STEP-BY-STEP MOTOR DRIVE CLOCK CIRCUIT

GENERAL DESCRIPTION

The MMC 300 is a 23 stage binary counter in standard Al-gate CMOS technology in a single monolithic chip. An inverter is available for crystal oscillator application. The function of the trimmer capacitor has been taken over by the variable frequency divider comprised in the IC. Seven adjustment terminals are used to set the divider ratio to the required value with an accuracy of 10^{-6}. The maximum output frequency is set when all adjustment terminals are either open- circuit or connected to pin 14.. If one or more adjustment terminals are grounded (taken to pin 13) the output frequency decreases. The oscillator frequency divided by four may be checked at the test output (pin 8). With an oscillator frequency of 4.194812 MHz the series-connected push-pull output stage supplies a symmetrical square wave signal with a pulse duty factor of 0.5 and a repetition frequency of 0.5 Hz if the variable frequency divider is set to its medium value.
The MMC 300 is available in 14 lead dual in-line and ceramic plastic package.

FEATURES

- Low quiescent power dissipation
- Fully protected inputs
- Adjustable frequency divider in 127 steps
- Test output available

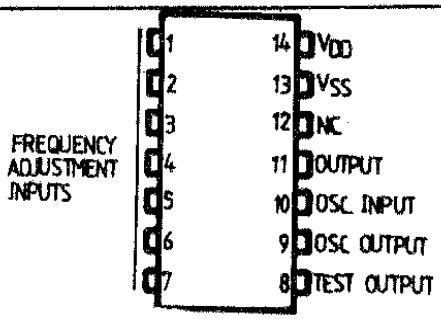
ABSOLUTE MAXIMUM RATINGS

V_{DD}*	Supply voltage: G and H types	-0.5 to	20	V
	E and F types	-0.5 to	18	V
V_I	Input voltage	-0.5 to	V_{DD}+0.5	V
I_I	DC input current (any one input)		±10	mA
P_{tot}	Total power dissipation (per package)		200	mW
	Dissipation per output transistor for T_A = full package-temperature range		100	mW
T_A	Operating temperature : G and H types	-55 to	125	°C
	E and F types	-40 to	85	°C
T_{stg}	Storage temperature	-65 to	150	°C

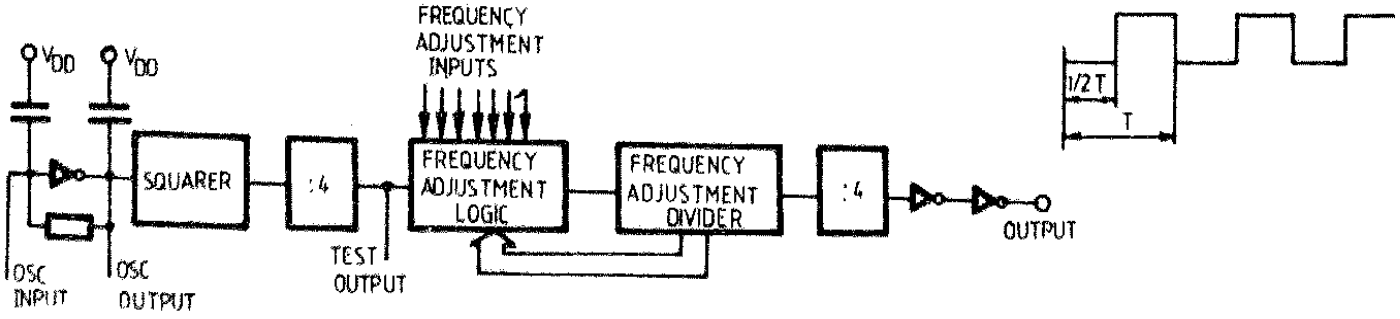
RECOMMENDED OPERATING CONDITIONS

V_{DD}*	Supply voltage: G and H types	3 to	18	V
	E and F types	3 to	15	V
V_I	Input voltage	0 to	V_{DD}	V
T_A	Operating temperature : G and H types	-55 to	125	°C
	E and F types	-40 to	85	°C

CONNECTION DIAGRAM



BLOCK DIAGRAM



STATIC ELECTRICAL CHARACTERISTICS

PARAMETER		TEST CONDITIONS V_O (V)	TEST CONDITIONS V_{DD} (V)	VALUES 25° C min.	VALUES 25° C typ.	VALUES 25° C max.	UNITS
V_{OH}	Output high voltage	$I_{OH} = 0$	6 9 12	5.99 8.99 11.99	6 9 12		V V V
V_{OL}	Output low voltage	$I_{OL} = 0$	6 9 12		0 0 0	0.01 0.01 0.01	V V V
I_{ON}	Output sink current (Output P_{in})	2 2	6 12	20 33	25 40		mA mA
I_{OP}	Output drive current (Output P_{in})	4 10	6 12	20 33	25 40		mA mA
I_{ON}	Current consumption		6 12		3 3		mA mA

DYNAMIC ELECTRICAL CHARACTERISTICS

(T_A = 25° C, quartz frequency = 4, 194 812 MHz)

	PARAMETER	TEST CONDITIONS V_{DD}(V)	VALUES min.	VALUES typ.	VALUES max.	UNITS
f_T	Frequency test output	12	1.048.693		1.048.713	Hz
f_{O}*	Output frequency	12		0.5		Hz
$\frac{\Delta f}{f_O}$	Frequency output range adjustment		−121		+121	ppm
R_O	Output resistance (R_L = 300 K)	12			100	ohm
$\frac{df_O}{f_O}$	Adjustment resolution		−1		+1	ppm

* At the center position of the variable divider.

TYPICAL APPLICATIONS