

T54LS533/534
T74LS533/534



PRELIMINARY DATA

LS533 - OCTAL TRANSPARENT LATCH WITH 3-STATE OUTPUTS
LS534 - OCTAL D-TYPE FLIP-FLOP WITH 3-STATE OUTPUTS

DESCRIPTION

The T54LS/T74LS533 is an Octal Transparent latch with 3-State Outputs designed for bus organised system applications. When Latch Enable (LE) is High the data appears transparent to the flip-flop when it is Low the data is latched. When the output Enable goes Low the data appears on the bus, when it goes HIGH the bus output is in the high impedance state. The LS533 is functionally identical to the LS373, with the exception of the inverted outputs.

The T54LS/T74LS534 is an octal D-Type flip-flop with 3-State Outputs designed for bus oriented applications. It is composed of a buffered clock and an output Enable common to all flip-flops. The LS534 is functionally identical to the LS374 with the exception that the outputs are inverted.

B1
Plastic Package

D1/D2
Ceramic Package

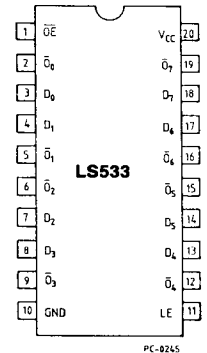
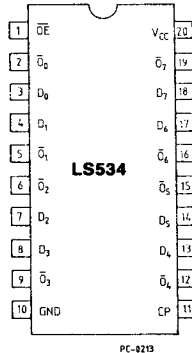
M1
Micro Package

C1
Plastic Chip Carrier

ORDERING NUMBERS:
T54LSXXX D2 T74LSXXX C1
T74LSXXX D1 T74LSXXX M1
T74LSXXX B1

PIN CONNECTION
(top view)

DUAL IN LINE

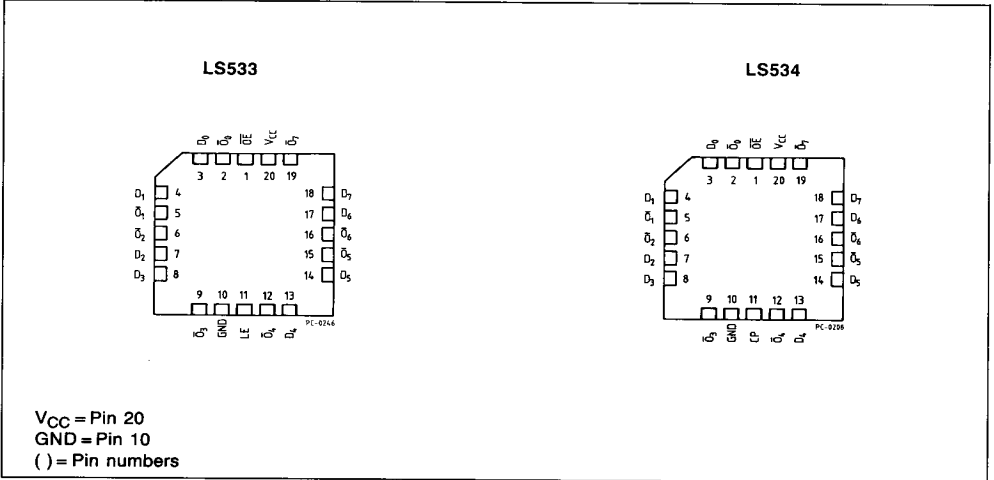


PIN NAMES

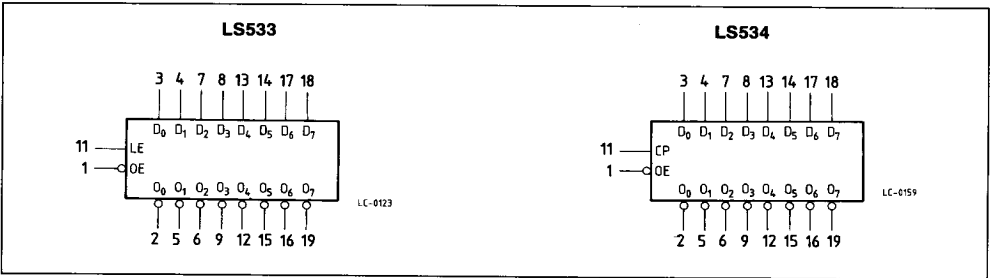
D_0 - D_7	Data Inputs
LE	Lactch Enable (Active HIGH) Input
CP	Clock (Active HIGH going edge) Input
\overline{OE}	Output Enable (Active LOW) Input
\overline{O}_0 - \overline{O}_7	Outputs



CHIP CARRIER



LOGIC SYMBOL



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	-0.5 to 7	V
V_I	Input Voltage, Applied to Input	-0.5 to 15	V
V_O	Output Voltage, Applied to Output	-0.5 to 10	V
I_I	Input Current, Into Inputs	-30 to 5	mA
I_O	Output Current, Into Outputs	50	mA

Stresses in excess of those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions in excess of those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



GUARANTEED OPERATING RANGES

Part Numbers	Supply Voltage			Temperature
	Min	Typ	Max	
T54LS533/534D2	4.5 V	5.0 V	5.5 V	-55°C to +125°C
T74LS533/534XX	4.75 V	5.0 V	5.25 V	0°C to +70°C

XX = package type.

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

Symbol	Parameter		Limits			Test Conditions (Note 1)	Units
			Min.	Typ.	Max.		
V_{IH}	Input HIGH Voltage		2.0			Guaranteed input HIGH Voltage for all Inputs	V
V_{IL}	Input LOW Voltage	54			0.7	Guaranteed input LOW Voltage for all Inputs	V
		74			0.8		
V_{CD}	Input Clamp Diode Voltage			-0.65	-1.5	$V_{CC} = \text{MIN}, I_{IN} = -18\text{mA}$	V
V_{OH}	Output HIGH Voltage	54	2.4	3.4		$I_{OH} = -1.0\text{mA}$	V
		74	2.4	3.1		$I_{OH} = -2.6\text{mA}$	
V_{OL}	Output LOW Voltage	54,74		0.25	0.4	$I_{OL} = 12\text{mA}$	V
		74		0.35	0.5	$I_{OL} = 24\text{mA}$	
I_{OZH}	Output Off Current HIGH				20	$V_{CC} = \text{MAX}, V_{OUT} = 2.7\text{V}$	μA
I_{OZL}	Output Off Current LOW				-20	$V_{CC} = \text{MAX}, V_{OUT} = 0.4\text{V}$	μA
I_{IH}	Input HIGH Current				20 0.1	$V_{CC} = \text{MAX}, V_{IN} = 2.7\text{V}$ $V_{CC} = \text{MAX}, V_{IN} = 7.0\text{V}$	μA mA
I_{IL}	Input LOW Current				-0.4	$V_{CC} = \text{MAX}, V_{IN} = 0.4\text{V}$	mA
I_{OS}	Output Short Circuit Current (Note 2)		-30		-130	$V_{CC} = \text{MAX}, V_{OUT} = 0\text{V}$	mA
I_{CC}	Power Supply Current				40	$V_{CC} = \text{MAX}$	mA

Notes:

- 1) Conditions for testing, not shown in the Table, are chosen to guarantee operation under "worst case" conditions.
- 2) Not more than one output should be shorted at a time.
- 3) Typical values are at $V_{CC} = 5.0\text{V}, T_A = 25^\circ\text{C}$