

TV VIDEO MODULATOR

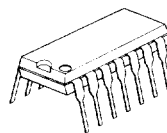
■ GENERAL DESCRIPTION

The NJM1372A is an integrated circuit to be used to generate an RF TV signal from baseband color-difference and luminance signals.

The NJM1372A contains a chroma subcarrier oscillator, lead and lag network, a quasi-quadrature suppressed carrier DSB chroma modulator, an RF oscillator and modulator, and a TTL compatible clock driver with adjustable duty cycle.

This device may also be used as a general-purpose modulator with a variety of video signal generating devices such as video games, test equipment, video type recorders, etc.

■ PACKAGE OUTLINE

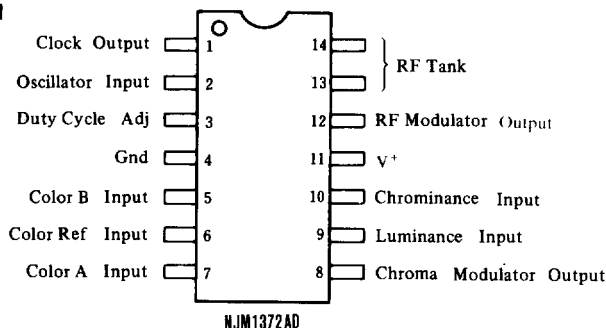


NJM1372AD

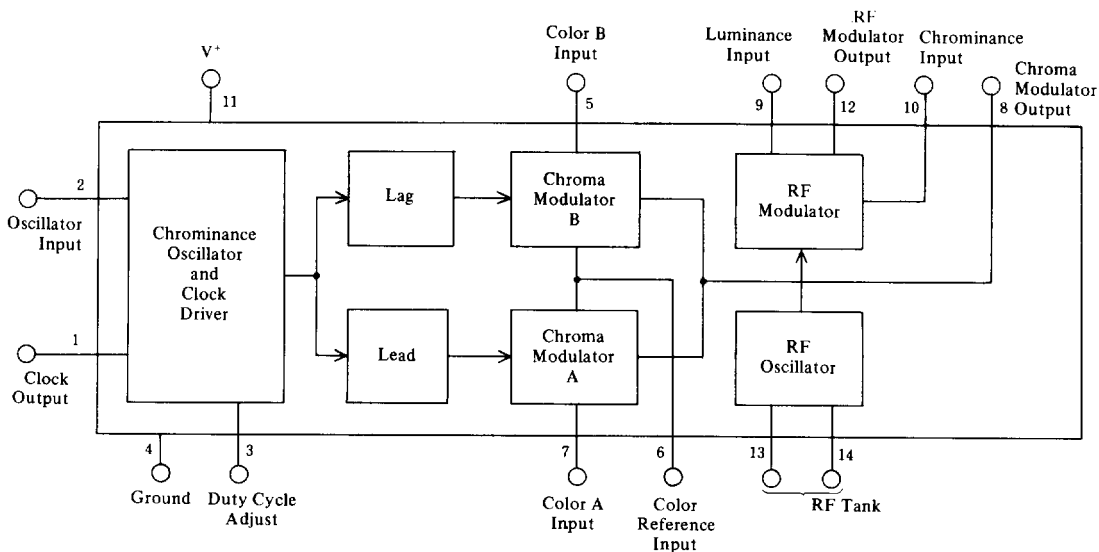
■ FEATURES

- Operating Voltage (+4.75V~+5.25V)
- Acts by Digital Control Signal
- Minimal External Components
- Composite Video Signal Generation Capability
- Low Power Dissipation
- Linear Chroma Modulators for High Versatility
- Ground-Referenced Video Prevents Over-modulation
- Package Outline DIP-14
- Bipolar Technology

■ PIN CONFIGURATION



■ BLOCK DIAGRAM





NJM1372A

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	8	V
Power Dissipation	P _D	700	mW
Operating Temperature Range	T _{opr}	-20 ~ +75	°C
Storage Temperature Range	T _{stg}	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺		4.75	5.0	5.25	V
Operating Current	I _{CC}		—	25	—	mA

Chroma Oscillator/Clock Driver (TC1)

Output Voltage	V _{OL}		—	—	0.4	V
Output Voltage	V _{OH}		2.4	—	—	V
Rise Time	t _r	V _i =0.4 → 2.4V	—	—	50	ns
Fall Time	t _f	V _i =2.4 → 0.4V	—	—	50	ns
Duty Cycle Adjustment Range	V _{adj}	THreshold Voltage V _I =1.4V	40	—	60	%
Inherent Duty Cycle	V _{OD}		—	50	—	%

