Rochester Electronics

Datasheet

PART NUMBER

5482W^R

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.

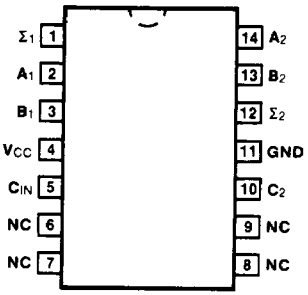
Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

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.

54/7482

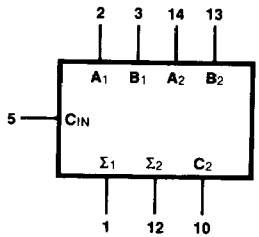
2-BIT FULL ADDER

CONNECTION DIAGRAM
PINOUT A



DESCRIPTION — The '82 is a full adder which performs the addition of two 2-bit binary numbers. The sum (Σ) outputs are provided for each bit and the resultant carry (C_2) is obtained from the second bit. Designed for medium to high speed, multiple-bit, parallel-add/serial-carry applications, the circuit utilizes high speed, high fan-out TTL. The implementation of a single-inversion, high speed, Darlington-connected serial-carry circuit within each bit minimizes the necessity for extensive "lookahead" and carry-cascading circuits.

LOGIC SYMBOL



V_{CC} = Pin 14
GND = Pin 11
NC = Pins 6,7,8,9

ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE V_{CC} = +5.0 V ±5%, T_A = 0°C to +70°C	MILITARY GRADE V_{CC} = +5.0 V ±10%, T_A = -55°C to +125°C	PKG TYPE
Plastic DIP (P)	A	7482PC		9A
Ceramic DIP (D)	A	7482DC	5482DM	6A
Flatpak (F)	A	7482FC	5482FM	3I

INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

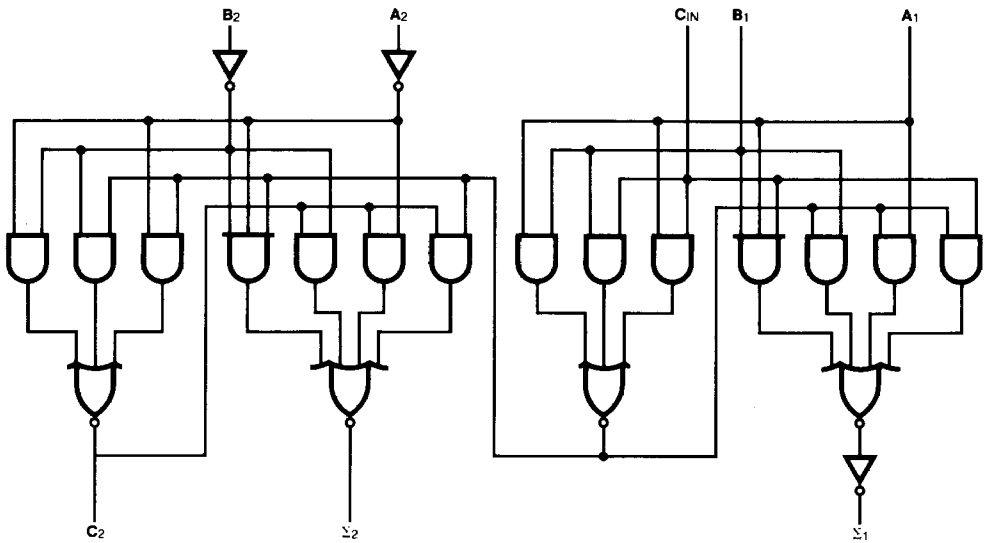
PIN NAMES	DESCRIPTION	54/74 (U.L.) HIGH/LOW
A_1, B_1	Bit 1 Operand Inputs	4.0/4.0
A_2, B_2	Bit 2 Operand Inputs	1.0/1.0
C_{IN}	Bit 1 Carry Input	4.0/4.0
Σ_1	Bit 1 Sum Output	10/10
Σ_2	Bit 2 Sum Output	10/10
C_2	Bit 2 Carry Output	5.0/5.0

TRUTH TABLE

INPUTS				OUTPUTS					
				$C_{IN} = 0$			$C_{IN} = 1$		
A_1	B_1	A_2	B_2	Σ_1	Σ_2	C_2	Σ_1	Σ_2	C_2
L	L	L	L	L	L	L	H	L	L
H	L	L	L	H	L	L	L	H	L
L	H	L	L	H	L	L	L	H	L
H	H	L	L	L	H	L	H	H	L
L	L	H	L	L	H	L	H	H	L
H	L	H	L	H	H	L	L	L	H
L	H	H	L	H	H	L	L	L	H
H	H	H	L	L	L	H	H	L	H
L	L	L	H	L	H	L	H	H	L
H	L	L	H	H	H	L	L	L	H
L	H	L	H	H	H	L	L	L	H
H	H	L	H	L	L	H	H	L	H
L	L	H	H	L	L	H	H	L	H
H	L	H	H	H	L	H	L	H	H
L	H	H	H	H	L	H	L	H	H
H	H	H	H	L	H	H	H	H	H

H = HIGH Voltage Level
L = LOW Voltage Level

LOGIC DIAGRAM



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER		54/74 Min	54/74 Max	UNITS	CONDITIONS
Ios	Output Short Circuit Current at Σ_n	XM	-20	-55	mA	V_{CC} = Max
		XC	-18	-55		
Ios	Output Short Circuit Current at C_2	XM	-20	-70	mA	V_{CC} = Max
		XC	-18	-70		
Icc	Power Supply Current	XM		50	mA	V_{CC} = Max; A_1, A_2, C_{IN} = 4.5 V; B_1, B_2 = Gnd
		XC		58		

AC CHARACTERISTICS: V_{CC} = +5.0 V, T_A = +25° C (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER	54/74 C_L = 15 pF R_L = 400 Ω Min	54/74 C_L = 15 pF R_L = 400 Ω Max	UNITS	CONDITIONS
t_{PLH} t_{PHL}	Propagation Delay C_{IN} to Σ_1		34 40	ns	Figs. 3-1, 3-20
t_{PLH} t_{PHL}	Propagation Delay B_2 to Σ_2		40 35	ns	Figs. 3-1, 3-20
t_{PLH} t_{PHL}	Propagation Delay C_{IN} to Σ_2		38 42	ns	Figs. 3-1, 3-20
t_{PLH} t_{PHL}	Propagation Delay C_{IN} to C_2		19 27	ns	Figs. 3-1, 3-5 R_L = 780 Ω