



VIDEO SUB-CARRIER SIGNAL QUADRUPLER

■ GENERAL DESCRIPTION

The NJM2240 is the quadruple oscillator of video band subcarrier frequency with PLL circuit technique. The NJM2240 is suit to standard clock generator of CCD clock and on-screen display.

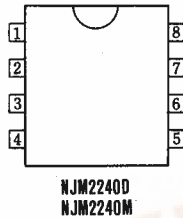
■ FEATURES

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

■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

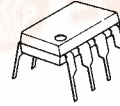
■ PIN CONFIGURATION



PIN FUNCTION

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

■ PACKAGE OUTLINE



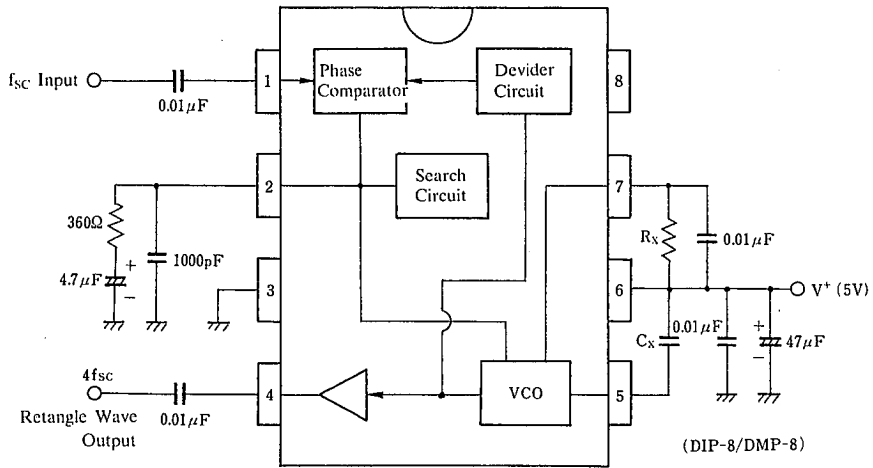
NJM2240D



NJM2240M

NJM2240

■ 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. $C_x > 4\text{pF}$, $R_x > 2.7\text{k}\Omega$.

| | NTSC | PAL |
|-------|--------------|--------------|
| | 4 Multiplier | 4 Multiplier |
| C_x | 6 p | 5 p |
| R_x | 4.3 k | 3.3 k |

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

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

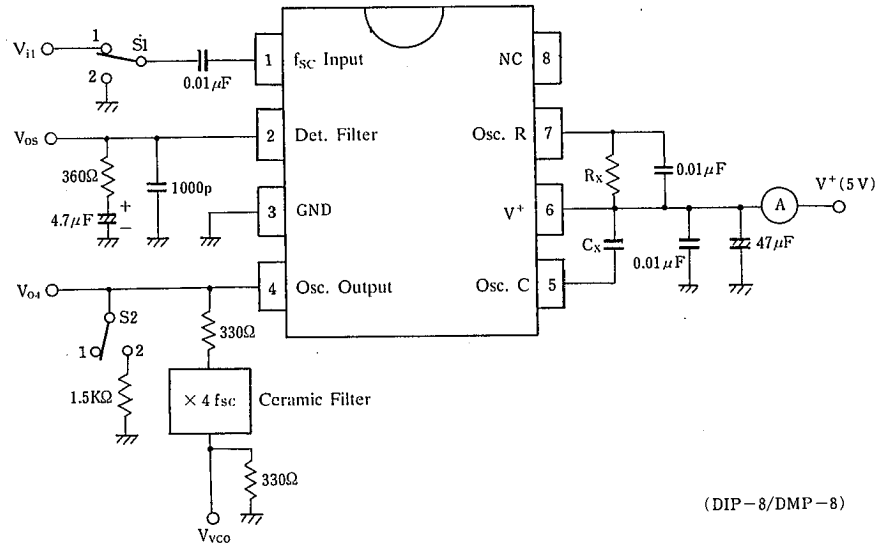
■ ELECTRICAL CHARACTERISTICS

(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 _{CC} | S1=1, S2=1, input Vi1: 3.58MHz Count Current | 7 | 10 | 13 | mA |
| Input Voltage Swing Range | V _{fsc} | S1=1, S2=1, input Vi1: 3.58 or 4.43MHz (sine wave), guaranteed Vi1 voltage range. | 0.12 | 1.0 | 2.0 | V _{p-p} |
| Input Sensitivity | V _{is} | S1=1, S2=1, input Vi1: 3.58 or 4.43MHz (sine wave), actually tested minimum Vi1 voltage. | — | 0.05 | — | V _{p-p} |
| VCO Oscillation Swing | V _{O4} | S1=1, S2=2, input Vi1: 3.58MHz, 1.0V _{p-p} | 0.7 | 0.9 | 1.1 | V _{p-p} |
| fsc Leakage | L _{fsc} | S1=1, S2=2, input Vi1: 3.58MHz, 1.0V _{p-p} V _{O4} (fsc level/4fsc level) | — | -50 | — | dB |
| 4fsc Output Duty | D _{4fsc} | S1=1, S2=2, input Vi1: 3.58MHz, 1.0V _{p-p} , V _{O4} output signal duty. | 45 | 50 | 55 | % |

NJM2240

TEST CIRCUIT



(DIP-8/DMP-8)

(note 1): R_x , C_x accuracy: less than $\pm 1\%$

(note 2): C_x is not considered pin5 stray capacitance. VCO free-run frequency is affected by stray capacitance of PC board, socket and others.

(note 3): The NJM2240 is produced by high frequency wafer process and some of pin may be weak against surge voltage.

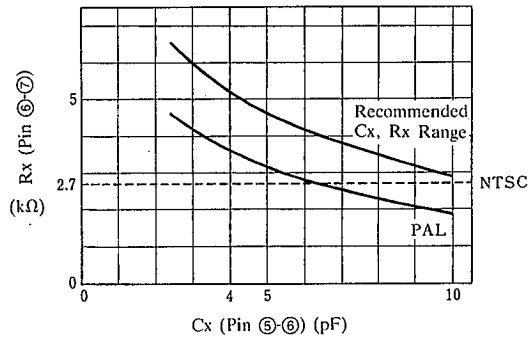
(note 4): Pin 2 filter must be connected to ground.

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TYPICAL CHARACTERISTICS

VCO Oscillator Frequency

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



NJM2240

MEMO

[CAUTION]

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