

## 54FCT244 Octal Buffer/Line Driver with TRI-STATE® Outputs

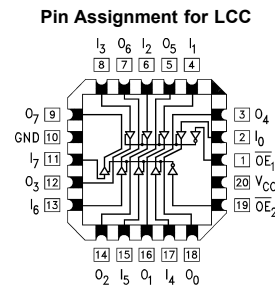
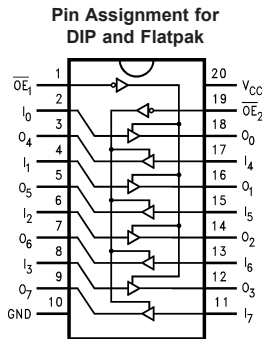
### General Description

The 'FCT244 is an octal buffer and line driver with TRI-STATE outputs designed to be employed as a memory and address driver, clock driver, or bus-oriented transmitter/receiver.

### Features

- Non-inverting buffers
- Output sink capability of 48 mA, source capability of 12 mA
- TRI-STATE outputs drive lines or buffer memory address registers
- TTL input and output level compatible
- CMOS power consumption
- Standard Microcircuit Drawing (SMD) 5962-8763001

### Connection Diagrams



Pin Names	Description
$\overline{OE}_1, \overline{OE}_2$	Output Enable Input (Active Low)
$I_0-I_7$	Inputs
$O_0-O_7$	Outputs

$\overline{OE}_1$	$I_{0-3}$	$O_{0-3}$	$\overline{OE}_2$	$I_{4-7}$	$O_{4-7}$
H	X	Z	H	X	Z
L	H	H	L	H	H
L	L	L	L	L	L

H = HIGH Voltage Level  
L = LOW Voltage Level  
X = Immaterial  
Z = High Impedance

TRI-STATE® is a registered trademark of National Semiconductor Corporation.

**\* For complete Rochester ordering guide, please refer to page 2 \***

Rochester Electronics guarantees performance of its semiconductor products to the original OEM specifications. "Typical" values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing. Rochester Electronics reserves the right to make changes without further notice to any specification herein.

# 54FCT244

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## Rochester Ordering Guide

<b>Rochester Part Number</b>	<b>OCM Part Number</b>	<b>Package</b>	<b>Temperature</b>
54FCT244DM	54FCT244DM	DIP-20	-55° to +125°C
54FCT244FM	54FCT244FM	FP-20	-55° to +125°C
54FCT244LM	54FCT244LM	LLCC-20	-55° to +125°C
54FCT244DMQB	54FCT244DMQB	DIP-20	-55° to +125°C
54FCT244FMQB	54FCT244FMQB	FP-20	-55° to +125°C
54FCT244LMQB	54FCT244LMQB	LLCC-20	-55° to +125°C

# 54FCT224

## Absolute Maximum Ratings (Note 1)

Storage Temperature	-65°C to +150°C
Ambient Temperature under Bias	-55°C to +125°C
Junction Temperature under Bias	
Ceramic	-55°C to +175°C
V <sub>CC</sub> Pin Potential to Ground Pin	-0.5V to +7.0V
Input Voltage (Note 2)	-0.5V to +7.0V
Input Current (Note 2)	-30 mA to +5.0 mA
Voltage Applied to Any Output in the Disabled or Power-Off State	-0.5V to 5.5V
in the HIGH State	-0.5V to V <sub>CC</sub>

Current Applied to Output in LOW State (Max)	twice the rated I <sub>OL</sub> (mA)
DC Latchup Source Current	-500 mA

## Recommended Operating Conditions

Free Air Ambient Temperature	
Military	-55°C to +125°C
Supply Voltage	
Military	+4.5V to +5.5V
Minimum Input Edge Rate	(ΔV/Δt)
Data Input	50 mV/ns
Enable Input	20 mV/ns

