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 exceeds 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.

FAIRCHILD

SEMICONDUCTOR™

74F845
8-Bit Transparent Latch

General Description

The 74F845 bus interface latch is designed to eliminate the extra packages required to buffer existing latches and provide extra data width for wider address/data paths or buses carrying parity.

The 74F845 is functionally- and pin-compatible with AMD's Am29845.

Features

■ 3-STATE outputs
■ Direct replacement for AMD's Am29845

Ordering Code:

Order Number	Package Number	Package Description
74F845SC	M24B	24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide
74F845SPC	N24C	24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Logic Symbols

IEEE/IEC
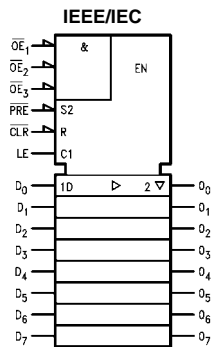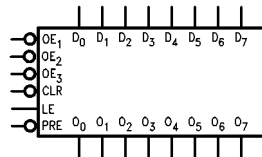
Connection Diagram

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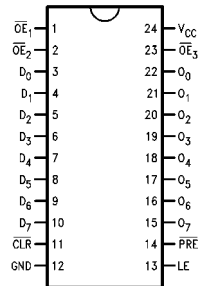
Unit Loading/Fan Out

| Pin Names	Description	U.L. HIGH/LOW	Input I_{IH}/I_{IL} Output I_{OH}/I_{OL}
D_0–D_7	Data Inputs	1.0/1.0	20 µA/–0.6 mA
O_0–O_7	Data Outputs	150/40	–3.0 µA/24 mA
$\overline{OE}_1$–$\overline{OE}_3$	Output Enables	1.0/1.0	20 µA/–0.6 mA
LE	Latch Enable	1.0/1.0	20 µA/–0.6 mA
$\overline{CLR}$	Clear	1.0/1.0	20 µA/–0.6 mA
$\overline{PRE}$	Preset	1.0/1.0	20 µA/–0.6 mA

Functional Description

The 74F845 consists of eight D-type latches with 3-STATE outputs. The flip-flops appear transparent to the data when Latch Enable (LE) is HIGH. This allows asynchronous operation as the output transition follows the data in transition. On the LE HIGH-to-LOW transition, the data that meets the setup times is latched. Data appears on the bus when the output Enable ($\overline{OE}$) is LOW. When $\overline{OE}$ is HIGH, the bus output is in the high impedance state.

Function Table

Inputs					Internal	Output	Function
CLR	PRE	OE	LE	D	Q	O	
H	H	H	X	X	X	Z	High Z
H	H	H	H	L	L	Z	High Z
H	H	H	H	H	H	Z	High Z
H	H	H	L	X	NC	Z	Latched
H	H	L	H	L	L	L	Transparent
H	H	L	H	H	H	H	Transparent
H	H	L	L	X	NC	NC	Latched
H	L	L	X	X	H	H	Preset
L	H	L	X	X	L	L	Clear
L	L	L	X	X	H	H	Preset
L	H	H	L	X	L	Z	Latched
H	L	H	L	X	H	Z	Latched

H = HIGH Voltage Level Z = High Impedance
L = LOW Voltage Level NC = No Change
X = Immaterial
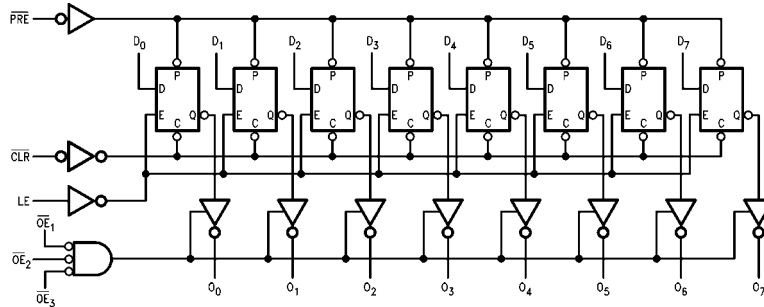
Logic Diagram

Please note that this diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

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	−55°C to +150°C
V_{CC} 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 Output	
in HIGH State (with V_{CC} = 0V)	
Standard Output	−0.5V to V_{CC}
3-STATE Output	−0.5V to +5.5V
Current Applied to Output	
in LOW State (Max)	twice the rated I_{OL} (mA)

Recommended Operating Conditions

Free Air Ambient Temperature	0°C to +70°C
Supply Voltage	+4.5V to +5.5V

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.

