Rochester Electronics

Datasheet

PART NUMBER

931DM

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 re-creations are done with the approval of the Original Component Manufacturer. (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-38535
    - 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.

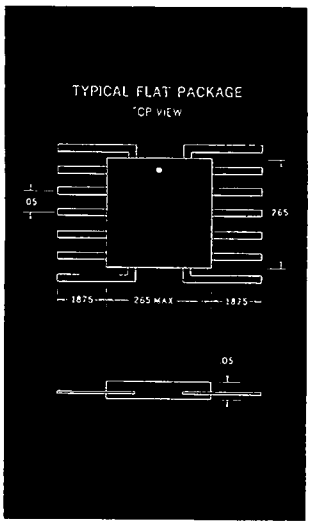
Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

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 OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

DTμL COMPOSITE DATA SHEET

DIODE-TRANSISTOR MICROLOGIC® INTEGRATED CIRCUITS

Diode Transistor Micrologic (DTμL) is the first diode transistor logic circuit expressly designed for integrated circuit technology. As a consequence, DTμL requires only one power supply, which may vary over a wide range without impairing circuit performance. High tolerance to electrical noise, along with ample drive capability is characteristic. Indeed, the designer may exchange one for the other to strike the balance most appropriate to the situation at hand. DTμL is completely characterized and specified over the entire military temperature range of -55°C to +125°C.



CONTENTS OF THIS SPECIFICATION

The optimum operating supply voltage for the full military temperature range is 5.0 volts. The data of this specification enumerated on pages 2 and 3 and the loading rules on page 8 are valid for supply voltages ranging from 4.5 to 5.5 volts. Power dissipation may be reduced by using V_{CC} = 4 V without sacrificing noise immunity or speed if operating temperature is held to a minimum of -20 C, or if fanout is restricted. The Fairchild epitaxial integrated circuit process also permits an operating supply voltage of 6.0 volts over the full temperature range with a slight decrease in fanout or noise immunity at temperatures in excess of 100 C. (See page 8).

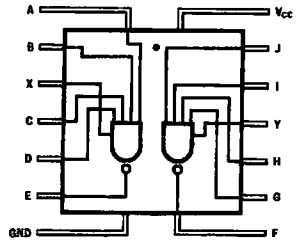
For guidance, when designing outside the limits guaranteed by the tests given on pages 2 and 3, graphs of minimum and maximum limits of circuit operation are shown on Pages 6 and 7. These graphs will permit the designer to optimize fanout, noise immunity, supply voltage and temperature for the specific application. Examples using these graphs are given on Page 7.

Very extensive noise threshold and propagation delay data are given in the individual DTμL 930 and 931 specification sheets (available on request). Additional propagation delay data is given on Pages 4 and 5 of this specification. Specific characteristics of the Dual Buffer and the Dual Power Gate may be found in the individual DTμL 932 and DTμL 944 specification, while data concerning the effects of input extension appear in the individual DTμL 933 specification.

ABSOLUTE MAXIMUM RATINGS (above which useful life may be impaired)

Supply Voltage (V_{CC}), -55°C to +125°C, continuous		+8 Volts	Input Forward Current	-10 mA
Supply Voltage (V_{CC}), pulsed, <1sec		+12 Volts	Input Reverse Current	1 mA
Output Current, into outputs	DTμL 932, 944	100 mA	Operating Temperature	-55°C to +125°C
Output Current, into outputs	DTμL 930, 931, 946, 962	30 mA	Storage Temperature	-65°C to +150°C

DTμL 930 DUAL GATE
DTμL 932 DUAL BUFFER
DTμL 944 DUAL POWER GATE

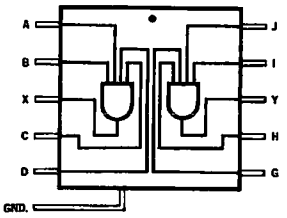


POSITIVE (NAND) LOGIC

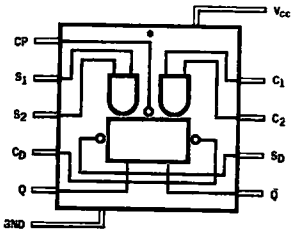
$E = \overline{A \cdot B \cdot C \cdot D \cdot (X)}$

$F = \overline{G \cdot H \cdot I \cdot J \cdot (Y)}$

DTμL 933 DUAL EXTENDER



DTμL 931 CLOCKED FLIP-FLOP



J-K MODE TRUTH TABLE

t_n		t_{n+1}
S_2	C_2	Q
0	0	Q_n
0	1	0
1	0	1
1	1	Q_n

R-S MODE TRUTH TABLE

t_n				t_{n+1}
S_1	S_2	C_1	C_2	Q
0	X	0	X	Q_n
0	X	X	0	Q_n
X	0	0	X	Q_n
X	0	X	0	Q_n
0	X	1	1	0
X	0	1	1	0
1	1	0	X	1
1	1	X	0	1
1	1	1	1	Undetermined

X - Either a one or a zero can be present

"1" more positive than "0"

For J-K Mode Operation: Connect S_1 to $\overline{Q}$ and C_1 to Q

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