

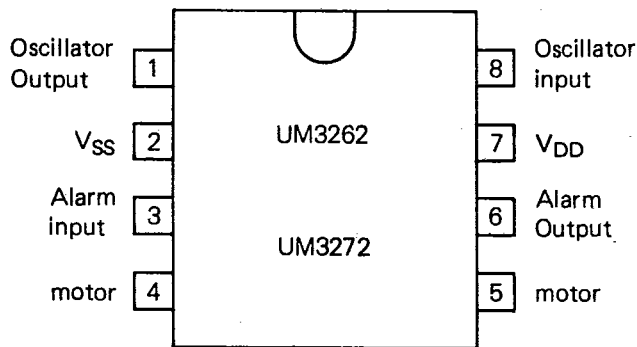


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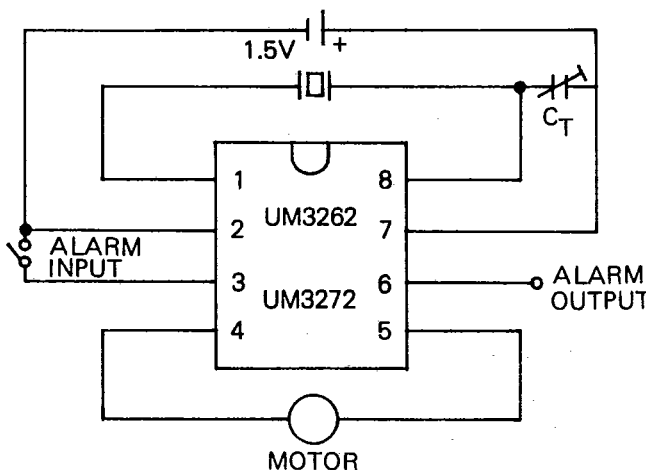
ANALOG ALARM CLOCK CIRCUITS

- C-MOS integrated circuit for battery-operated, quartz crystal clocks
- Precision 32768 Hz quartz crystal controlled oscillator
- Very low current consumption: typ 2 μ A, max 5 μ A
- Output for 1 Hz stepper motor with three pulse duration options: 48.6ms, 31.2ms and 15.6ms
- Alarm outputs: UM 3262: 2048 x 8 x $\frac{1}{2}$ x $\frac{1}{4}$ Hz
 UM 3272: 2048 x 2 x 1 Hz

PIN CONFIGURATION:



TYPICAL APPLICATION:





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ABSOLUTE MAXIMUM RATINGS:

Supply voltage, V_{DD}	-1.7 to +3V
Oscillator input/output voltage, V_{8-2} and V_{1-2}	0 to V_{DD}
Output short-circuit duration	indefinite
Operating ambient temperature, T_A	-10 to 60°C
Storage temperature, T_{STG}	-30 to 125°C

ELECTRICAL CHARACTERISTICS:

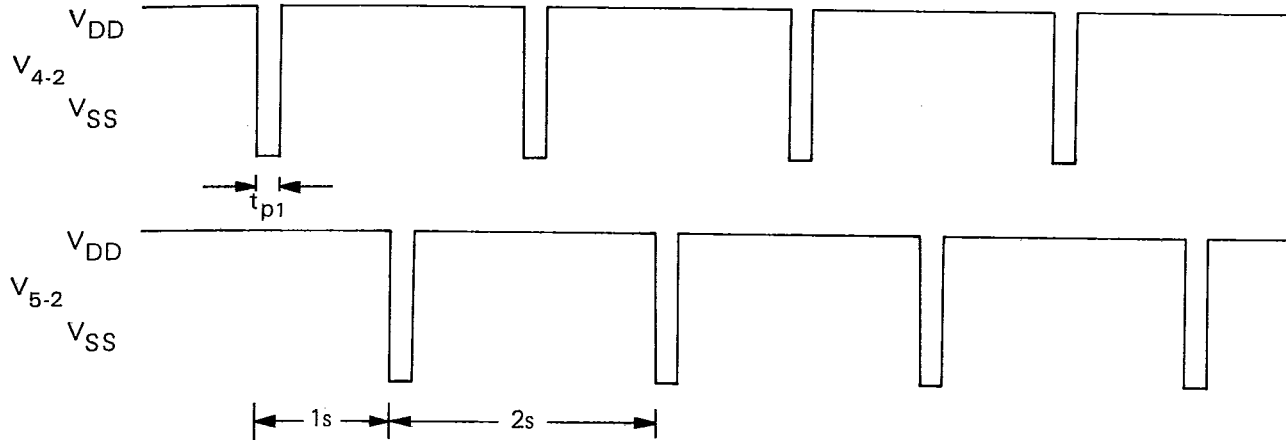
$V_{DD} = 1.4V$, $V_{SS} = 0V$, $F_{osc} = 32768Hz$, $T_{amb} = 25^\circ C$ unless otherwise specified

