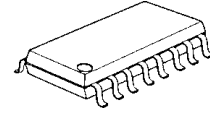


## RF Modulator for UHF Band

### DESCRIPTION

The NJM2259 is a RF modulator IC especially designed for UHF band RF modulator and consists of video clamp circuit, white clip circuit, video AM modulator and audio FM modulator, built into one chip.

### PACKAGE OUTLINE

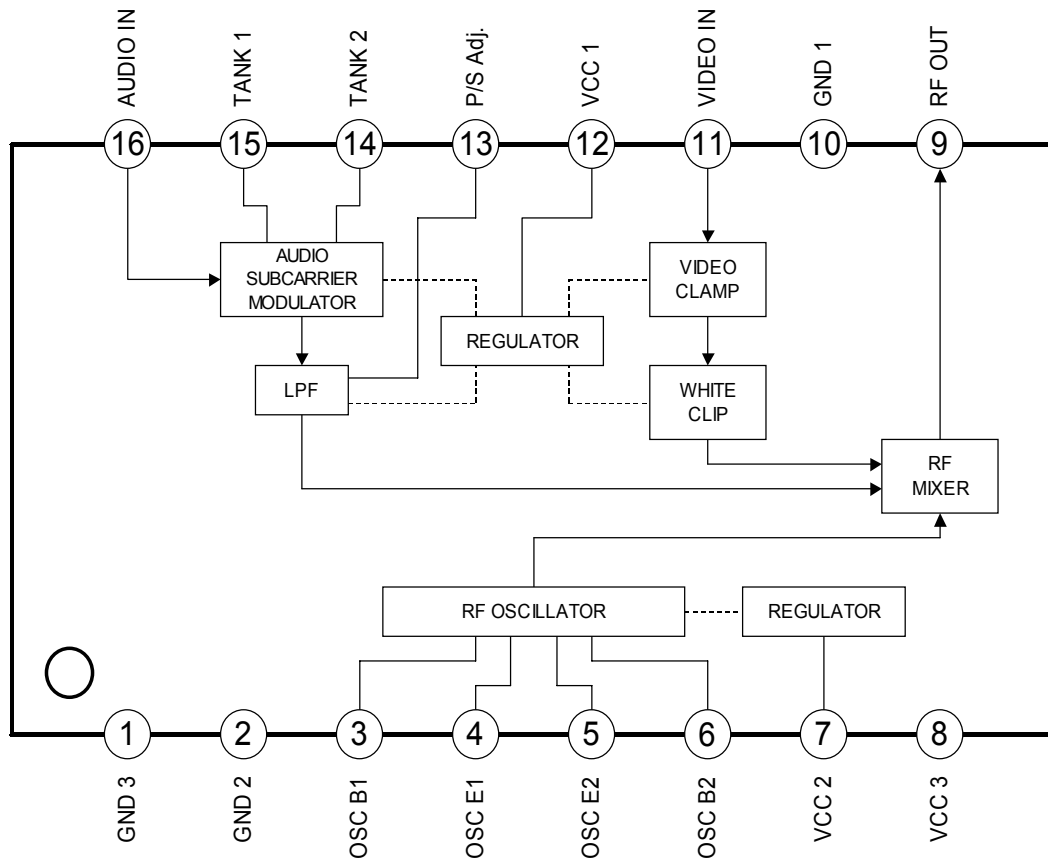


NJM2259M

### FEATURES

- Operating Voltage 5V
- Picture-to-sound ratio is adjustable
- Audio ripple is decreased by two internal regulators
- Audio input circuit with low shock noise
- Carrier-off switch function on chip
- Bipolar Technology
- Package Outline : DMP16

### BLOCK DIAGRAM



## ■ ABSOLUTE MAXIMUM RATINGS

( $T_A=25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit
Supply Voltage	$V_{CC}$	7	V
Power Dissipation	$P_D$	300	mW
Input Voltage	$V_I$	-0.3 to $V_{CC}$	V
Operating Temperature Range	$T_{opr}$	-20 to +75	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 to +125	$^\circ\text{C}$

## ■ RECOMMENDED OPERATING VOLTAGE RANGE

( $T_A=25^\circ\text{C}$ )

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Operating Voltage		$V_{CC}$	4.5	5.0	5.5	V