DC Electrical Characteristics

Symbol	Parameter		Min	Typ	Max	Units	V_{CC}	Conditions
V_{IH}	Input HIGH Voltage		2.0			V		Recognized as a HIGH Signal
V_{IL}	Input LOW Voltage				0.8	V		Recognized as a LOW Signal
V_{CD}	Input Clamp Diode Voltage				−1.2	V	Min	I_{IN} = −18 mA
V_{OH}	Output HIGH	10% V_{CC}	2.5					I_{OH} = −1 mA
	Voltage	10% V_{CC}	2.4			V	Min	I_{OH} = −3 mA
		5% V_{CC}	2.7					I_{OH} = −1 mA
		5% V_{CC}	2.7					I_{OH} = −3 mA
V_{OL}	Output LOW Voltage	10% V_{CC}			0.5	V	Min	I_{OL} = 24 mA
I_{IH}	Input HIGH Current				5.0	μA	Max	V_{IN} = 2.7V
I_{BVI}	Input HIGH Current Breakdown Test				7.0	μA	Max	V_{IN} = 7.0V
I_{CEX}	Output HIGH Leakage Current				50	μA	Max	V_{OUT} = V_{CC}
V_{ID}	Input Leakage Test		4.75			V	0.0	I_{ID} = 1.9 μA All Other Pins Grounded
I_{OD}	Output Leakage Circuit Current				3.75	μA	0.0	V_{IOD} = 150 mV All Other Pins Grounded
I_{IL}	Input LOW Current				−0.6	mA	Max	V_{IN} = 0.5V
I_{OZH}	Output Leakage Current				50	μA	Max	V_{OUT} = 2.7V
I_{OZL}	Output Leakage Current				−50	μA	Max	V_{OUT} = 0.5V
I_{OS}	Output Short-Circuit Current		−60		−150	mA	Max	V_{OUT} = 0V
I_{ZZ}	Bus Drainage Test				500	μA	0.0V	V_{OUT} = 5.25V
I_{CCZ}	Power Supply Current			63	85	mA	Max	V_O = HIGH Z

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AC Electrical Characteristics

Symbol	Parameter	$T_A = +25°C$ $V_{CC} = +5.0V$ $C_L = 50\ pF$			$T_A = 0°C\ to\ +70°C$ $V_{CC} = +5.0V$ $C_L = 50\ pF$		Units
		Min	Typ	Max	Min	Max	
t_{PLH}	Propagation Delay	2.5	4.8	8.0	2.0	9.0	ns
t_{PHL}	D_n to O_n	1.5	3.6	6.5	1.5	7.0	
t_{PLH}	Propagation Delay	5.0	8.1	12.0	4.5	13.5	ns
t_{PHL}	LE to O_n	2.0	4.4	7.5	2.0	8.0	
t_{PLH}	Propagation Delay $\overline{PRE}$ to O_n	3.0	5.9	10.0	2.5	11.0	ns
t_{PHL}	Propagation Delay $\overline{CLR}$ to O_n	3.0	6.5	10.0	2.5	11.0	ns
t_{PZH}	Output Enable Time	2.5	5.8	9.5	2.0	10.5	ns
t_{PZL}	$\overline{OE}$ to O_n	2.5	7.6	12.0	2.0	13.0	
t_{PHZ}	Output Disable Time	1.0	3.1	7.5	1.0	8.5	ns
t_{PLZ}	$\overline{OE}$ to O_n	1.0	2.8	6.5	1.0	7.5	

