



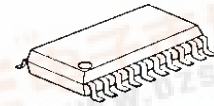
# VIF/SIF Demodulator

## DESCRIPTION

The NJM2542 is a VIF/SIF demodulator especially designed for TV and VCR based on the NTSC system.

FM-PLL(Phase Locked Loop) detector reduces the number of pins and external parts, for efficient use of set space.

## PACKAGE OUTLINE

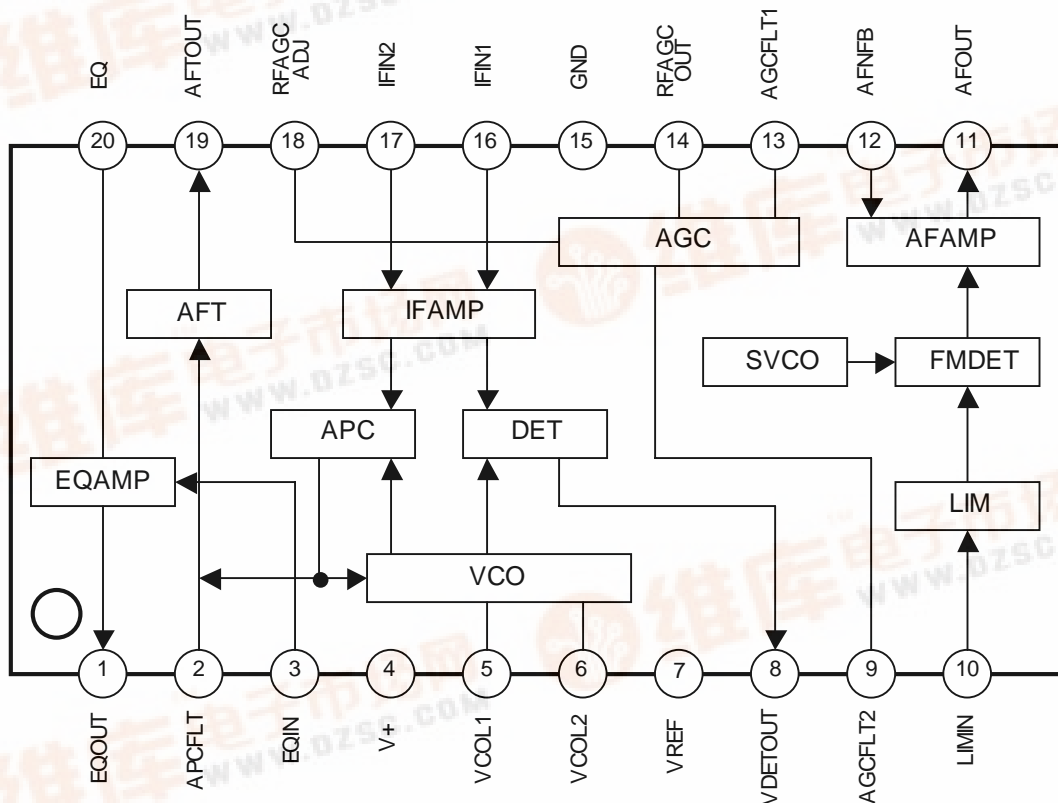


NJM2542V

## FEATURES

- Operating Voltage 5V
- Alignment-free Automatic Frequency Tuning
- Alignment-free FM-PLL Demodulator
- Intercarrier type
- Bipolar Technology
- Package Outline: SSOP20

## BLOCK DIAGRAM



# NJM2542

## ■ ABSOLUTE MAXIMUM RATINGS

(T<sub>A</sub>=25°C)

Parameter	Symbol	Ratings	Unit
Supply Voltage	V <sub>cc</sub>	6	V
Power Dissipation	P <sub>D</sub>	*600	mW
Operating Temperature Range	T <sub>opr</sub>	-20 to +80	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +150	°C

\* Test IC soldered on PC board

## ■ RECOMMENDED OPERATING VOLTAGE RANGE

(T<sub>A</sub>=25°C)

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Operating Voltage		V <sub>cc</sub>	4.75	5.0	5.25	V

## ■ ELECTRICAL CHARACTERISTICS

Standard Test Conditions:

(T<sub>A</sub>=25°C, V<sub>cc</sub>=5V, IF=45.75MHz/90dBuV, IF IN has 1:1 Transformer instead of SAW filter.)

