

## 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.

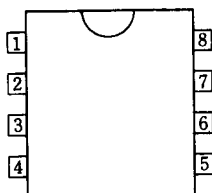
### ■ FEATURES

- Operating Voltage (+4.7V to +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

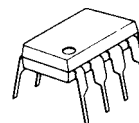


#### PIN FUNCTION

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

**NJM2240D**  
**NJM2240M**

### ■ PACKAGE OUTLINE



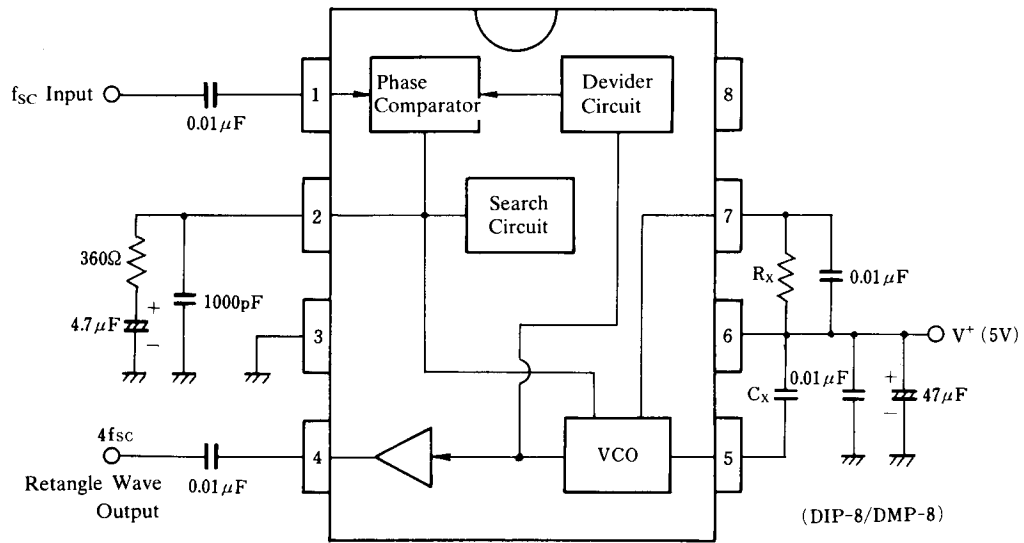
**NJM2240D**



**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 VCC locked) becomes about 2V.  $C_x > 4\text{pF}$ ,  $R_x > 2.7\text{k}\Omega$

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

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	8	V
Input voltage	$V_{IN}$	GND-0.3 to $V^+$ +0.3	V
Power Dissipation	$P_D$	(DIP8) 500 (DMP8) 300	mW mW
Operating Temperature Range	$T_{opr}$	-20 to +75	°C
Storage Temperature Range	$T_{stg}$	-40 to +125	°C

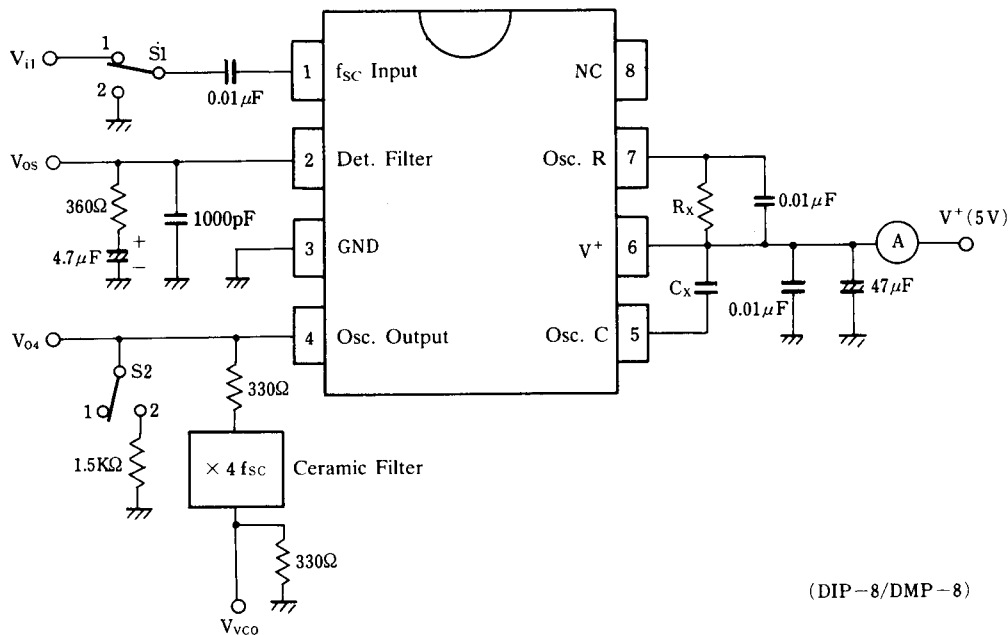
## ■ ELECTRICAL CHARACTERISTICS

( $V^+=5V$ , 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	Vp-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	-	Vp-p
VCO Oscillation Swing	$V_{O4}$	S1=1, S2=2, input Vi1 : 3.58MHz, 1.0Vp-p.	0.7	0.9	1.1	Vp-p
fsc Leakage	$L_{fsc}$	S1=1, S2=2, input Vi1 : 3.58MHz, 1.0Vp-p. $V_{O4}$ (fsc level/4fsc level)	-	-50	-	dB
4fsc Output Duty	$D_{4fsc}$	S1=1, S2=2, input Vi1 : 3.58MHz, 1.0Vp-p, $V_{O4}$ output signal duty.	45	50	55	%

# NJM2240

## TEST CIRCUIT



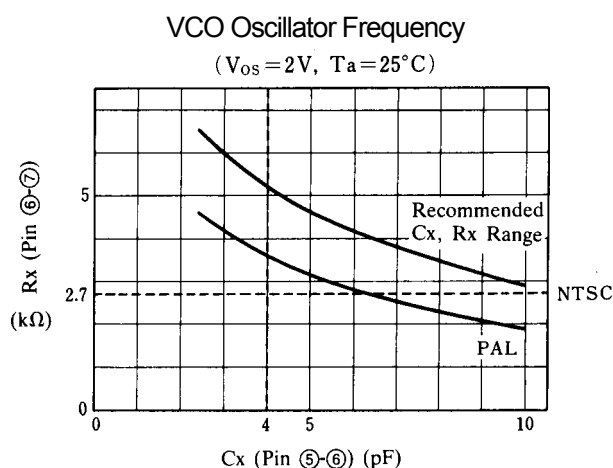
(note 1):  $R_x, C_x$  accuracy: less than  $\pm 1\%$

(note 2):  $C_x$  is not considered pin 5 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.

## TYPICAL CHARACTERISTICS



**[CAUTION]**  
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