

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.

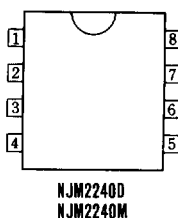
■ FEATURES

- Operating Voltage (+4.7V~+5.3V)
- High Input Sensitivity
- Maximum Oscillator Frequency
- Quadrupler Output
- Package Outline DIP8, DMP8, SIP9
- Bipolar Technology

■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

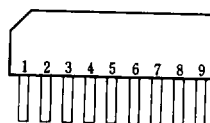
■ PIN CONFIGURATION



NJM2240D
NJM2240M

PIN FUNCTION

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

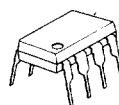


NJM2240S

PIN FUNCTION

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

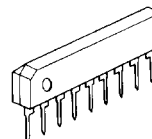
■ PACKAGE OUTLINE



NJM2240D



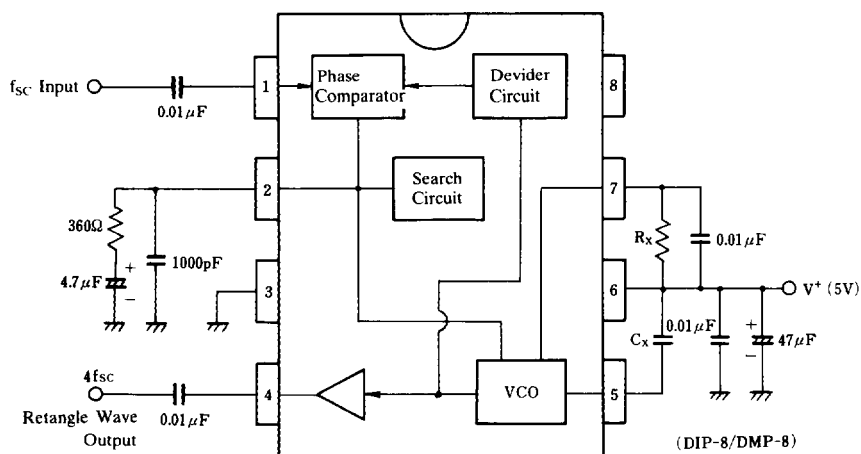
NJM2240M



NJM2240S



■ 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
		(SIP8) 500	mW
Operating Temperature Range	T _{opr}	-20 ~ +75	°C
Storage Temperature Range	T _{stg}	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

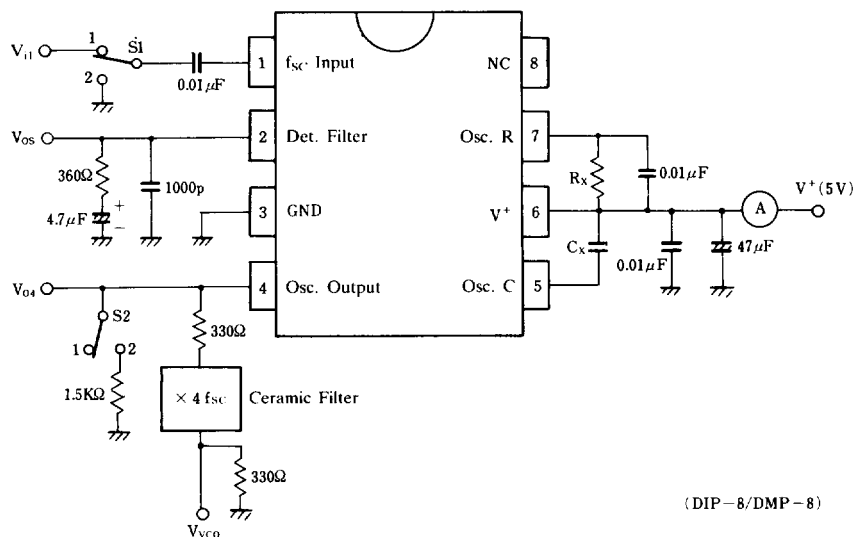
(V*=5V, Ta=25°C)

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	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, 1.0V _{p-p}	0.7	0.9	1.1	Vp-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	%

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■ TEST CIRCUIT



(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.

■ TYPICAL CHARACTERISTICS

VCO Oscillator Frequency

($V_{05} = 2V$, $T_a = 25^\circ C$)

