



# MP7686 DIE

6-Bit Flash  
Analog-to-Digital Converter  
CMOS Die Specifications

## ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings (TA = 25°C)

V <sub>DD</sub> to GND	+7 V
V <sub>REF(+)</sub> and V <sub>REF(-)</sub>	V <sub>DD</sub> +0.5 to GND -0.5 V
V <sub>IN</sub>	V <sub>DD</sub> +0.5 to GND -0.5 V
All Inputs	V <sub>DD</sub> +0.5 to GND -0.5 V
All Outputs	V <sub>DD</sub> +0.5 to GND -0.5 V
T <sub>J</sub> (maximum)	150°C

### Ordering Information

Part No.	Parameters	
	INL (LSB)	DNL (LSB)
MP7686J-DIE	1.5	0.75

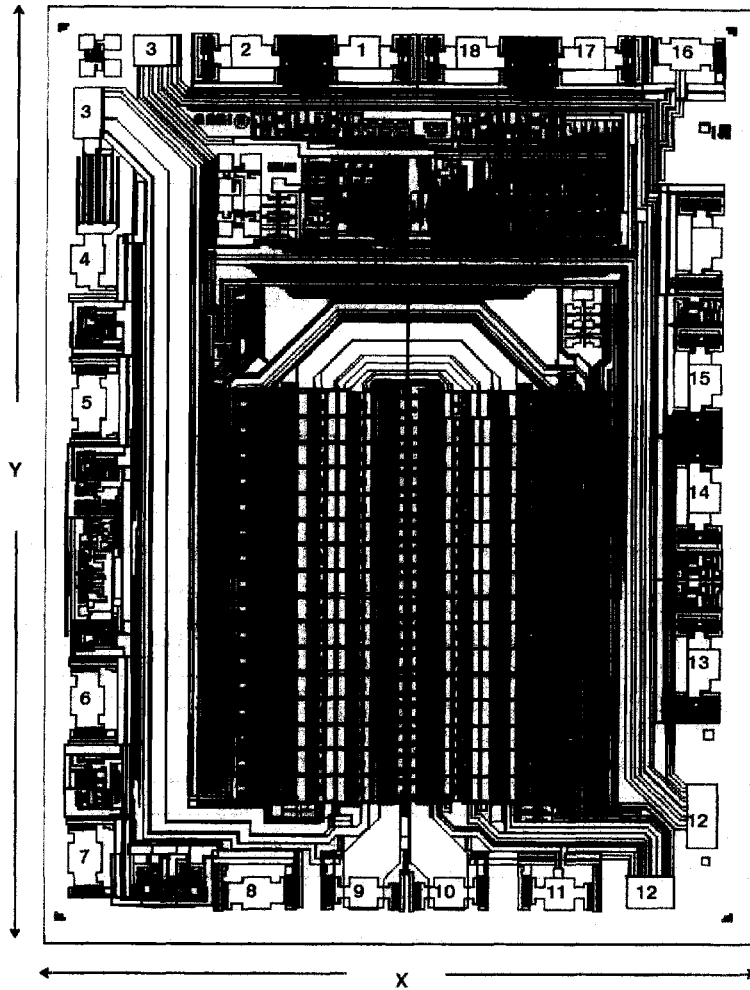
### Electrical Parameters And Test Conditions (TA = 25°C, V<sub>DD</sub> = 5 V, V<sub>REF</sub> = 4.6 V, F<sub>S</sub> = 1 MHz)

PARAMETER	DESCRIPTION	MIN	MAX	UNITS	CONDITIONS
N	Resolution	6		Bits	
INL	Relative Accuracy		1.5	LSB	Best Straight Line
DNL	Differential Non-Linearity		0.75	LSB	
I <sub>O2</sub>	Output Leakage Current	-10.0	10.0	μA	
R <sub>IN</sub>	Ref. Resistance	170	265	Ω	
V <sub>IH</sub>	Logic "1"	2.4		V	
V <sub>IL</sub>	Logic "0"		0.8	V	
V <sub>OH</sub>	Digital o/p, Logic "1"	V <sub>DD</sub> -5		V	I <sub>L</sub> = 4.0 mA
V <sub>OL</sub>	Digital o/p, Logic "0"		0.4	V	I <sub>L</sub> = 4.0 mA
I <sub>DD</sub>	Supply Current		40.0	mA	

#### Notes:

- Die are 100% electrically tested in wafer form to meet the limits shown above.
- Die are visually inspected per MIL-STD-883, Method 2010, condition B to an AQL of 2.5%.
- Absolute maximum ratings are for TA = 25°C unless otherwise specified.
- AC electrical characteristics are neither guaranteed nor tested in die form.
- Electrical performance and yield after assembly are not guaranteed due to variations in assembly processes.
- Wafers and die are processed using ESD handling precautions, and are shipped vacuum-packed.

**PHYSICAL CHARACTERISTICS**



**Die Data**

Die Size	X = 105.1 mils, Y = 138.6 mils
Pad Size	4 X 4 mils nominal
Pad Metal	Al
Thickness	15 mils nominal
Backside Material	Si
Backside Potential	V <sub>DD</sub>

**Pad Designations**

- |               |                         |                            |
|---------------|-------------------------|----------------------------|
| 1. DB5        | 8. PHASE                | 15. DB2                    |
| 2. OFW        | 9. V <sub>REF(+)</sub>  | 16. V <sub>REF (CTR)</sub> |
| 3. GND        | 10. V <sub>REF(-)</sub> | 17. DB3                    |
| 4. MODE/ZENER | 11. V <sub>IN</sub>     | 18. DB4                    |
| 5. OE2        | 12. V <sub>DD</sub> *   |                            |
| 6. OE1        | 13. DB0                 |                            |
| 7. CLK        | 14. DB1                 |                            |

\*Connect pin 12 first