



No. 3803

**LC7802**

## Output Port Expansion IC for VTR Applications

### Advanced Information

### OVERVIEW

The LC7802 is an output port expansion IC that incorporates a 10-bit serial-to-parallel converter, controlled by an external microcontroller, making it ideal for video tape recorder (VTR) applications.

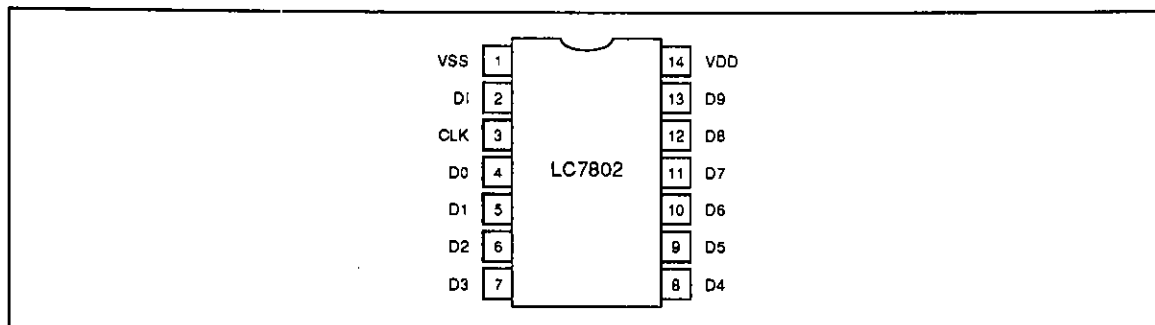
The LC7802 features tristate outputs and an automatically generated latch signal. It also features reset initialization at power-ON to initialize the outputs in the high-impedance state.

The LC7802 operates from a 5 V supply and is available in 14-pin DIPs.

### FEATURES

- 10-bit serial-to-parallel converter
- Tristate outputs
- Reset initialization at power-ON
- Latch signal generated automatically
- 5 V supply
- 14-pin DIP

