



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

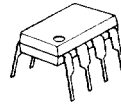
- Operating Voltage (+4.7V~+5.3V)
- Maximum Oscillator Frequency
- Tripler Output
- Package Outline DIP-8, DMP-8, SIP-8
- Bipolar Technology

■ APPLICATION

- VCR Video Camera AV-TV Video Disc Player

■ PIN CONFIGURATION

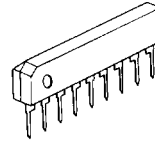
■ PACKAGE OUTLINE



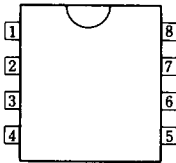
NJM2238D



NJM2238M

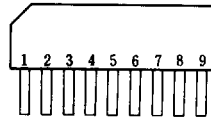


NJM2238S



PIN FUNCTION

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



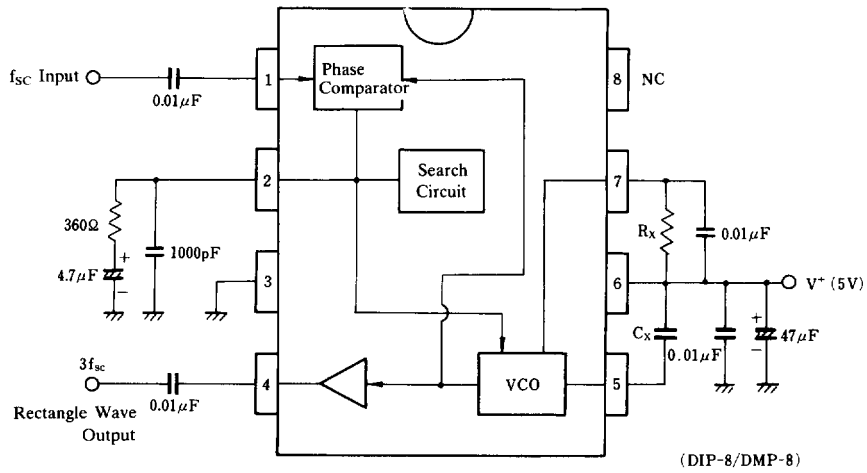
PIN FUNCTION

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

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■ 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

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■ 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

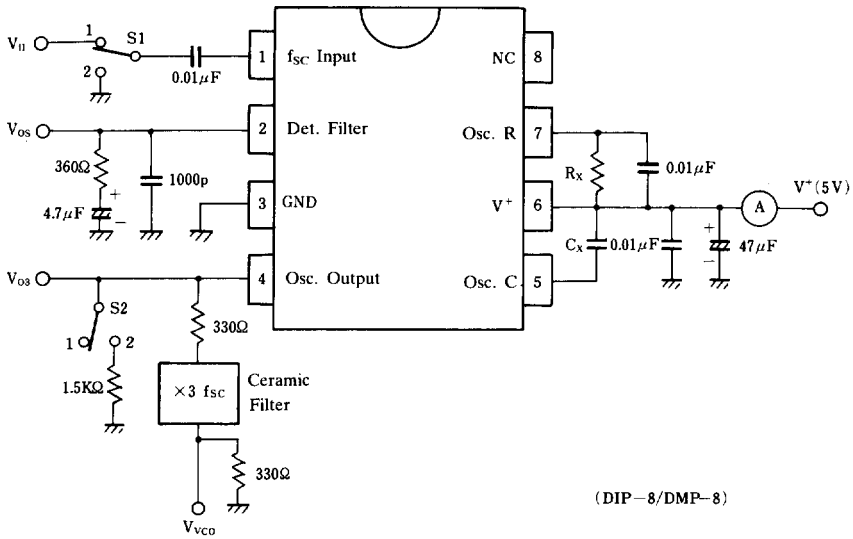
(V*=5V, Ta=25°C)

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 1.0V _{p-p} -Count Current	5.6	8	10.4	mA
Input Voltage Swing Range	V _{fsc}	S1=1, S2=1, input Vi1 : 3.58 or 4.43MHz (sine wave), guaranteed Vi1 voltage range.	0.5	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.	—	0.2	—	V _{p-p}
VCO Oscillation Swing	V _{O3}	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 _{O3} (fsc level/3fsc level)	—	-50	—	dB
3fsc Output Duty	D _{3fsc}	S1=1, S2=2, input Vi1 : 3.58MHz, 1.0V _{p-p} , V _{O3} output signal duty.	45	50	55	%

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■ TEST CIRCUIT



(note 1): Rx, Cx accuracy: less than ±1%

(note 2): Cx 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 NJM2238 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

(Vos = 2V, Ta = 25°C)

