

#### DESCRIPTION

The 82S82 Binary Coded Decimal (BCD) Arithmetic unit and the 82S83 Binary Coded Decimal (BCD) Adder are Schottky MSI circuits that have been designed for easy systems usage. Each unit provides a single IC solution to perform BCD Arithmetic that previously had to be implemented with several Binary Adders, Exclusive OR's, ROM's and Gates

High Speed operation is achieved with Schottky TTL technology and use of PNP high impedance inputs results in reduced input loading compared with conventional TTL.

#### 82S82 BCD Arithmetic Unit FEATURES

- Adds and Subtracts BCD Numbers
- Converts Binary to BCD
- Comparison Output (Open Collector)
- Internal Look-Ahead Carry/Borrow
- Fast Look-Ahead Carry/Borrow Outputs
- Ripple Carry/Borrow Output
- Easy Array Expansion

#### 82S83 BCD Adder FEATURES

- Adds BCD Numbers
- Converts Binary to BCD
- Internal Look-Ahead Carry
- Ripple Carry Output
- Easy Array Expansion

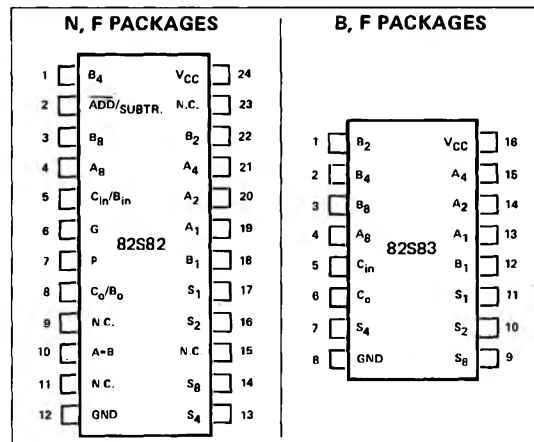
#### ELECTRICAL CHARACTERISTICS

Propagation Delay (Typ.)	82S82	82S83
$A_n$ to $S_n$	29ns	29ns
$B_n$ to $S_n$	32ns	29ns
$A_n$ to $C_0/B_0$	22ns	22ns
$B_n$ to $C_0/B_0$	29ns	22ns
$A_n$ to G or P	20ns	-
$B_n$ to G or P	23ns	-
Input "0" Current (Max.)	82S82	82S83
$A_n, C_{in}, B_4, B_8$	0.4mA	0.4mA
$B_1, B_2$	0.8mA	0.4mA
Add/Subtract	0.8mA	-
Input "1" Current (Max.) (All Inputs)	40 $\mu$ A	
"0" Output Current	16mA	@ 0.5V
"1" Output Current (Except A=B Output)	800 $\mu$ A	@ 2.7V

#### 82S82 BCD ARITHMETIC UNIT

Pin Designation	Pin Nos.	Function
A <sub>8</sub> , A <sub>4</sub> , A <sub>2</sub> , A <sub>1</sub>	4, 21, 20, 19	BCD Inputs Word A Weighted (8-4-2-1)
B <sub>8</sub> , B <sub>4</sub> , B <sub>2</sub> , B <sub>1</sub>	3, 1, 22, 18	BCD Inputs Word B Weighted (8-4-2-1)
S <sub>8</sub> , S <sub>4</sub> , S <sub>2</sub> , S <sub>1</sub>	14, 13, 16, 17	BCD Sum Outputs Weighted (8-4-2-1)
Add/Subtract	2	Add=Logic "0" Subtract=Logic "1"
C <sub>in</sub> /B <sub>in</sub>	5	Carry/Borrow Input
C <sub>0</sub> /B <sub>0</sub>	8	Carry/Borrow Output
G	6	Carry Generate Output (Active Low)
P	7	Carry Propagate Output (Active Low)
A = B	10	Compare Output (Open Collector)
V <sub>CC</sub>	24	Supply Voltage
GND	12	Ground

#### PIN CONFIGURATIONS (Top View)



#### 82S83 BCD ADDER

Pin Designation	Pin Nos.	Function
A <sub>8</sub> , A <sub>4</sub> , A <sub>2</sub> , A <sub>1</sub>	4, 15, 14, 13	BCD Inputs Word A Weighted (8-4-2-1)
B <sub>8</sub> , B <sub>4</sub> , B <sub>2</sub> , B <sub>1</sub>	3, 2, 1, 12	BCD Inputs Word B Weighted (8-4-2-1)
S <sub>8</sub> , S <sub>4</sub> , S <sub>2</sub> , S <sub>1</sub>	9, 7, 10, 11	BCD Sum Outputs Weighted (8-4-2-1)
C <sub>in</sub>	5	Carry Input
C <sub>0</sub>	6	Carry Output
V <sub>CC</sub>	16	Supply Voltage
GND	8	Ground