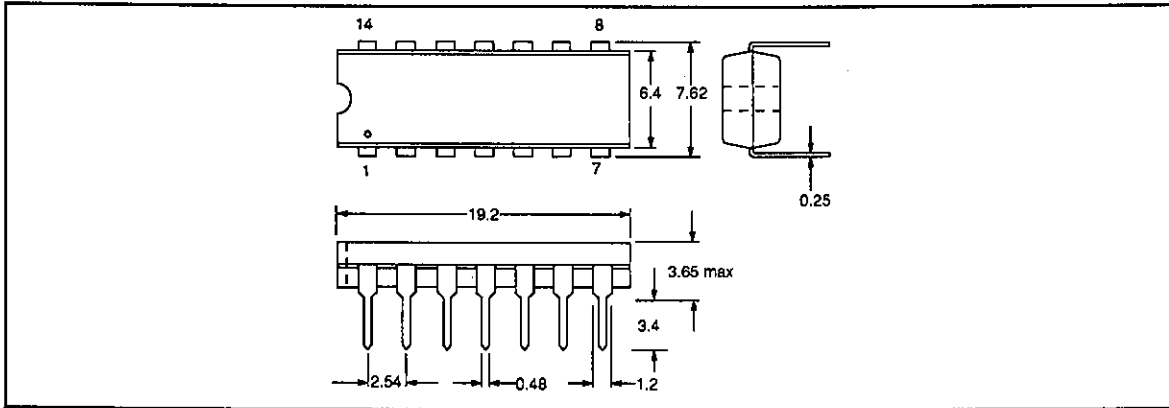
### PINOUT



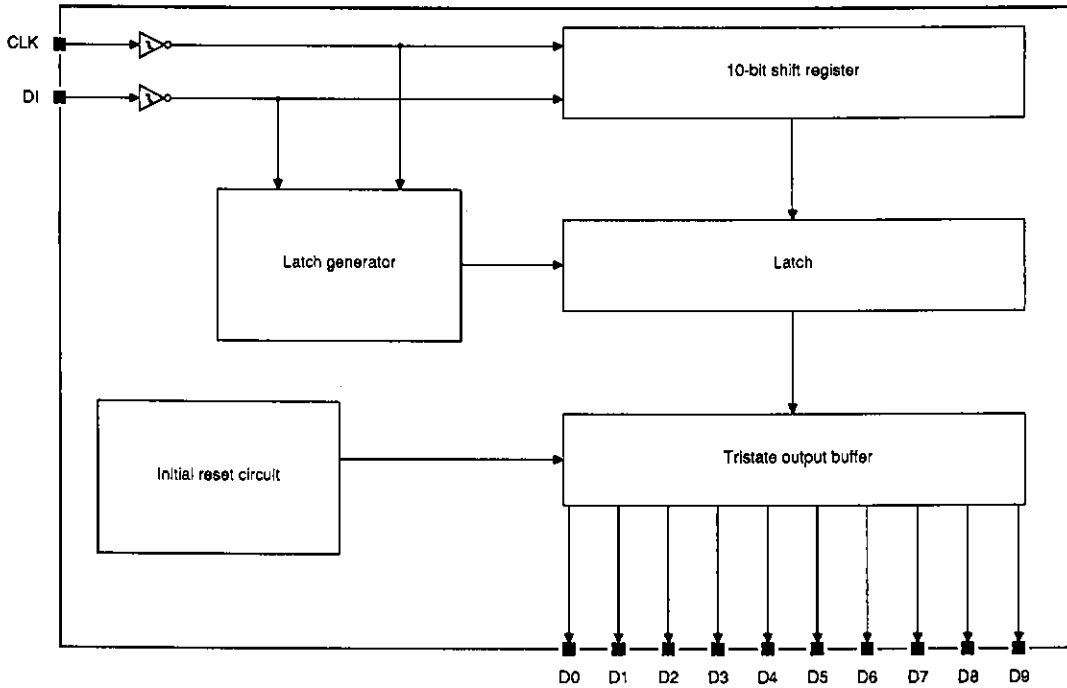
**PACKAGE DIMENSIONS**

Unit: mm

3003A-DIP14



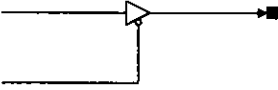
**BLOCK DIAGRAM**



**PIN DESCRIPTION**

Number	Name	Equivalent circuit	Description
1	VSS		Ground
2	DI		Serial data input
3	CLK		Clock input

## LC7802

Number	Name	Equivalent circuit	Description
4 to 13	D0 to D9		Data outputs
14	VDD		5 V supply

## SPECIFICATIONS

### Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage range	$V_{DD}$	-0.3 to 7.0	V
DI and CLK input voltage range	$V_I$	-0.3 to $V_{DD} + 0.3$	V
D0 to D9 output voltage range	$V_O$	-0.3 to $V_{DD} + 0.3$	V
D0 to D9 output current	$I_O$	2	mA
Power dissipation	$P_D$	200	mW
Operating temperature range	$T_{opr}$	-30 to 70	°C
Storage temperature range	$T_{stg}$	-40 to 125	°C

### Recommended Operating Conditions

$T_A = 25\text{ °C}$

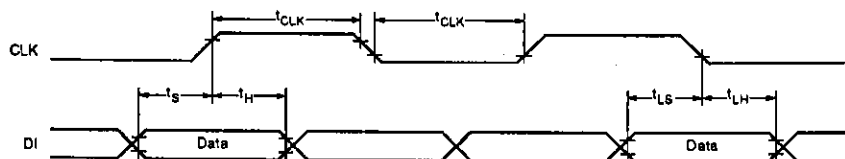
Parameter	Symbol	Rating	Unit
Supply voltage	$V_{DD}$	5	V
Supply voltage range	$V_{DD}$	4.5 to 5.5	V

### Electrical Characteristics

$V_{DD} = 5\text{ V}$ ,  $T_A = -30\text{ to }70\text{ °C}$

Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
DI and CLK LOW-level input voltage	$V_{IL}$		$V_{SS} - 0.3$	-	$0.2V_{DD}$	V
DI and CLK HIGH-level input voltage	$V_{IH}$		$0.8V_{DD}$	-	$V_{DD} + 0.3$	V
D0 to D9 LOW-level output voltage	$V_{OL}$	$I_{OL} = 1.0\text{ mA}$	-	-	0.4	V
D0 to D9 HIGH-level output voltage	$V_{OH}$	$I_{OH} = -1.0\text{ mA}$	$V_{DD} - 0.4$	-	-	V
Hysteresis voltage	$V_{HYS}$		-	$0.1V_{DD}$	-	V
Standby supply current	$I_{DD}$	$V_{IN} = V_{DD}$ or $V_{SS}$ , outputs open	-	-	3	μA

## Timing Characteristics



$V_{DD} = 5 \pm 0.5 \text{ V}$ ,  $T_a = -30 \text{ to } 70 \text{ }^\circ\text{C}$

Parameter	Symbol	Rating			Unit
		min	typ	max	
CLK input minimum clock pulsewidth	$t_{CLK}$	500	—	—	ns
DI input data shift setup time	$t_s$	200	—	—	ns
DI input data shift hold time	$t_H$	200	—	—	ns
DI input data latch setup time	$t_{Ls}$	200	—	—	ns
DI input data latch hold time	$t_{LH}$	250	—	—	ns

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## FUNCTIONAL DESCRIPTION

### System Timing

At power-ON, a reset initialization occurs to ensure that the outputs are in the high-impedance state before the first latch signal.