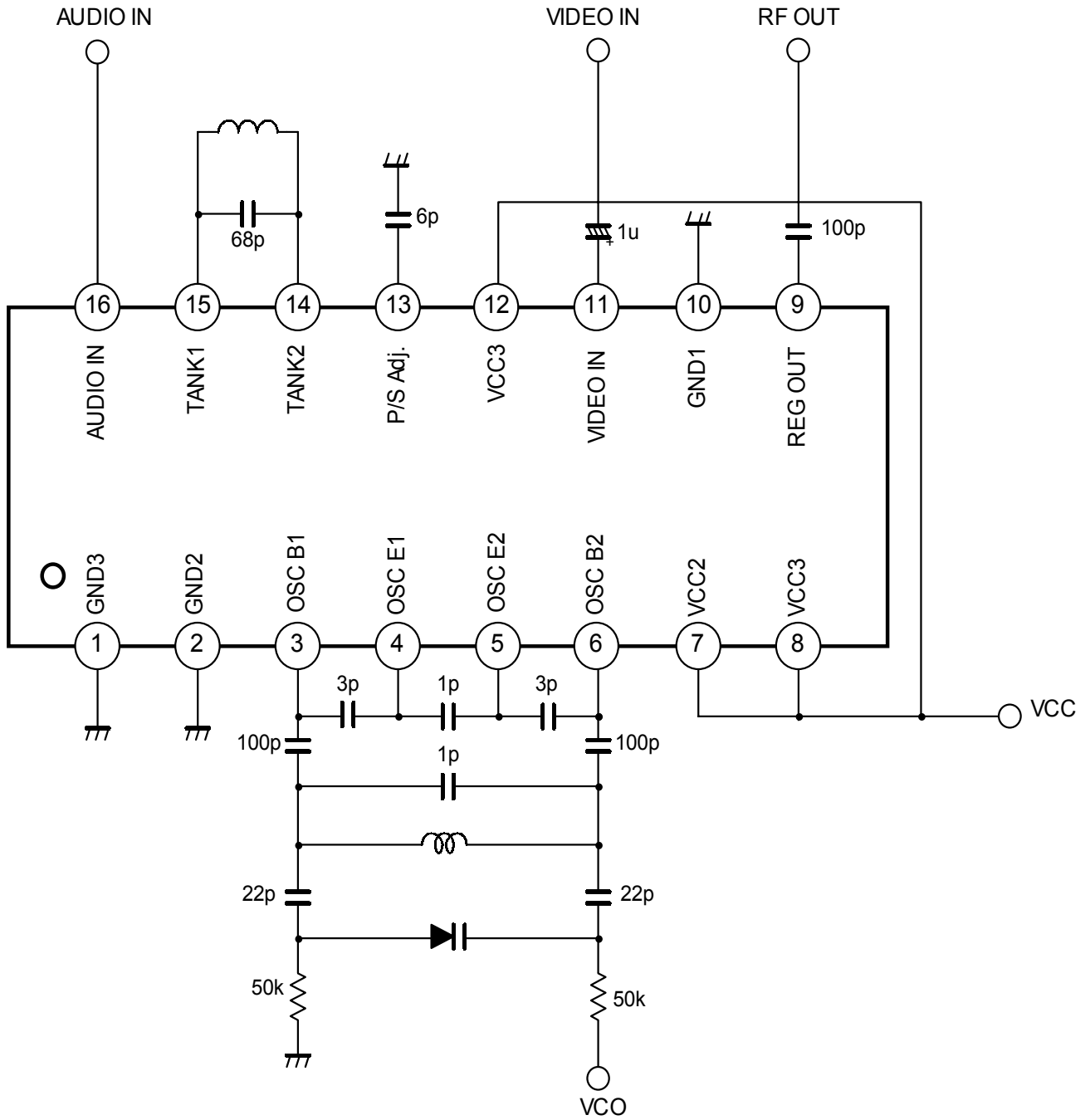
## ■ ELECTRICAL CHARACTERISTICS

( $V_{CC}=5\text{V}, T_A=25^\circ\text{C}$ )

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Operating Current	No video/audio input signal	$I_{CC}$	18	30	32	mA
Video Output Level (Note 1)	Video input Signal (Pin11)= $0.5V_{PP}$	$V_O$	(73)	78	(83)	dBu
Video Modulation Depth (Note 1)	Video input Signal (Pin11)= $0.5V_{PP}$	mp	(60)	75	(90)	%
Video Limiter Modulation Depth (Note 1)	Video input Signal (Pin11)= $0.5V_{PP}$	mpmax	(80)	94	(98)	%
Differential Gain	Video input signal (Pin11)= $0.5V_{PP}$ Staircase	DG	-	$\pm 3$	-	%
Differential Phase	Video input Signal (Pin11)= $0.5V_{PP}$ Staircase	DP	-	$\pm 3$	-	deg
Picture-to-sound Ratio (Note 1)	Video input Signal (Pin11)= $0.5V_{PP}$	PS	(10)	13	(16)	dB
Sound FM Modulation Depth (Note 1)	Audio input Signal (Pin16)= $70\text{mV}_{PP}$ 100%= $\pm 50\text{kHz}$ dev.	ms	(85)	100	(115)	%
Audio Distortion	ms=100%, 1kHz sine wave	THD	-	0.3	-	%
Audio Signal-to-noise Ratio	ms=100%, 1kHz sine wave Video input Signal (Pin11)= $1V_{PP}$	ASN	-	60	-	dB
Maximum Sound FM Modulation	Audio input Signal (Pin16)= $500\text{mV}_{PP}$ 1kHz sine wave	msmax	-	700	-	%

(Note 1) Because AC characteristics largely depends on application circuit, DC test is applied these parameters.