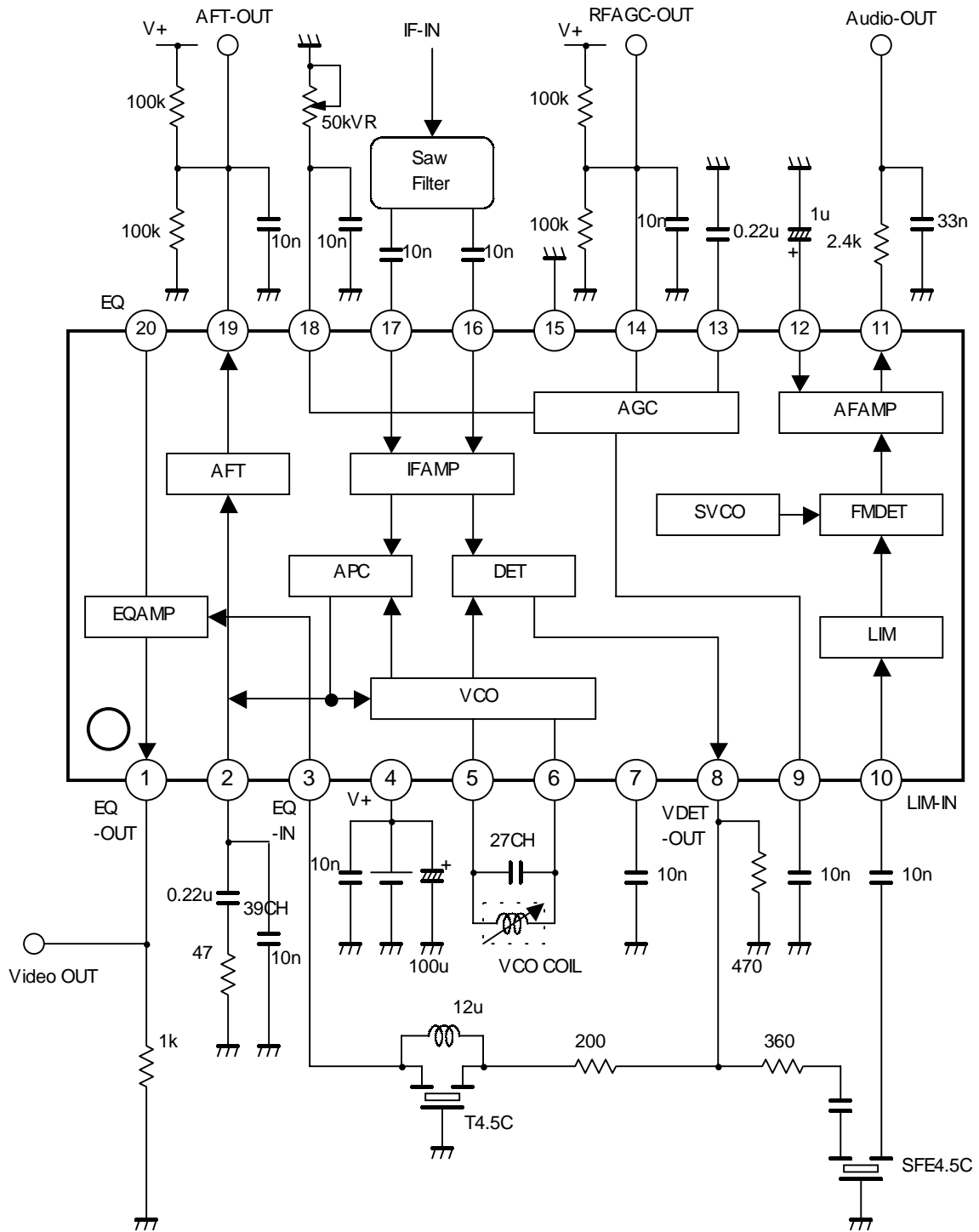
Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Supply Current	AFT-Defeat IFGR-MAX(AGCFLT=GND)	I <sub>cc</sub>	-	51	-	mA
VIF Section (45.75MHz/90dBuV)						
Video Output Level (DC)	No IF Signal FGR-MAX(AGCFLT=GND)	V <sub>DC</sub>	-	3.6	-	V
Video Output Level	Video : 100% White, 87.5% Mod	V <sub>o</sub>	1.5	1.9	2.3	V <sub>p-p</sub>
Video Bandwidth	-3dB Point	f <sub>vc</sub>	-	7	-	MHz
Video S/N	VIDEO:100% White, 87.5% Mod	Video S/N	50	56	-	dB
Intermodulation	P/C/S=1/-10/-10dB	IM	34	40	50	dB
Differential Gain		DG	-	±2	±7	%
Differential Phase		DP	-	±2	±7	deg
Input Signal Voltage Sensitivity	-3dB Point	V <sub>INMIN</sub>	-	44	52	dBuV
Maximum Input signal Voltage	VS Ratio (>24%, <34%)	V <sub>INMAX</sub>	101	105	-	dBuV
IF Gain Control Range	V <sub>INMAX</sub> -V <sub>INMIN</sub>	GR	49	61	-	dB
RF AGC Maximum Voltage	IFGR-MAX(AGCFLT=GND)	V <sub>RAH</sub>	4.3	4.9	5.0	V
RF AGC Minimum Voltage	IFGR-MIN(AGCFLT=V <sup>+</sup> )	V <sub>RAL</sub>	0	0.03	0.5	V
Picture Carrier Capture Range 1		CL-U	-	1.3	-	MHz
Picture Carrier Capture Range 2		CL-L	-	3.5	-	MHz
AFT Sensivity		S <sub>f</sub>	20	30	-	mV/kHz
AFT Maximum Voltage		V <sub>AFH</sub>	4.2	4.9	5.0	V