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITIONS
Supply voltage	V_{DD}	1.1	—	1.8	V	$R_m = \infty$
Supply current	I_{DD}	—	2	5	μA	$R_m = \infty$
Motor output:						
cycle time	t_1	—	2	—	S	—
pulse duration	t_{p1}	—	*	—	mS	
current into load	I_{4-5}	± 4	—	—	mA	$R_m = 200\Omega$; $V_{DD} = 1.2V$
output impedance	R_{4-5}	—	60	—	Ω	$R_m = 200\Omega$.
Alarm output:						
sink current	I_6	0.3	1	—	mA	$R = 1k\Omega$; $V_{DD} = 1.4V$.
driving current	I_6	0.3	1	—	mA	$R = 1k\Omega$; $V_{DD} = 1.4V$.
Alarm input delay	t_a	0	—	70	ms	—
Alarm input current	I_3	—	-5	-10	μA	—
Oscillator polarization						
resistance	R_p	15	20	50	$M\Omega$	—
Oscillator output						
capacitance (pin 1)	C_{out}	—	18	—	pF	—
Oscillator input						
capacitance (pin 8)	C_{in}	—	2	—	pF	—
Oscillator stability	$\Delta f/f$	—	0.2	1	ppm	$\Delta V_{DD} = 100 mV$

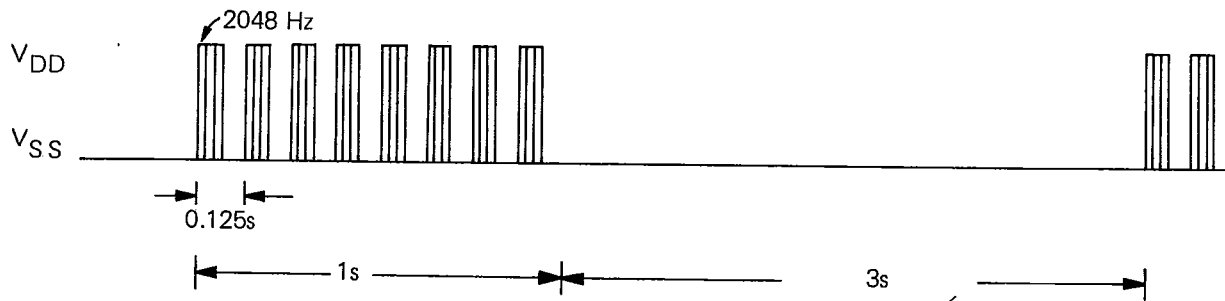
* pulse duration: 46.8ms, 31.2ms, 15.6ms.



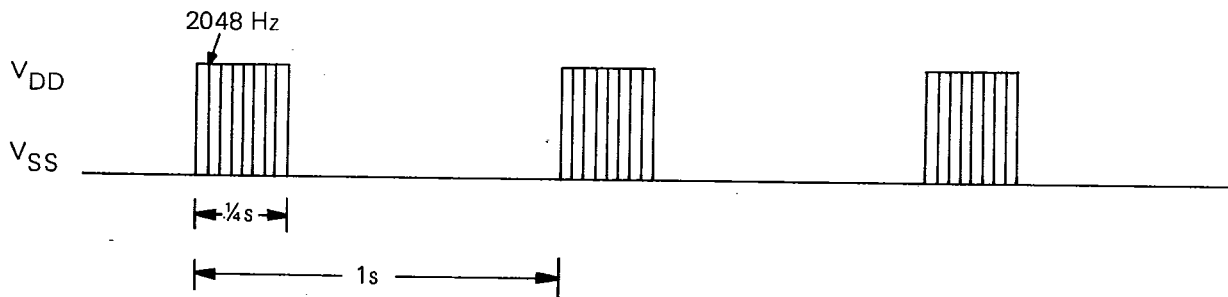
MOTOR OUTPUT WAVEFORMS:



