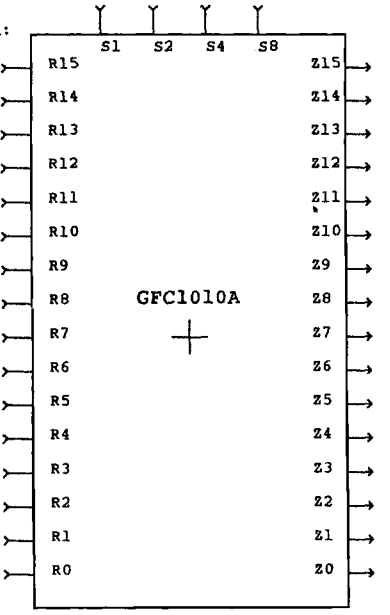
GFC1010A 16-BIT BARREL SHIFTER

GENERAL DESCRIPTION:

THE GFC1010A MEGAFUNCTION PERFORMS A 16-BIT END-AROUND SHIFT, OR A BARREL SHIFT. THERE ARE FOUR CONTROL LINES (S1, S2, S4, AND S8) TO DETERMINE HOW MANY PLACES TO THE LEFT THE 16-BIT INPUTS (R15 THROUGH R0) WILL BE SHIFTED AT THE OUTPUTS (Z15 THROUGH Z0). ALL OUTPUTS ARE IN-PHASE WITH THE INPUTS.

PIN DIAGRAM:



- GATES USED = 116
- AREA USED = 117 GATE LOCATIONS
- LL7000 SERIES COMPATIBLE
- LSA2000 SERIES COMPATIBLE

INPUT LOADING: (LOADING IN TRANSISTOR PAIRS)

R15:0 = 8 S1 = 4.5 S2 = 4.5 S4 = 4.5 S5 = 4.5

OUTPUT DRIVE: (DRIVE IN (#P,#N))

Z15:0 = (0.5,0.5)

NDL SYNTAX:

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Z(Z15,Z14,Z13,Z12,Z11,Z10,Z9,Z8,Z7,Z6,Z5,Z4,Z3,Z2,Z1,Z0)
=GFC1010A (R15,R14,R13,R12,R11,R10,R9,R8,R7,R6,R5,R4,R3,R2,R1,R0,S1,S2,S4,S8)$
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FUNCTIONAL INFORMATION:

FOLLOWING IS THE GFC101A TRUTH TABLE.

S8	S4	S2	S1	Z15	Z14	Z13	Z12	Z11	Z10	Z9	Z8	Z7	Z6	Z5	Z4	Z3	Z2	Z1	Z0
0	0	0	0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0
0	0	0	1	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15
0	0	1	0	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14
0	0	1	1	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13
0	1	0	0	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12
0	1	0	1	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11
0	1	1	0	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10
0	1	1	1	R8	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9
1	0	0	0	R7	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8
1	0	0	1	R6	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7
1	0	1	0	R5	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6
1	0	1	1	R4	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5
1	1	0	0	R3	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4
1	1	0	1	R2	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3
1	1	1	0	R1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2
1	1	1	1	R0	R15	R14	R13	R12	R11	R10	R9	R8	R7	R6	R5	R4	R3	R2	R1

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AC CHARACTERISTICS:

PATH	5K DELAY* TYP. NS	7K DELAY* TYP. NS
R(I) TO OUTPUT Z(I)	11	8
S(I) TO OUTPUT Z(I)	16	11.2

* ASSUMING OUTPUT LOADING OF 3

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