



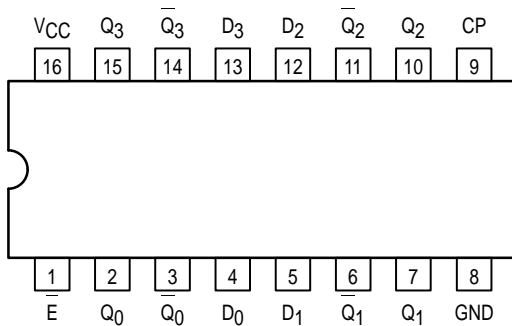
QUAD PARALLEL REGISTER

The MC54/74F379 is a 4-bit register with a buffered common enable. This device is similar to the F175 but features the common Enable rather than common Master Reset.

The F379 consists of four edge-triggered D-type flip-flops with individual D inputs and Q and \bar{Q} outputs. The Clock (CP) and Enable (E) inputs are common to all flip-flops. When E is HIGH, the register will retain the present data independent of the CP input. The \bar{D}_n and E inputs can change when the clock is in either state, provided that the recommended setup and hold times are observed. This circuit is designed to prevent false clocking by transitions on the E input.

- Edge-Triggered D-Type Inputs
- Buffered Positive Edge-Triggered Clock
- Buffered Common Enable Input
- True and Complement Outputs

CONNECTION DIAGRAM (TOP VIEW)



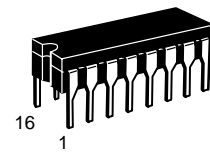
FUNCTION TABLE

| Inputs | | Outputs | | |
|--------|----|-------------|-------|-------------|
| E | CP | \bar{D}_n | Q_n | \bar{Q}_n |
| H | | X | NC | NC |
| L | | H | H | L |
| L | | L | L | H |

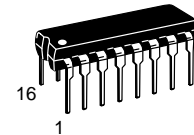
H = HIGH Voltage Level
 L = LOW Voltage Level
 X = Don't Care
 NC = No Change

MC54/74F379

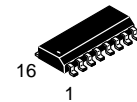
QUAD PARALLEL REGISTER
 WITH ENABLE
 FAST™ SCHOTTKY TTL



J SUFFIX
 CERAMIC
 CASE 620-09



N SUFFIX
 PLASTIC
 CASE 648-08

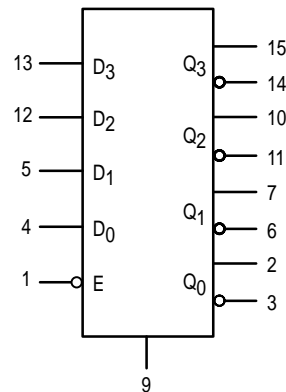


D SUFFIX
 SOIC
 CASE 751B-03

ORDERING INFORMATION

MC54FXXXJ Ceramic
 MC74FXXXN Plastic
 MC74FXXXD SOIC

LOGIC SYMBOL



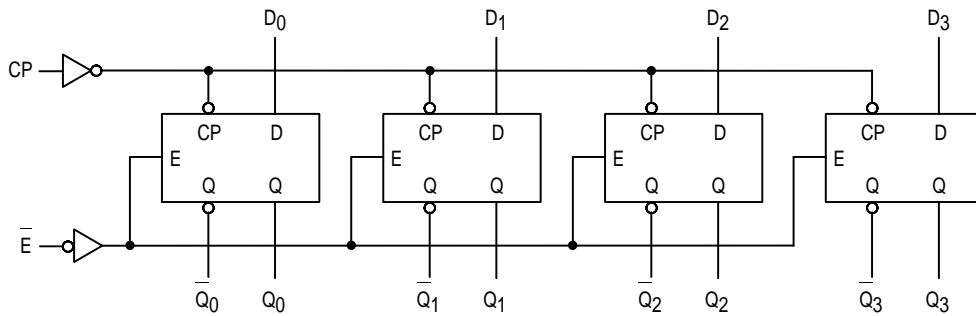
V_{CC} = PIN 16
 GND = PIN 8

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LOGIC DIAGRAM



GUARANTEED OPERATING RANGES

| Symbol | Parameter | | Min | Typ | Max | Unit |
|-----------------|-------------------------------------|--------|-----|-----|------|------|
| V _{CC} | Supply Voltage | 54, 74 | 4.5 | 5.0 | 5.5 | V |
| T _A | Operating Ambient Temperature Range | 54 | -55 | 25 | 125 | °C |
| | | 74 | 0 | 25 | 70 | |
| I _{OH} | Output Current — HIGH | 54, 74 | | | -1.0 | mA |
| I _{OL} | Output Current — LOW | 54, 74 | | | 20 | mA |