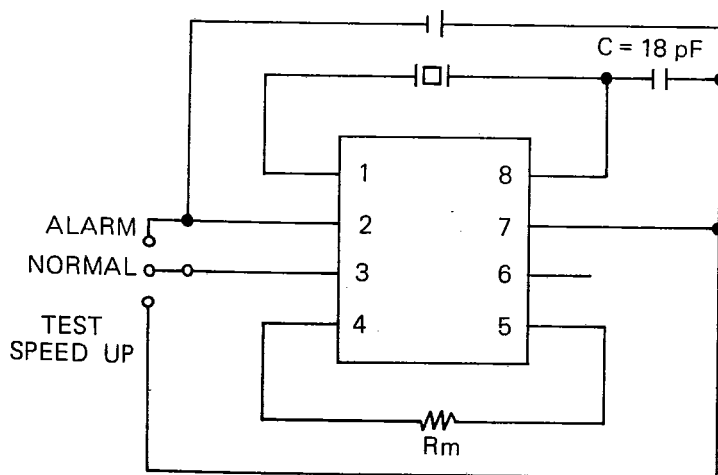
ALARM OUTPUT WAVEFORMS: 2048 x 8 x 1/2 x 1/4 Hz



ALARM OUTPUT WAVEFORMS: 2048 x 2 x 1 Hz



TEST CIRCUIT:



- Normal mode: Pin 3 open
- Alarm mode: Pin 3 connected to V_{SS}
- Test speed up: Pin 3 connected to V_{DD}

Quartz crystal parameters:

- $f = 32768 \text{ Hz}$
- $C_L = 10 \text{ pF}$
- $C_1 = 2.5 \text{ fF}$
- $C_0 = 1.5 \text{ pF}$
- $R_s = 30 \text{ K}\Omega$
- $C = 18 \text{ pF}$



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ORDERING INFORMATION

TYPE	ALARM OUTPUT	MOTOR PULSE OUTPUT DURATION (ms)
8-LEAD DUAL IN-LINE; PLASTIC		
UM3262	2048 x 8 x 1/2 x 1/4 Hz	46.8
UM3262-1	2048 x 8 x 1/2 x 1/4 Hz	31.2
UM3262-2	2048 x 8 x 1/2 x 1/4 Hz	15.6
UM3272	2048 x 2 x 1 Hz	46.8
UM3272-1	2048 x 2 x 1 Hz	31.2
UM3272-2	2048 x 2 x 1 Hz	15.6
CHIP		
UM3262H	bond option	46.8
UM3262-1H	bond option	31.2
UM3262-2H	bond option	15.6

BONDING INFORMATION:

PAD NO.	DESIGNATION	X (mils)	Y (mils)
1	OSC OUTPUT	-37.3	-28.8
2	VSS	-9.2	-28.8
3	VSS'	-2.8	-28.8
4	NC	3.6	-28.8
5	ALARM INPUT	11.6	-28.8
6	MOTOR	19.8	-26.4
7	MOTOR	37.3	28.8
8	ALARM OUTPUT	6.0	28.8
9	VDD'	-2.4	28.8
10	VDD	-8.8	28.8
11	OSC INPUT	-37.3	28.8

NOTE:

- All X and Y coordinates are referenced to the center of the chip.
- All pads are 4 mils by 4 mils except pad 4.
- Bond VDD and VSS' (VDD' and VSS open) for 2048 x 8 x 1/2 x 1/4 alarm output; bond VDD' and VSS (VDD and VSS, open) for 2048 x 2 x 1 alarm output.



UNITED MICROELECTRONICS CORP.

Factory:

No. 3, Industrial East Third Road, Science-Based Industrial Park, Hsin-Chu City, Taiwan, Republic of China TEL: (035) 773131 TLX: 31476 UMCHSC

Sales office:

Formosa Plastics Building (B) 9th Fl., No. 201-26, Tung Hwa N. Road, Taipei, Taiwan, Republic of China TEL: (02) 7152455 TLX: 28560 UMCTPE