

### **Rochester Electronics Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

### **Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
  - Class Q Military
  - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
  - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the 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.

- Contains Four D-Type Flip-Flops with Double-Rail Outputs
- Buffered Common Enable Input
- Applications Include:  
Buffer/Storage Registers  
Pattern Generators
- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

**description**

The SN54F379 and SN74F379 are monolithic, positive-edge-triggered D-type flip-flops with a clock enable input. The 'F379 is similar to the 'F175, but features a common clock enable instead of a common clear.

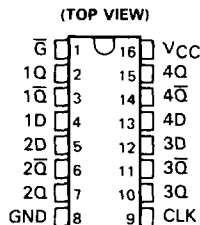
Information at the D inputs meeting the setup time requirements is transferred to the Q outputs on the positive-going edge of the clock pulse if the clock enable input  $\bar{G}$  is low. Clock triggering occurs at a particular voltage level and is not directly related to the transition time of the positive-going pulse. When the clock input is at either the high or low level, the D input signal has no effect at the output.

The SN54F379 is characterized for operation over the full military temperature range of  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ . The SN74F379 is characterized for operation from  $0^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .

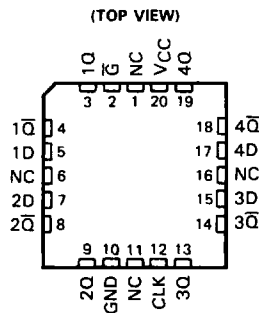
**FUNCTION TABLE (EACH FLIP-FLOP)**

$\bar{G}$	INPUTS		OUTPUT	
	CLOCK	DATA	Q	$\bar{Q}$
H	X	X	$Q_0$	$\bar{Q}_0$
L	$\uparrow$	H	H	L
L	$\uparrow$	L	L	H
X	L	X	$Q_0$	$\bar{Q}_0$

**SN54F379 . . . J PACKAGE  
SN74F379 . . . D OR N PACKAGE**

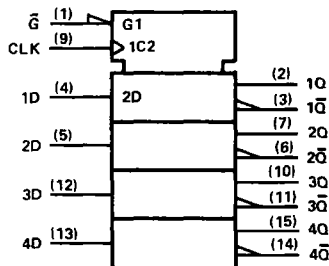


**SN54F379 . . . FK PACKAGE**



NC--No internal connection

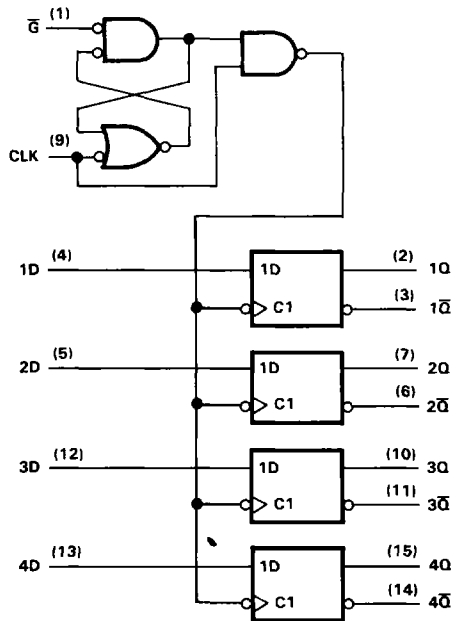
**logic symbol†**



†This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

Pin numbers shown are for D, J, and N packages.

logic diagram (positive logic)



Pin numbers shown are for D, J, and N packages.

**absolute maximum ratings over operating free-air temperature range (unless otherwise noted)**

Supply voltage, $V_{CC}$ .....	-0.5 V to 7 V
Input voltage <sup>†</sup> .....	-1.2 V to 7 V
Input current .....	-30 mA to 5 mA
Voltage applied to any output in the high state .....	-0.5 V to $V_{CC}$
Current into any output in the low state .....	40 mA
Operating free-air temperature range: SN54F379 .....	-55 °C to 125 °C
SN74F379 .....	0 °C to 70 °C
Storage temperature range .....	-65 °C to 150 °C

<sup>†</sup>The input voltage ratings may be exceeded provided the input current ratings are observed.