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

| Symbol | Parameter | Limits | | | Unit | Test Conditions |
|-----------------|---------------------------------------|--------|-----|------|------|---|
| | | Min | Typ | Max | | |
| V _{IH} | Input HIGH Voltage | 2.0 | | | V | Guaranteed Input HIGH Voltage |
| V _{IL} | Input LOW Voltage | | | 0.8 | V | Guaranteed Input LOW Voltage |
| V _{IK} | Input Clamp Diode Voltage | | | -1.2 | V | V _{CC} = MIN, I _{IN} = -18 mA |
| V _{OH} | Output HIGH Voltage | 54, 74 | 2.5 | | V | I _{OL} = -1.0 mA, V _{CC} = 4.5 V |
| | | 74 | 2.7 | | V | I _{OL} = -1.0 mA, V _{CC} = 4.75 V |
| V _{OL} | Output LOW Voltage | | | 0.5 | V | I _{OL} = 20 mA, V _{CC} = MIN |
| I _{IH} | Input HIGH Current | | | 20 | μA | V _{CC} = MAX, V _{IN} = 2.7 V |
| | | | | 0.1 | mA | V _{CC} = MAX, V _{IN} = 7.0 V |
| I _{IL} | Input LOW Current | | | -0.6 | mA | V _{CC} = MAX, V _{IN} = 0.5 V |
| I _{OS} | Output Short Circuit Current (Note 2) | -60 | | -150 | mA | V _{CC} = MAX, V _{OUT} = 0 V |
| I _{CC} | Power Supply Current | | 28 | 40 | mA | V _{CC} = MAX, D = E = GND, CP = \square |

NOTES:

- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
- Not more than one output should be shorted at a time, nor for more than 1 second.

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MC54/74F379

AC CHARACTERISTICS

| Symbol | Parameter | 54/74F | | | 54F | | 74F | | Unit |
|------------------|-------------------------|--|-----|-----|--|------|---|-----|------|
| | | $T_A = +25^\circ\text{C}$ $V_{CC} = 5.0\text{ V}$ $C_L = 50\text{ pF}$ | | | $T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$ | | $T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$ | | |
| | | Min | Typ | Max | Min | Max | Min | Max | |
| f_{max} | Maximum Clock Frequency | 100 | 140 | | 90 | | 100 | | MHz |
| t_{PLH} | Propagation Delay | 3.5 | 5.0 | 6.5 | 3.5 | 8.5 | 3.5 | 7.5 | ns |
| t_{PHL} | CP to Q_n, \bar{Q}_n | 5.0 | 6.5 | 8.5 | 5.0 | 10.5 | 5.0 | 9.5 | |

AC OPERATING REQUIREMENTS

| Symbol | Parameter | 54/74F | | | 54F | | 74F | | Unit |
|-----------------|--------------------------------|--|-----|-----|--|-----|---|-----|------|
| | | $T_A = +25^\circ\text{C}$ $V_{CC} = 5.0\text{ V}$ | | | $T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ | | $T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ | | |
| | | Min | Typ | Max | Min | max | Min | Max | |
| $t_s(\text{H})$ | Setup Time, HIGH or LOW | 3.0 | | | 3.0 | | 3.0 | | ns |
| $t_s(\text{L})$ | D_n to CP | 3.0 | | | 3.0 | | 3.0 | | |
| $t_h(\text{H})$ | Hold Time, HIGH or LOW | 1.0 | | | 1.0 | | 1.0 | | ns |
| $t_h(\text{L})$ | D_n to CP | 1.0 | | | 1.0 | | 1.0 | | |
| $t_s(\text{H})$ | Setup Time, HIGH or LOW | 6.0 | | | 6.0 | | 6.0 | | ns |
| $t_s(\text{L})$ | \bar{E} to CP | 6.0 | | | 6.0 | | 6.0 | | |
| $t_h(\text{H})$ | Hold Time, HIGH or LOW | 2.0 | | | 2.0 | | 2.0 | | ns |
| $t_h(\text{L})$ | \bar{E} to CP | 2.0 | | | 2.0 | | 2.0 | | |
| $t_w(\text{H})$ | CP Pulse Width, HIGH or LOW | 4.0 | | | 4.0 | | 4.0 | | ns |
| $t_w(\text{L})$ | | 5.0 | | | 5.0 | | 5.0 | | |


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