## ■ TEST CIRCUIT



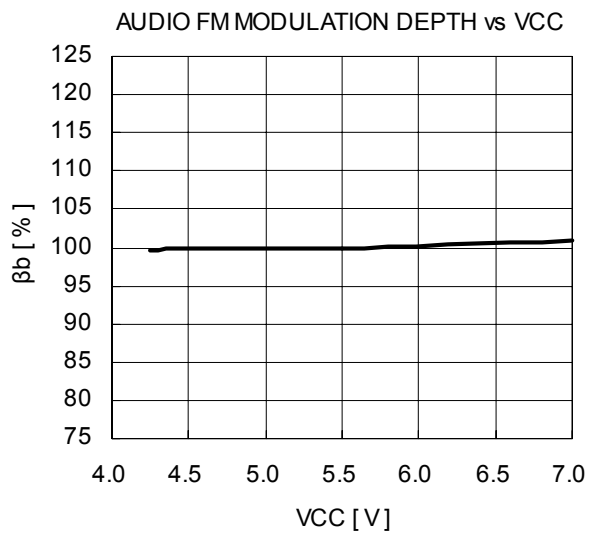
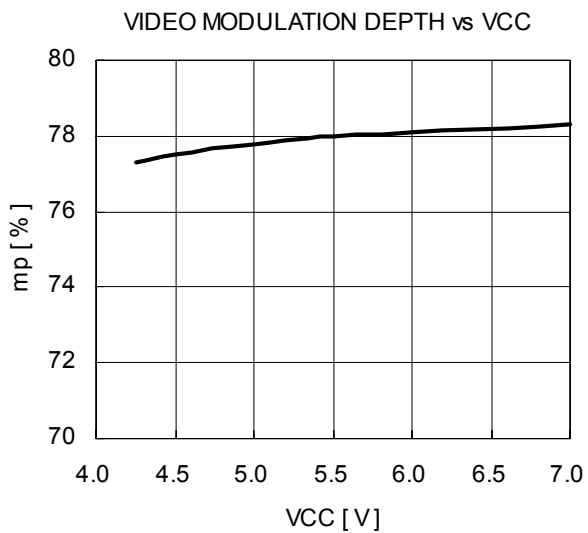
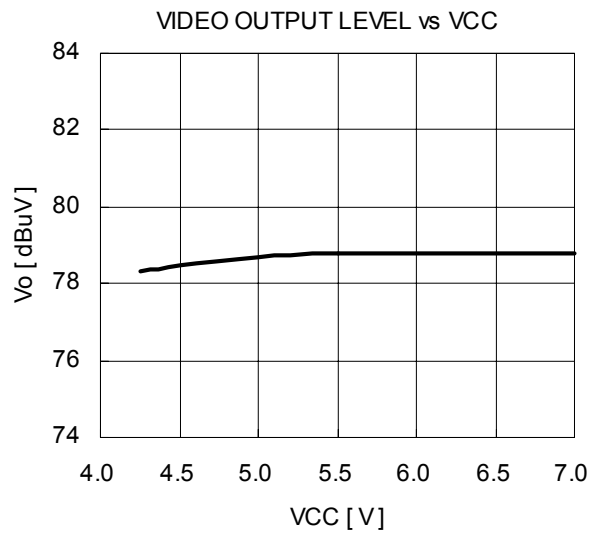
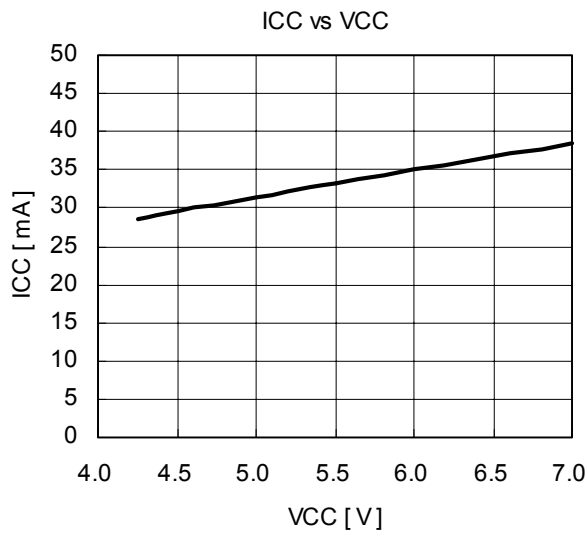
## ■ TERMINAL CHARACTERISTICS

