5.25	30 V	30 V	—	—	5.0	10	µA	1
Enable Input Current	$I_{IN(0)}$	—	5.25	0.4 V	0 V	—	—	-10	-20	µA	—
	$I_{IN(1)}$	—	5.25	30 V	30 V	—	—	10	20	µA	—
Input Clamp Voltage	V_{CLAMP}	—	4.75	-12 mA	—	—	—	—	-1.5	V	—
Diode Leakage Current	I_R	+25°C	5.0	5.0 V	5.0 V	Open	—	—	100	µA	2
Diode Forward Voltage	V_F	+25°C	5.0	0 V	0 V	600 mA	—	1.5	2.0	V	—
Supply Current (Total Package)	$I_{CC(1)}$	+25°C	5.25	0 V	0 V	—	—	1.0	3.0	mA	—
	$I_{CC(0)}$	+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_R = 70 V.



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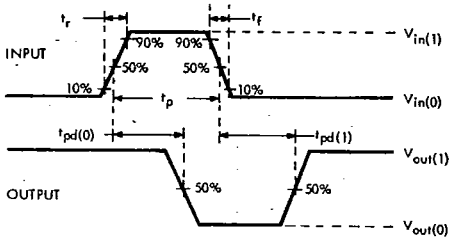

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