AC Operating Requirements

Symbol	Parameter	$T_A = +25°C$ $V_{CC} = +5.0V$		$T_A = 0°C\ to\ +70°C$ $V_{CC} = +5.0V$		Units
		Min	Max	Min	Max	
$t_S(H)$	Setup Time, HIGH or LOW	2.0		2.5		ns
$t_S(L)$	D_n to LE	2.0		2.5		
$t_H(H)$	Hold Time, HIGH or LOW	2.5		3.0		ns
$t_H(L)$	D_n to LE	3.0		3.5		
$t_W(H)$	LE Pulse Width, HIGH	4.0		4.0		ns
$t_W(L)$	$\overline{PRE}$ Pulse Width, LOW	5.0		5.0		ns
$t_W(L)$	$\overline{CLR}$ Pulse Width, LOW	5.0		5.0		ns
t_{REC}	$\overline{PRE}$ Recovery Time	10.0		10.0		ns
t_{REC}	$\overline{CLR}$ Recovery Time	12.0		13.0		ns

Physical Dimensions inches (millimeters) unless otherwise noted
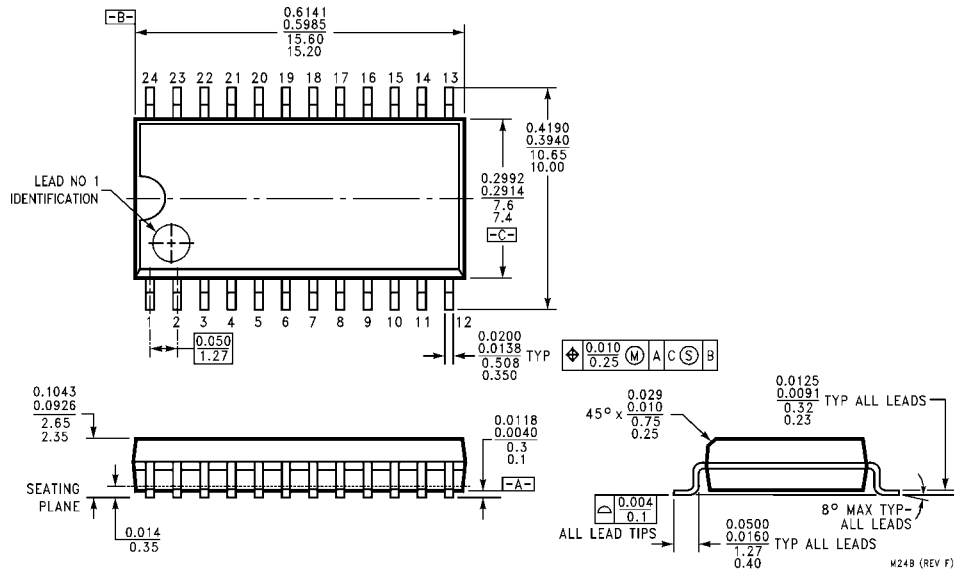
24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide
Package Number M24B

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

0.092
(2.337)
(2 PLS)

1.243 − 1.270
(31.57 − 32.26)
MAX

24 23 22 21 20 19 18 17 16 15 14 13

PIN NO. 1
IDENT

0.032
(0.813)
RAD

OPTION 2

0.260 ± 0.005
(6.604 ± 0.127)

OPTION 2

0.062
(1.575)
RAD

EJECTOR PINS
OPTIONAL

1 2 3 4 5 6 7 8 9 10 11 12

0.300 − 0.320
(7.62 − 8.128)

0.040
(1.016)
TYP

0.130 ± 0.005
(3.302 ± 0.127)

0.020
(0.508)
MIN

0.145 − 0.200
(3.683 − 5.080)

0.009 − 0.015
(0.229 − 0.381)

95° ± 5°

0.065
(1.651)

0.125 − 0.145
(3.175 − 3.556)
MIN

0.280
(7.112)
MIN

$0.325 \genfrac{}{}{0pt}{}{+0.040}{-0.015}$
$\left(8.255 \genfrac{}{}{0pt}{}{+1.016}{-0.381}\right)$

0.075 ± 0.015
(1.905 ± 0.381)

0.018 ± 0.003
(0.457 ± 0.076)
TYP

90° ± 4° TYP

0.100 ± 0.010
(2.54 ± 0.254)
TYP

N24C (REV F)

24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide
Package Number N24C

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