Data is shifted into the shift register on the rising edge of the clock, CLK. The shift register contents are latched on the falling edge of CLK when DI is HIGH. The system timing is shown in figure 1.

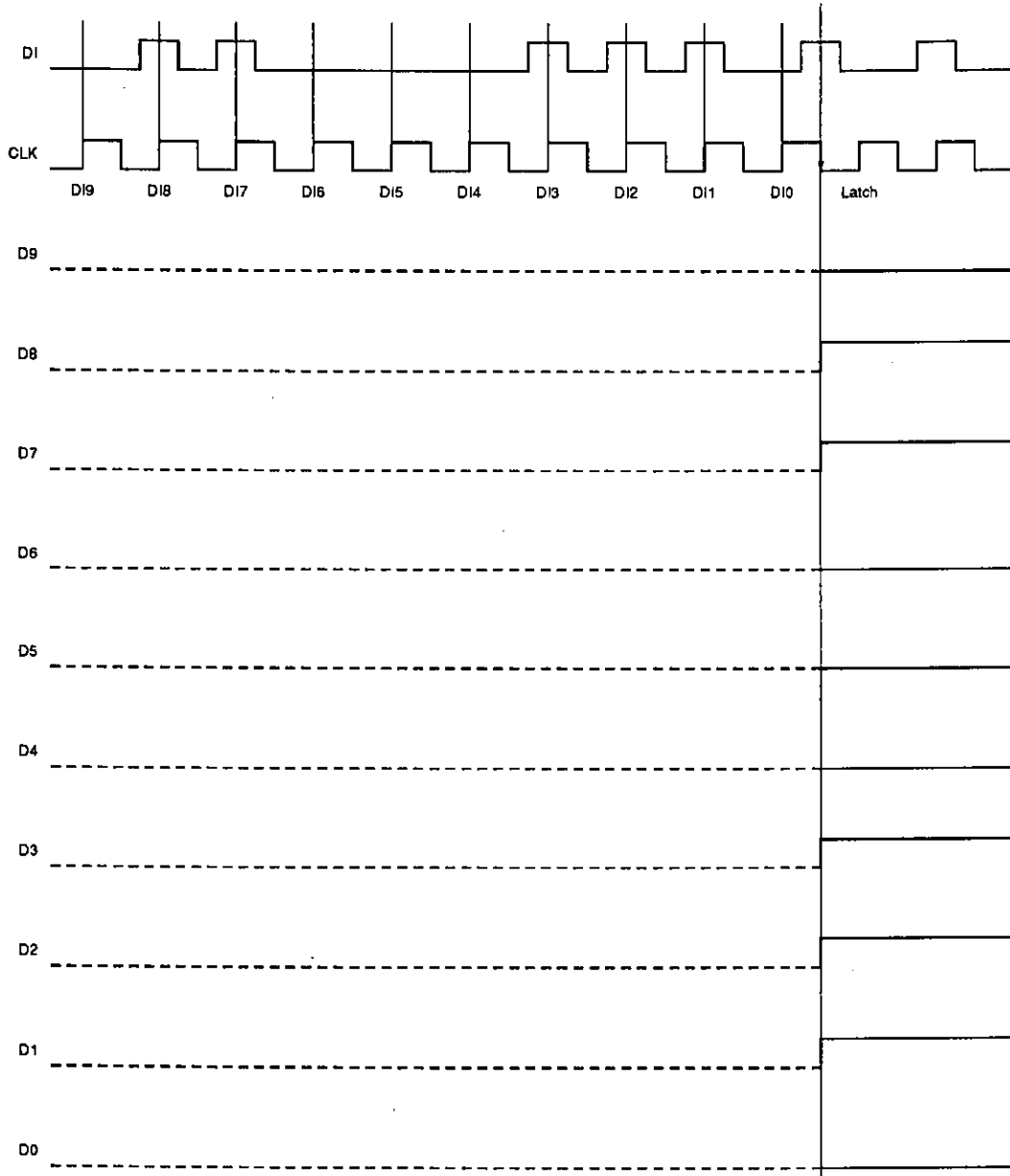


Figure 1. System timing