

WE[®] DSP16A Digital Signal Processor

- High Speed Operation (25 ns)
- Low Voltage Operation (3.3 V @ 55 ns)

High Speed Operation (25 ns)

The AT&T WE DSP16A Digital Signal Processor is now available in a 25 ns instruction cycle version. A single instruction cycle can include a 16x16 multiply, a 36-bit accumulation, two data fetches, one instruction fetch, and two pointer updates all in parallel. This makes the DSP16A three times faster than any competing fixed point digital signal processor.

To reflect the 25 ns operation, the minimum clock in period changes from 16.5 ns to 12.5 ns on page 26 of the DSP16A Data Sheet (March 1988).

The DSP16A device is ideally suited for a wide variety of signal processing applications with its large internal memories (4 Kwords ROM; 2 Kwords RAM) and flexible I/O ports. The DSP16A is fabricated in a low power 0.75 μm CMOS technology.

Low Voltage Operation (3.3 V)

The DSP16A device is also being offered in a very low power 3.3 V version. Instruction cycle time at 3.3 V is 55 ns for the DSP16A device. With its extreme processing power and very low power consumption, the 3.3 V DSP16A device is ideal for battery operated portable applications.

To reflect the 3.3 V DSP16A's electrical characteristics, the following table replaces the "Electrical Characteristics" table found on page 25 of the DSP16A Data Sheet (March 1988).

Preliminary DSP16A Electrical Characteristics (3.3 V Power Supply)

The parameters below are valid for the following conditions:
 $T_C = 0$ to 85 °C, $V_{DD} = 3.3 \text{ V} \pm 0.3\text{V}$, $V_{SS} = 0 \text{ V}$, $T = 2 \times t_{CKIHCKIH}$.

Parameter	Sym	Min	Max	Unit
Input voltage:				
low	V_{IL}	—	0.4	V
high	V_{IH}	2.0	—	V
Output voltage:				
low ($I_{OL} = 0.5 \text{ mA}$)	V_{OL}	—	0.2	V
high ($I_{OH} = -0.5 \text{ mA}$)	V_{OH}	2.4	—	V
Output current:				
low ($V_{OL} = 0.2 \text{ V}$)	I_{OL}	—	0.5	mA
high ($V_{OH} = 2.4 \text{ V}$)	I_{OH}	—	-0.5	mA
Output short circuit current $V_{OH} = 0 \text{ V}$	I_{OS}	—	-200	mA
Output 3-state current:				
high ($V_{IH} = 2.0 \text{ V}$)	I_{OZH}	-75	75	μA
low ($V_{IL} = 0.4 \text{ V}$)	I_{OZL}	-75	75	μA
Input current:				
high ($V_{IH} = 3.6 \text{ V}$; $V_{DD} = 3.6 \text{ V}$)	I_{IH}	—	25	μA
low ($V_{IL} = 0 \text{ V}$, $V_{SS} = 0 \text{ V}$)	I_{IL}	—	-25	μA
Power supply current $V_{DD} = 3.6 \text{ V}$	I_{DD}	—	38	mA
Power dissipation $V_{DD} = 3.6 \text{ V}$	PD	—	140	mW
Input capacitance	C_I	—	15	pF

For additional information contact
your AT&T Account Manager, or call:

- AT&T Microelectronics
Dept. 50AL330240
555 Union Boulevard
Allentown, PA 18103
1-800-372-2447

In Canada, call:
1-800-553-2448
- AT&T Microelectronics
AT&T Deutschland GmbH
Bahnhofstr. 27A
D-8043 Unterfoehring
West Germany
Tel. 089/950 86-0
Telefax 089/950 86-111
- AT&T Microelectronics Asia/Pacific
14 Science Park Drive
#03-02A/04 The Maxwell
Singapore 0511
Tel. (65) 778-8833
FAX (65) 777-7495
Telex RS 42898 ATTM
- AT&T Microelectronics
AT&T Japan Ltd.
31-11, Yoyogi 1-chome
Shibuya-ku, Tokyo 151
Japan
Tel. (03) 5371-2700
FAX (03) 5371-3556
- AT&T Microelectronica España
Albacete 5
28027 Madrid
Spain
Tel. (34) 1-404-6012
FAX (34) 1-404-6252

AT&T reserves the right to make changes
to the product(s), software, or circuit(s)
describe herein without notice. No liability
is assumed as a result of their use or
application. No rights under any patent
accompany the sale of any such
product or circuit.

Copyright © 1989 AT&T
All Rights Reserved
Printed in USA

May 1989

DA89-006DMOS

