Rochester Electronics

Datasheet

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.

National Semiconductor

MICROCIRCUIT DATA SHEET

MNDM54LS86-X REV 0A0

Original Creation Date: 4/20/98
Last Update Date: 06/17/98
Last Major Revision Date: 04/20/98

Quad 2- Input Exclusive - OR Gates

General Description

This device contains four independent gates each of which performs the logic exclusive-OR function.

Industry Part Number

54LS86

NS Part Numbers

DM54LS86J/883
DM54LS86W/883

Prime Die

R086

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5005

Subgrp	Description	Temp (°C)
1	Static tests at	+25
2	Static tests at	+125
3	Static tests at	-55
4	Dynamic tests at	+25
5	Dynamic tests at	+125
6	Dynamic tests at	-55
7	Functional tests at	+25
8A	Functional tests at	+125
8B	Functional tests at	-55
9	Switching tests at	+25
10	Switching tests at	+125
11	Switching tests at	-55

Features

(Absolute Maximum Ratings)

(Note 1)

Storage Temperature	-65 C to +150 C
Ambient Temperature under Bias	-55 C to +125 C
Input Voltage	-0.5V to +7.0V
VCC Pin Potential to Ground Pin	-0.5V to +7.0V
Junction Temperature under Bias	-55 C to +175 C
Current Applied to Output in LOW state (Max)	twice the rated Iol (ma)

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

Recommended Operating Conditions

Free Air Ambient Temperature	
Military	-55 C to +125 C
Supply Voltage	
Military	+4.5V to +5.5V

Electrical Characteristics

DC PARAMETER

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: VCC 4.5V to 5.5V, Temp range: -55C to 125C

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
IIH	Input High Current	VCC=5.5V, VM=2.7V, VINH=4.5V, VINL=0.0V	1, 3	D1, D2		40	uA	1, 2, 3
IBVI	Input High Current	VCC=5.5V, VM=7.0V, VINH=4.5V, VINL=0.0V	1, 3	INPUTS		200	uA	1, 2, 3
IIL	Input LOW Current	VCC=5.5V, VM=0.4V, VINH=4.5V, VINL=0.0V	1, 3	D1, D2		-0.6	mA	1, 2, 3
VOL	Output LOW Voltage	VCC=4.5V, VIH=2.0V, IOL=4.0mA, VINH=4.5V, VIL=0.7V	1, 3	OUTPUTS		0.4	V	1, 2, 3
VOH	High Level Output Voltage	VCC=4.5V, VIL=0.7V, VIH=2.0V, VINH=4.5V, IOH=-0.4mA	1, 3	OUTPUTS	2.5		V	1, 2, 3
IOS	Short Circuit Output Current	VCC=5.5V, VINH=4.5V, VINL=0.0V, VOUT=0.0V	1, 3	OUTPUTS	-20.0	-100	mA	1, 2, 3
VCD	Input Clamp Diode Voltage	VCC=4.5V, IM=-18mA, VINH=4.5V	1, 3	INPUTS		-1.5	V	1, 2, 3
ICC	Supply Current	VCC=5.5V, VINL=0.0V, VINH=4.5V	1, 3	VCC		10	mA	1, 2, 3

AC PARAMETER - 50pF

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: CL=50pF Temp range: -55C to +125C

tpLH	Propagation Delay	VCC=5.0V, VINL=0V	2, 4, 5	A or B to Y		23	ns	9
			2, 4, 5	A or B to Y		28	ns	10, 11
tpHL	Propagation Delay	VCC=5.0V, VINL=0V	2, 4, 5	A or B to Y		21	ns	9
			2, 4, 5	A or B to Y		29	ns	10, 11
tpLH (2)	Propagation Delay	VCC=5.0V, VINH=4.5V	2, 4, 5	A or B to Y		15	ns	9
			2, 4, 5	A or B to Y		19	ns	10, 11
tpHL (2)	Propagation Delay	VCC=5.0V, VINH=4.5V	2, 4, 5	A or B to Y		15	ns	9
			2, 4, 5	A or B to Y		19	ns	10, 11

Note 1: Screen tested 100% on each device at -55C, +25C & +125C temperature, subgroups A1, 2, 3, 7 & 8.
Note 2: Screen tested 100% on each device at +25C temperature only, subgroup A9.
Note 3: Sample tested (Method 5005, Table 1) on each MFG. lot at +25C, +125C & -55C temperature, subgroups A1, 2, 3, 7 & 8.
Note 4: Sample tested (Method 5005, Table 1) on each MFG. lot at +25C, subgroup A9.
Note 5: Guaranteed, not tested at +125C & -55C.

Revision History

Rev	ECN #	Rel Date	Originator	Changes
0A0	M0002873	06/17/98	Linda Collins	Initial MDS Release: MNDM54LS86-X 0A0.