

**PRELIMINARY DATA**

**16-STAGE COUNTER**

- LOW QUIESCENT POWER DISSIPATION
- WIDE SUPPLY VOLTAGE RANGE: 3 to 16V
- FULLY PROTECTED INPUTS
- INVERTER AVAILABILITY IN CRISTAL OSCILLATOR IMPLEMENTATION FOR TIMING APPLICATION

The **M 706** is a 16-stage binary counter constructed with COS/MOS technology on a single mono-lithic chip. The device may be used as timing circuit. It consists of 16 flip-flops, input inverter for use in a crystal oscillator and two output buffers providing push-pull bridge operation. The device is available in 8-lead minidip.

**ABSOLUTE MAXIMUM RATINGS\***

$V_{DD}^{**}$	Supply voltage	-0.5 to 16	V
$V_I$	Input voltage (at any pin)	-0.5 to $V_{DD} + 0.5$	V
$P_{tot}$	Total power dissipation (per package)	200	mW
$T_{stg}$	Storage temperature	-65 to 150	°C
$T_{op}$	Operating temperature	-40 to 85	°C

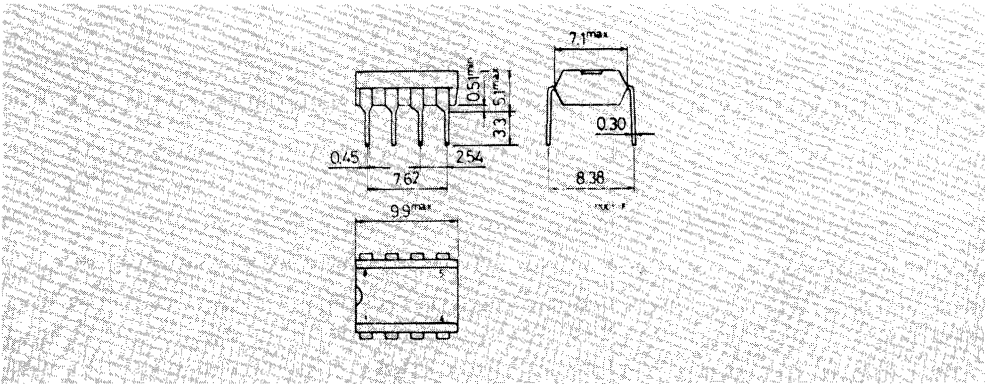
\* Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

\*\* This voltage is with respect to  $V_{SS}$  (GND) pin voltage.

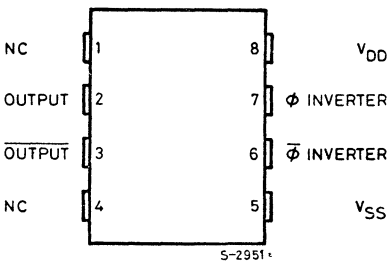
**ORDERING NUMBER: M 706 B1**

**MECHANICAL DATA**

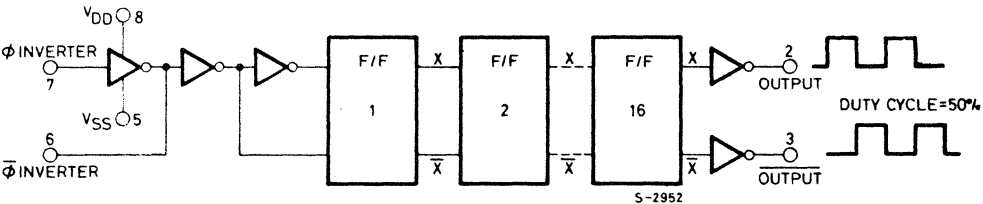
Dimensions in mm



PIN CONNECTIONS



LOGIC BLOCK DIAGRAM



RECOMMENDED OPERATING CONDITIONS

$V_{DD}$	Supply voltage: for general applications for crystal oscillator in clock application	3 to 15 V 7 to 15 V	V
$V_i$	Input voltage	0 to $V_{DD}$	V
$T_{op}$	Operating temperature	-40 to 85	°C

**STATIC ELECTRICAL CHARACTERISTICS** (over recommended operating conditions)

Parameter		Test conditions		Values at 25° C			Unit
		$V_o$ (V)	$V_{DD}(V)$	Min.	Typ.	Max.	
$I_L$ Quiescent supply current			5		1	50	$\mu A$
			10		2	100	
$V_{OH}$ High output voltage	$I_O = 0$		5	4.99	5		V
			10	9.99	10		
$V_{OL}$ Low output voltage	$I_O = 0$		5		0	0.01	V
			10		0	0.01	
$I_{DN}$ Output drive current N-channel		0.5	5	6	7.5		mA
		0.5	10	9	10		
$I_{DP}$ Output drive current P-channel		4.5	5	-6	-7.5		mA
		4.5	10	-9	-10		

**TYPICAL APPLICATION**

Digital equipment in which ultra-low dissipation and/or operation using a battery source are primary design requirements.

Accurate timing from a crystal oscillator for timing applications such as wall clocks, table clocks, automobile blocks, and digital timing references in any circuit requiring accurately timed outputs.

Driving miniature synchronous motors, stepping motors, or external bipolar transistors in push-pull fashion.