**2**  
**Data Sheets**

recommended operating conditions

		SN54F379			SN74F379			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V <sub>CC</sub>	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V <sub>IH</sub>	High-level input voltage	2			2			V
V <sub>IL</sub>	Low-level input voltage			0.8			0.8	V
I <sub>IK</sub>	Input clamp current			-18			-18	mA
I <sub>OH</sub>	High-level output current			-1			-1	mA
I <sub>OL</sub>	Low-level output current			20			20	mA
T <sub>A</sub>	Operating free-air temperature	-55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS	SN54F379			SN74F379			UNIT
		MIN	TYP <sup>‡</sup>	MAX	MIN	TYP <sup>‡</sup>	MAX	
V <sub>IK</sub>	V <sub>CC</sub> = 4.5 V, I <sub>I</sub> = -18 mA			-1.2			-1.2	V
V <sub>OH</sub> <sup>†</sup>	V <sub>CC</sub> = 4.5 V, I <sub>OH</sub> = -1 mA	2.5	3.4		2.5	3.4		V
V <sub>OL</sub>	V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 20 mA		0.3	0.5		0.3	0.5	V
I <sub>I</sub>	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 7 V			0.1			0.1	mA
I <sub>IH</sub>	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 2.7 V			20			20	μA
I <sub>IL</sub>	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 0.5 V			-0.6			-0.6	mA
I <sub>OS</sub> <sup>§</sup>	V <sub>CC</sub> = 5.5 V, V <sub>O</sub> = 0	-60		-150	-60		-150	mA
I <sub>CC</sub>	V <sub>CC</sub> = 5.5 V, See Note 1		28	40		28	40	mA

timing requirements

		V <sub>CC</sub> = 5 V, T <sub>A</sub> = 25°C		V <sub>CC</sub> = 4.5 V to 5.5 V, T <sub>A</sub> = MIN to MAX <sup>†</sup>				UNIT
		F379		SN54F379		SN74F379		
		MIN	MAX	MIN	MAX	MIN	MAX	
f <sub>clock</sub>	Clock frequency	0	100			0	100	MHz
t <sub>su</sub>	Setup time before CLK <sup>†</sup>	Data high or low	3			3		ns
t <sub>h</sub>	Hold time after CLK <sup>†</sup>	Data high or low	1			1		ns
t <sub>su</sub>	Setup time before CLK <sup>†</sup>	$\bar{C}$ high or low	6			6		ns
t <sub>h</sub>	Hold time after CLK <sup>†</sup>	$\bar{C}$ high or low	0			0		ns
t <sub>w</sub>	Pulse duration	CLK high	4			4		ns
		CLK low	5			5		

<sup>†</sup> For conditions shown as MIN or MAX, use the appropriate value specified under Recommended Operating Conditions.

<sup>‡</sup> All typical values are at V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C.

<sup>§</sup> Not more than one output should be shorted at a time and the duration of the short circuit should not exceed one second.

<sup>¶</sup> For the SN74F379 at V<sub>CC</sub> = 4.75 V and I<sub>OH</sub> = -1 mA, V<sub>OH</sub> min = 2.7 V.

NOTE 1: I<sub>CC</sub> is measured with all outputs open, all data inputs and the enable input grounded, and the CLK input at 4.5 V after being momentarily grounded.

2

Data Sheets

**SN54F379, SN74F379**  
**QUADRUPLE D-TYPE FLIP-FLOPS WITH CLOCK ENABLE**

**ADVANCE**  
**INFORMATION**

**switching characteristics (see Note 2)**

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V <sub>CC</sub> = 5 V, C <sub>L</sub> = 50 pF, R <sub>L</sub> = 500 Ω, T <sub>A</sub> = 25°C			V <sub>CC</sub> = 4.5 V to 5.5 V, C <sub>L</sub> = 50 pF, R <sub>L</sub> = 500 Ω, T <sub>A</sub> = MIN to MAX†			UNIT	
			'F379			SN54F379		SN74F379		
			MIN	TYP	MAX	MIN	MAX	MIN		MAX
t <sub>max</sub>			100	140			100		MHz	
t <sub>PLH</sub>	CLK	Q or $\bar{Q}$	3.2	4.6	6.5			3.2	7.5	ns
t <sub>PHL</sub>			4.2	6.1	8.5			4.2	9.5	

† For conditions shown as MIN or MAX, use the appropriate value specified under Recommended Operating Conditions.

NOTE 2: See General Information for load circuits and waveforms.

2

Data Sheets