## DC Electrical Characteristics for 'FCT Family Devices

Symbol	Parameter	FCT244		Units	V <sub>CC</sub>	Conditions
		Min	Max			
V <sub>IH</sub>	Input HIGH Voltage	2.0		V		Recognized HIGH Signal
V <sub>IL</sub>	Input LOW Voltage		0.8	V		Recognized LOW Signal
V <sub>CD</sub>	Input Clamp Diode Voltage		-1.2	V	Min	I <sub>IN</sub> = -18 mA
V <sub>OH</sub>	Output HIGH Voltage	54FCT	4.3	V	Min	I <sub>OH</sub> = -300 μA
		54FCT	2.4			I <sub>OH</sub> = -12 mA
V <sub>OL</sub>	Output LOW Voltage	54FCT	0.2	V	Min	I <sub>OL</sub> = 300 μA
		54FCT	0.55			I <sub>OL</sub> = 48 mA
I <sub>IH</sub>	Input HIGH Current		5	μA	Max	V <sub>IN</sub> = V <sub>CC</sub>
I <sub>IL</sub>	Input LOW Current		-5	μA	Max	V <sub>IN</sub> = 0.0V
I <sub>OZ</sub>	Maximum TRI-STATE Current HIGH or LOW		±10	μA	Max	V <sub>IN</sub> = 0.0V or V <sub>IN</sub> = V <sub>CC</sub>
I <sub>OS</sub>	Output Short-Circuit Current		-60	mA	Max	V <sub>OUT</sub> = 0.0V
I <sub>CCQ</sub>	Quiescent Power Supply Current		1.5	mA	Max	V <sub>IN</sub> < 0.2V or V <sub>IN</sub> 5.3V, V <sub>CC</sub> = 5.5V
ΔI <sub>CC</sub>	Quiescent Power Supply Current		2.0	mA	Max	V <sub>I</sub> = 3.4V, V <sub>CC</sub> = 5.5V
I <sub>CCD</sub>	Dynamic I <sub>CC</sub>		0.4	mA/ MHz	Max	Outputs Open, V <sub>CC</sub> = 5.5V, V <sub>IN</sub> 5.3V or V <sub>IN</sub> < 0.2V, One Bit Toggling, 50% Duty Cycle, OE = GND, LE = V <sub>CC</sub>
I <sub>CCT</sub>	Total Power Supply Current		6.0	mA	Max	Outputs Open, f <sub>CP</sub> = 10 MHz, V <sub>CC</sub> = 5.5V, V <sub>IN</sub> 5.3V or V <sub>IN</sub> < 0.2V, One Bit Toggling, 50% Duty Cycle, OE = GND, LE = V <sub>CC</sub>

**Note 1:** Absolute maximum ratings are values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.

**Note 2:** Either voltage limit or current limit is sufficient to protect inputs.

**Note 3:** All outputs loaded; thresholds on input associated with output under test.

**Note 4:** Maximum test duration 2.0 ms, one output loaded at a time.

# 54FCT244

## AC Electrical Characteristics for 'FCT Family Devices

Symbol	Parameter	54FCT		Units	Fig. No.
		$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 4.5\text{V} - 5.5\text{V}$ $C_L = 50\text{ pF}$			
		Min	Max		
$t_{PLH}$	Propagation Delay	1.5	7.5	ns	
$t_{PHL}$	Data to Outputs	1.5	7.5		
$t_{PZH}$	Output Enable	1.5	10.5	ns	
$t_{PZL}$	Time	1.5	10.5		
$t_{PHZ}$	Output Disable	1.5	8.0	ns	
$t_{PLZ}$	Time	1.5	8.0		

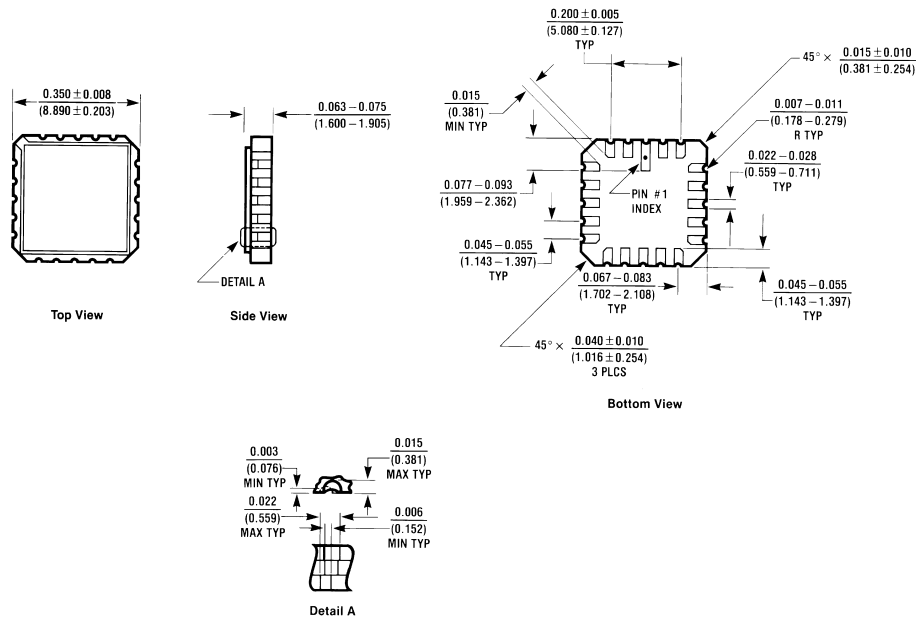
## Capacitance

Symbol	Parameter	Max	Units	Conditions $T_A = 25^\circ\text{C}$
$C_{IN}$	Input Capacitance	10.0	pF	$V_{CC} = 0\text{V}$
$C_{OUT}$ (Note 5)	Output Capacitance	12.0	pF	$V_{CC} = 5.0\text{V}$

