

## VIDEO SUB-CARRIER SIGNAL TRIPLER

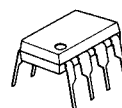
## ■ GENERAL DESCRIPTION

The NJM2238 is a tripler oscillator based on video subcarrier frequency using PLL circuit technique. The NJM2238 is suit to standard clock generator of CCD clock and on-screen display.

## ■ FEATURES

- Operating Voltage (+4.7V~+5.3V)
- Maximum Oscillator Frequency
- Tripler Output
- Package Outline DIP8,DMP8
- Bipolar Technology

## ■ PACKAGE OUTLINE



NJM2238D

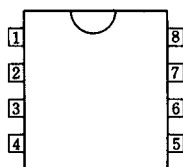


NJM2238M

## ■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

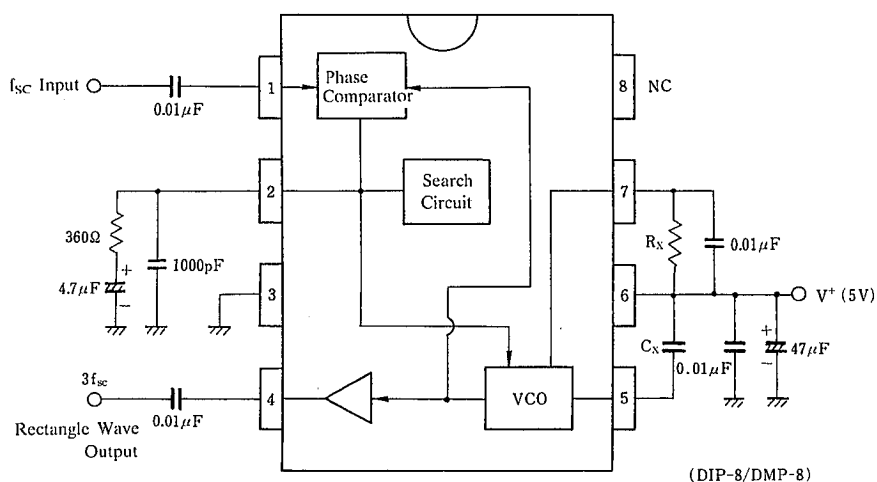
## ■ PIN CONFIGURATION



## PIN FUNCTION

1.  $f_{sc}$  Input
2. Detection Filter
3. GND
4. Oscillator Output
5. Oscillator C
6.  $V^+$
7. Oscillator R
8. NC

## ■ BLOCK DIAGRAM & EXTERNAL COMPONENTS



There is stray capacity assembled on PC board, and so select  $R_x$ ,  $C_x$  to the value which pin 2 voltage (search voltage at VCO locked) becomes about 2V.  $C_x > 5\text{pF}$ ,  $5.6\text{k}\Omega > R_x > 3.3\text{k}\Omega$

|       | NTSC | PAL  |
|-------|------|------|
| $C_x$ | 10 p | 8 p  |
| $R_x$ | 5.2k | 4.4k |

## ■ ABSOLUTE MAXIMUM RATINGS

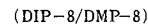
(Ta=25°C)

| PARAMETER                   | SYMBOL           | RATINGS              | UNIT |
|-----------------------------|------------------|----------------------|------|
| Supply Voltage              | V*               | 8                    | V    |
| Input Voltage               | V <sub>IN</sub>  | GND - 0.3 ~ V* + 0.3 | V    |
| Power Dissipation           | P <sub>D</sub>   | (DIP8) 500           | mW   |
|                             |                  | (DMP8) 300           | mW   |
| Operating Temperature Range | T <sub>opr</sub> | -20 ~ +75            | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -40 ~ +125           | °C   |

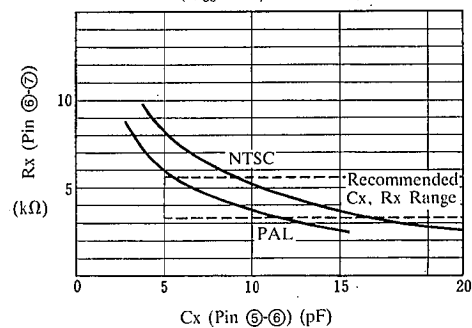
## ■ ELECTRICAL CHARACTERISTICS

(V\*=5V, Ta=25°C)

| PARAMETER                       | SYMBOL            | TEST CONDITION                                                                                  | MIN. | TYP. | MAX. | UNIT             |
|---------------------------------|-------------------|-------------------------------------------------------------------------------------------------|------|------|------|------------------|
| Recommended Oper. Voltage Range | V*                |                                                                                                 | 4.7  | 5.0  | 5.3  | V                |
| Operating Current               | I <sub>CC</sub>   | S1=1, S2=1, input Vi1 : 3.58MHz 1.0V <sub>p-p</sub> .<br>Count Current                          | 5.6  | 8    | 10.4 | mA               |
| Input Voltage Swing Range       | V <sub>fsc</sub>  | S1=1, S2=1, input Vi1 : 3.58 or 4.43MHz<br>(sine wave), guaranteed Vi1 voltage range.           | 0.5  | 1.0  | 2.0  | V <sub>p-p</sub> |
| Input Sensitivity               | V <sub>is</sub>   | S1=1, S2=1, input Vi1 : 3.58 or 4.43MHz<br>(sine wave), actually tested minimum Vi1 voltage.    | —    | 0.2  | —    | V <sub>p-p</sub> |
| VCO Oscillation Swing           | V <sub>O3</sub>   | S1=1, S2=2, input Vi1 : 3.58MHz, 1.0V <sub>p-p</sub> .                                          | 0.7  | 0.9  | 1.1  | V <sub>p-p</sub> |
| fsc Leakage                     | L <sub>fsc</sub>  | S1=1, S2=2, input Vi1: 3.58MHz, 1.0V <sub>p-p</sub> .<br>V <sub>O3</sub> (fsc level/3fsc level) | —    | -50  | —    | dB               |
| 3fsc Output Duty                | D <sub>3fsc</sub> | S1=1, S2=2, input Vi1 : 3.58MHz,<br>1.0V <sub>p-p</sub> , V <sub>O3</sub> output signal duty.   | 45   | 50   | 55   | %                |



(note 4): Pin 2 filter must be connected to ground.

$$(\dot{V}_{os} = 2\dot{V}, T_a = 25^\circ\text{C})$$


## MEMO

**[CAUTION]**

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