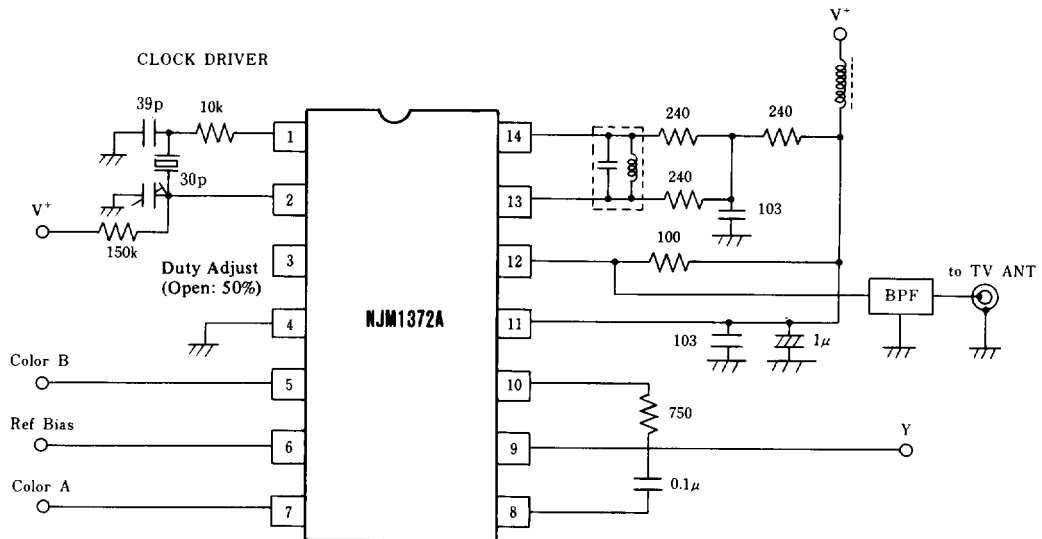
Chroma Modulator (TC1)

Input Common Voltage Range		Pin 5, 6, 7	0.8	—	2.3	V
Oscillator Feedthrough	CL	Pin 8	—	15	31	mV
Modulation Angle	Cθ	θ ₈ (V ₇ =2.0V) - θ ₈ (V ₅ =2.0V)	85	100	115	degree
Conversion Gain	G _{CC}	V ₈ /(V ₇ -V ₆); V ₈ /(V ₅ -V ₆)	—	0.8	—	V _{P-P} /V
Input Current	I _i	Pin 5, 6, 7	—	—	-20	μA
Input Resistance	R _i	Pin 5, 6, 7	100	—	—	kΩ
Input Capacitance	C _i	Pin 5, 6, 7	—	—	5	pF
Chroma Modulator Linearity	L _{cm}	Pin 8; V ₅ =1 → 2 V; V ₇ =1 → 2V	—	4.0	—	%

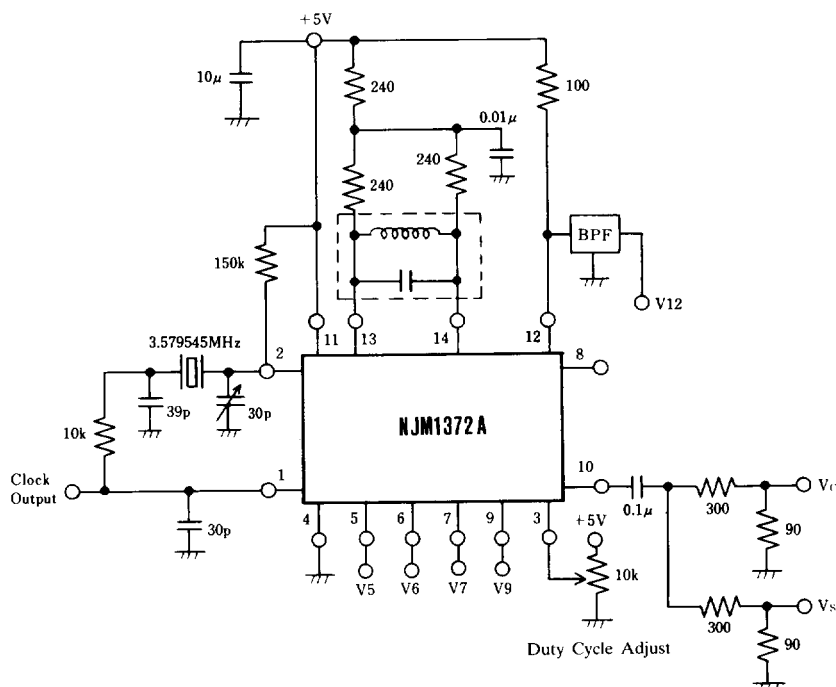
RF Modulator (Test Circuit 2)

Luma, Input Dynamic Range		Pin 9	(TC2)	0	—	1.5	V
RF Output Voltage	V _{RF}	f=67.25MHz, V ₉ =1.0V	(TC1)	—	30	—	mVrms
Luma Conversion Gain	G _{LV}	(ΔV _{i2} /ΔV ₉ ; V ₉ =0.1 → 1.0V)	(TC2)	—	0.7	—	V/V
Chroma Conversion Gain	G _{CV}	(ΔV _{i2} /ΔV ₁₀ ; V ₁₀ =1.5V _{PP} , V ₉ =1.0V)	(TC2)	—	0.9	—	V/V
Chroma Linearity	L _C	Pin 12 V ₁₀ =1.5V _{PP}	(TC2)	—	1.0	—	%
Luma Linearity	L _L	Pin 12 V ₉ =0 → 1.5V	(TC2)	—	2.0	—	%
Input Current	I _i	Pin 9		—	—	-20	μA
Input Resistance	R _i	Pin 10		—	800	—	Ω
Input Resistance	R _i	Pin 9		100	—	—	kΩ
Input Capacitance	C _i	Pin 9, 10		—	—	5	pF
Output Current	I _o	Pin 12	(TC2)	—	0.9	—	mA
Residual 920kHz	B	Pin 12 V ₉ =1V	(TC1)	—	50	—	dB
		V _C =300mV/3.58MHz; V _S =250mV/4.5MHz					

■ TYPICAL APPLICATION CIRCUIT



TEST CIRCUIT 1



TEST CIRCUIT 2