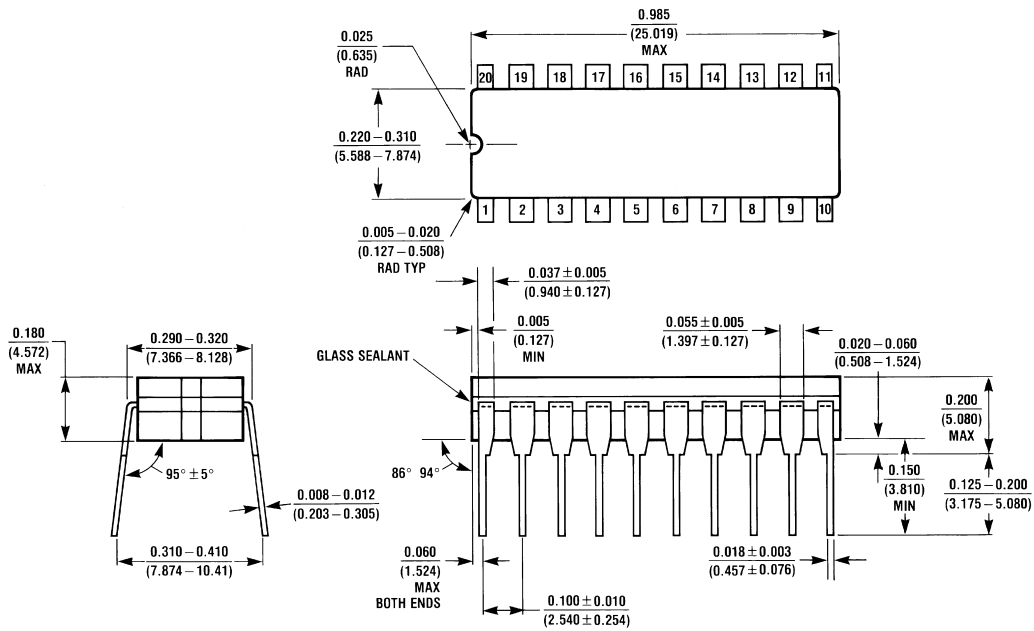
**Note 5:**  $C_{OUT}$  is measured at frequency  $f = 1\text{ MHz}$ , per MIL-STD-883B, Method 3012.

# 54FCT224

Physical Dimensions inches (millimeters) unless otherwise noted



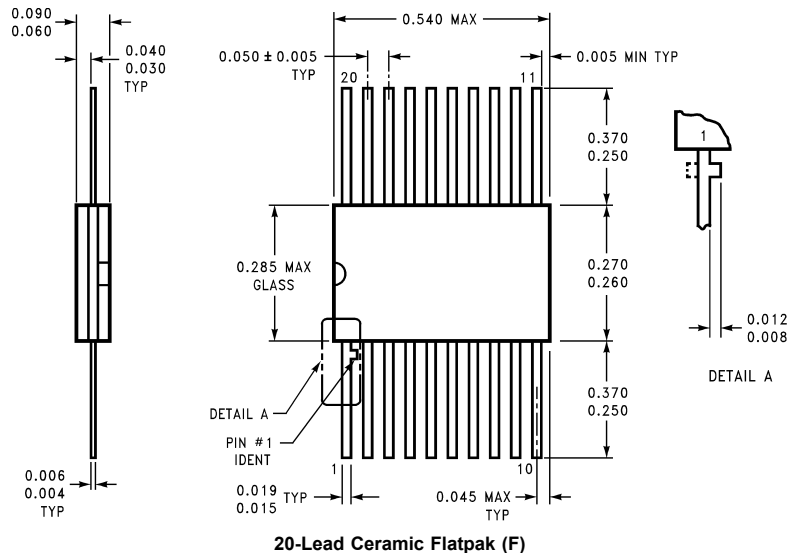
20-Terminal Ceramic Chip Carrier (L)



20-Lead Ceramic Dual-In-Line (D)

# 54FCT244

## Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



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