No.	Symbol	Typ. DC Voltage (V)	Equivalent Circuit	Function
1	GND 3	-		GND for RF OSC AMP
2	GND 2	-		GND for RF OSC
3 4 5 6	OSC B1 OSC E1 OSC E2 OSC B2	2.55 1.75 1.75 2.55		RF Oscillator
7	VCC 2	-		RF OSC Regulator Power Supply
8	VCC 3	-		RF Mixer Power Supply
9	RF OUT	3.95		RF Mixer Output
10	GND 1	-		GND Terminal except for RF Oscillator
11	VIDEO IN	1.70		Video Signal Input

No.	Symbol	Typ. DC Voltage (V)	Equivalent Circuit	Function
12	VCC 1	-		Power Supply
13	P/S Adj.	3.55 TANK 1: H		Picture-to-sound Ratio Adjust
		2.80 TANK 1: L		Sound FM Modulation Circuit
14	TANK 2	H : 3.60 L : 2.85		
15	TANK 1	H : 3.60		
		L : 2.85		
16	AUDIO IN	-		Audio Signal Input

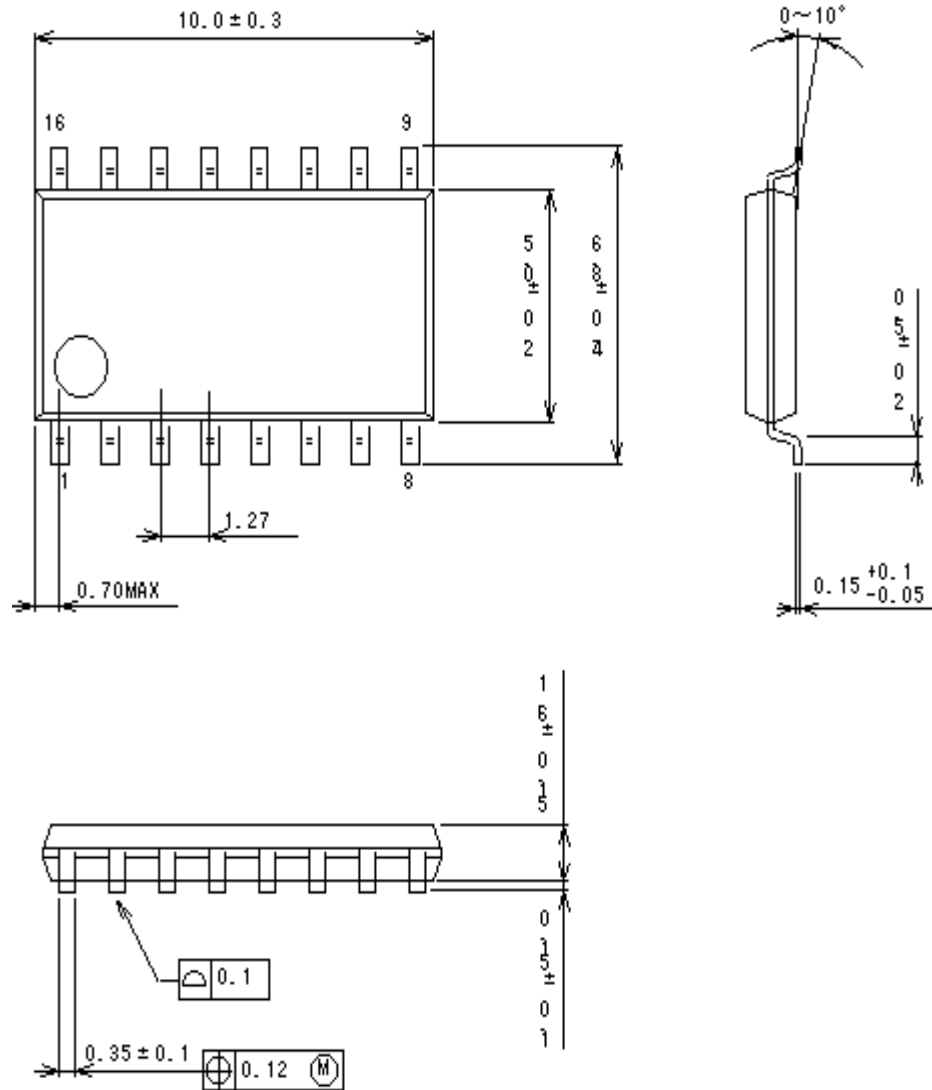
## ■ TYPICAL CHARACTERISTICS

$T_A=25^\circ\text{C}$



## ■ OUTLINE DRAWING

DMP16



**[CAUTION]**

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