

9325812 UNITED MICROELECTRONICS

92D 00630

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**UM3720**

ADVANCED PRODUCT DESCRIPTION

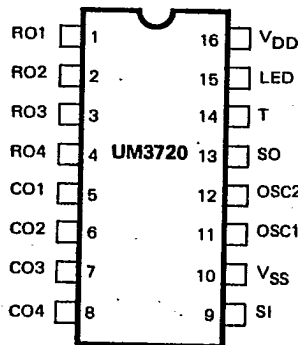
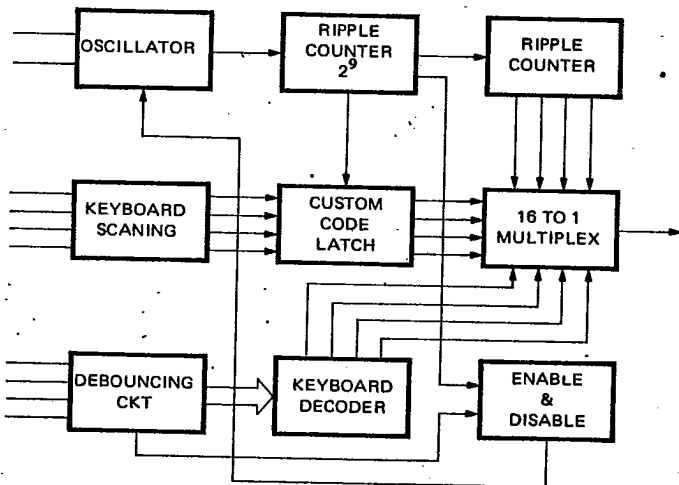
**Fan Controller(Transmitter)****Features**

- Two wind blowing modes: ordinary wind, rhythm wind
- Three kinds of wind scale in each wind blowing mode: light wind, moderate wind, strong wind
- Time setting function
- Sleep mode function
- Fan swinging function
- R/C function (custom codes can be selected)
- Wide voltage operation
- Low power consumption

**General Description**

The UM3720 is a CMOS integrated circuit with 16 pins. It can be used for an infrared remote control transmitter, which may be available for the fan, air conditioner and toy etc.

The UM3720 is designed to transmit 256 (16 key x 16 custom code) commands. These commands use 8 bit P. C. M. code transmitted by infrared LED.

**Pin Configuration****Block Diagram**

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UM3720

**Absolute Maximum Ratings\***

Supply Voltage  $V_{DD}-V_{SS}$  ..... 7.0V  
 Input Voltage  $V_{IN}-V_{SS}$  ..... -0.3 to  $V_{DD}$  V  
 Power Consumption  $P_d$  ..... 250mW  
 Operating Temperature Range ..... -20 to +75°C  
 Storage Temperature Range ..... -40 to +125°C

**\*Comments**

Stress above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only. Functional operation of this device at these or any other conditions above those indicated in the operational sections of this specification is not implied and exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**Electrical Characteristics**

( $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 3\text{V}$ , unless otherwise specified.)

| Parameter                     | Symbol   | Min. | Typ. | Max. | Unit          | Test Conditions                                  |
|-------------------------------|----------|------|------|------|---------------|--------------------------------------------------|
| Operating Voltage             | $V_{DD}$ | 1.5  | 3.0  | 4.5  | V             |                                                  |
| Stand-by Current              | $I_{DD}$ | —    | 0.5  | 1    | $\mu\text{A}$ | $V_{DD} = 3.0\text{V}$                           |
| Operating Current             | $I_{DD}$ | —    | 1    | 2    | mA            | No load<br>$V_{DD} = 3.0\text{V}$                |
| Serial Output Driving Current | $I_{OH}$ | —    | 15   | —    | mA            | $V_{OH} = 1.0\text{V}$<br>$V_{DD} = 3.0\text{V}$ |
| Sinking Current               | $I_{OL}$ | —    | 15   | —    | mA            | $V_{OL} = 1.0\text{V}$<br>$V_{DD} = 3.0\text{V}$ |
| LED Driver Sinking Current    | $I_{OL}$ | —    | 8    | —    | mA            | $V_{OL} = 1.0\text{V}$<br>$V_{DD} = 3.0\text{V}$ |

**Pin Description**

| Pin No. | Designation | Description                |
|---------|-------------|----------------------------|
| 1       | RO1         | Keyboard Row Line 1        |
| 2       | RO2         | Keyboard Row Line 2        |
| 3       | RO3         | Keyboard Row Line 3        |
| 4       | RO4         | Keyboard Row Line 4        |
| 5       | CO1         | Keyboard Column Line 1     |
| 6       | CO2         | Keyboard Column Line 2     |
| 7       | CO3         | Keyboard Column Line 3     |
| 8       | CO4         | Keyboard Column Line 4     |
| 9       | SI          | Serial Input (Custom Code) |
| 10      | $V_{SS}$    | Negative Power Supply      |
| 11      | OSC1        | Oscillator Input           |
| 12      | OSC2        | Oscillator Output          |
| 13      | SO          | Serial Output              |
| 14      | T           | Testing                    |
| 15      | LED         | LED Driver                 |
| 16      | $V_{DD}$    | Positive Power Supply (3V) |

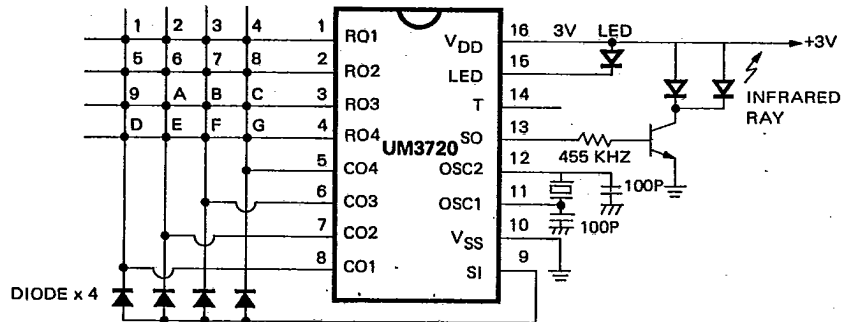
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**UM3720****Application Circuit**

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**Keyboard Function**

- 1. RO1 x CO1 Ordinary wind
- 2. RO1 x CO2 Rhythm wind
- 3. RO1 x CO3 Sleep
- 4. RO1 x CO4 Swing head

- 5. RO2 x CO1 Timer
- 6. RO2 x CO2 ON /OFF switch
- 7 ~ G No action