

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.

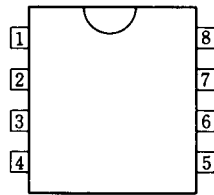
■ FEATURES

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

■ APPLICATION

- VCR Video Camera AV-TV Video Disc player

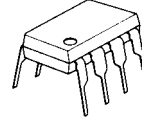
■ PIN CONFIGURATION



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



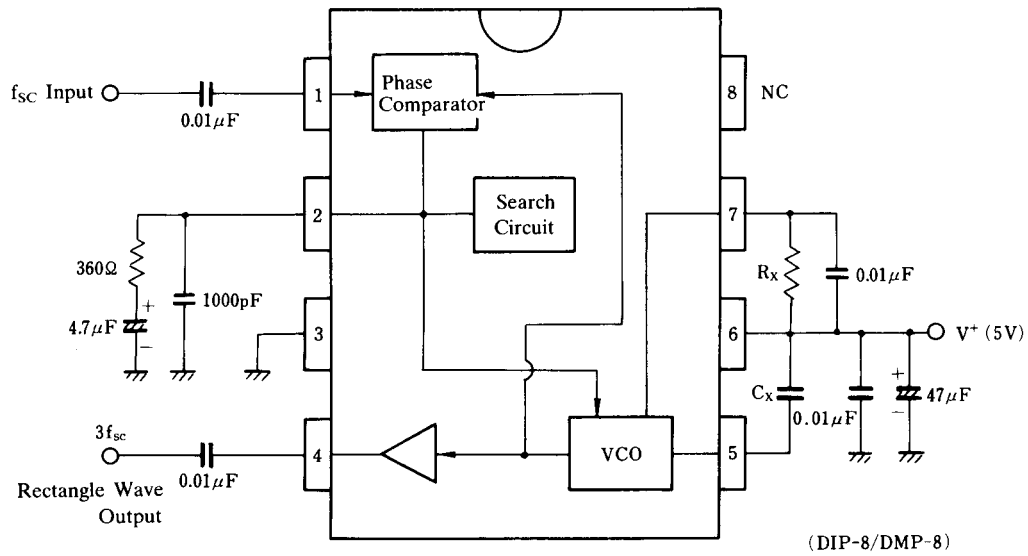
NJM2238D



NJM2238M

NJM2238

■ 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	10p	8p
R_x	5.2k	4.4k

■ 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

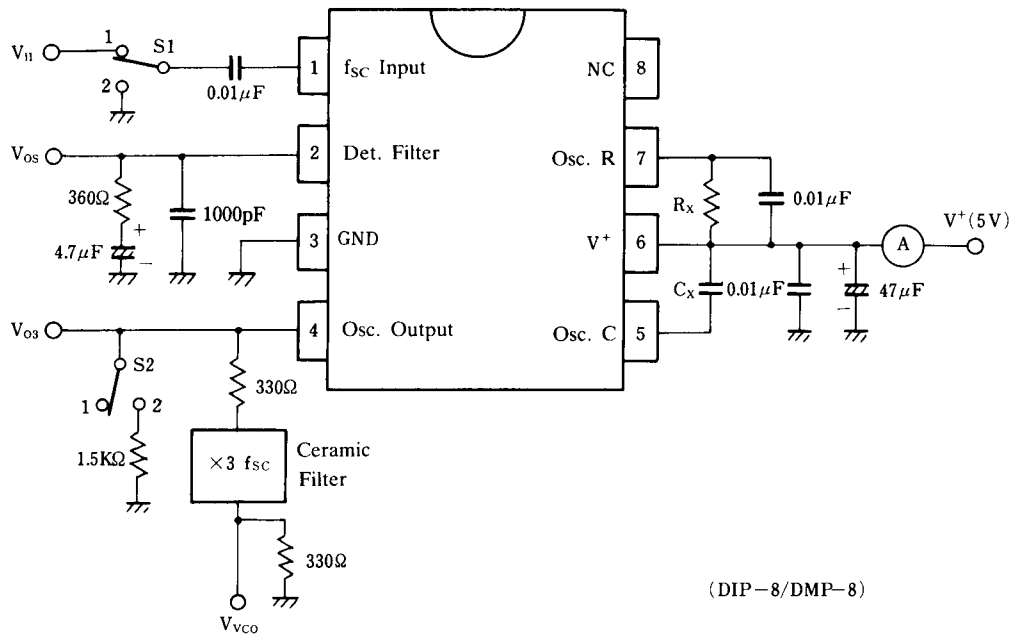
■ ELECTRICAL CHARACTERISTICS

(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 1.0Vp-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	Vp-p
Input sensitivity	V_{is}	S1=1, S2=1, input Vi1 : 3.58 or 4.43MHz (sine wave), actually tested minimum Vi1 voltage.	-	0.2	-	Vp-p
VCO Oscillation Swing	V_{O3}	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_{O3} (fsc level/3fsc level)	-	-50	-	dB
3fsc Output Duty	D_{3fsc}	S1=1, S2=2, input Vi1 : 3.58MHz, 1.0Vp-p, V_{O3} output signal duty.	45	50	55	%

NJM2238

TEST CIRCUIT



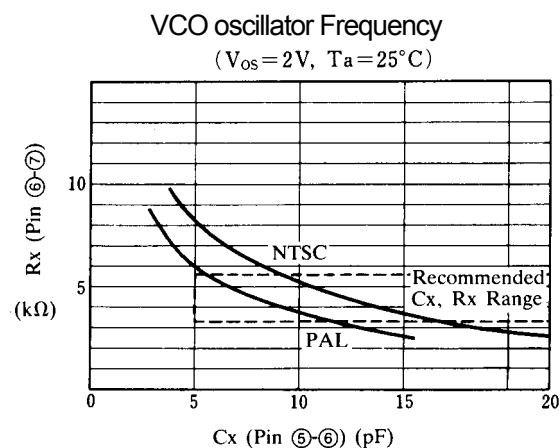
(note 1): R_x, C_x accuracy: less than $\pm 1\%$

(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 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.

TYPICAL CHARACTERISTICS



[CAUTION]
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