AFT minimum Voltage		V <sub>AFH</sub>	0	0.05	0.5	V
Sync Level		V <sub>OSYNC</sub>	-	1.35	-	V
VCO Frequency Range	AFTOUT=2.5V Center=45.65MHz	F <sub>VCOWB</sub>	-	±250	-	kHz
SIF Section(SIF=4.5MHz/90dBuV)						
Audio Output DC Voltage	L <sub>IMIN</sub> =4.5MHz CW	V <sub>DCA</sub>	1.8	2.2	2.6	V
Audio Output	L <sub>IMIN</sub> =4.5MHz FM±25kHz dev	V <sub>AF0</sub>	390	540	770	mVrms
Total Harmonic Distortion	L <sub>IMIN</sub> =4.5MHz FM±25kHz dev	THDAF	-	0.2	1.0	%
Input Limiting Voltage Sensivity		L <sub>IM</sub>	-	38	-	dBuV
AM Rejection Ratio	FM±25kHzDEV :AM30%	AMR	50	56	-	dB
Audio S/N	De-Emphasis: ON	AF S/N	-	56	-	dB

## ■ PINNING

Pin	Symbol	Description
1	EQOUT	Equalizer AMP Output
2	APCFLT	APC Filter (PLL loop Filter)
3	EQIN	Equalizer AMP Input
4	V+	Power Supply
5	VCOL1	VCO Coil 1
6	VCOL2	VCO Coil 2
7	VREF	Reference Voltage for Audio
8	VDETOUT	Video Demodulator Output
9	AGCFLT2	AGC Filter 2
10	LIMIN	Limiter (sound intercarrier) Input
11	AFOUT	Audio Output
12	AFNFB	Audio High Pass Filter
13	AGCFLT1	AGC Filter 1
14	RFAGCOUT	RF AGC Output
15	GND	GND
16	IFIN1	IF Differential Input 1
17	IFIN2	IF Differential Input 2
18	RFAGCADJ	RF AGC Adjustment
19	AFTOUT	AFT Output
20	EQ	Equalizer

# NJM2542

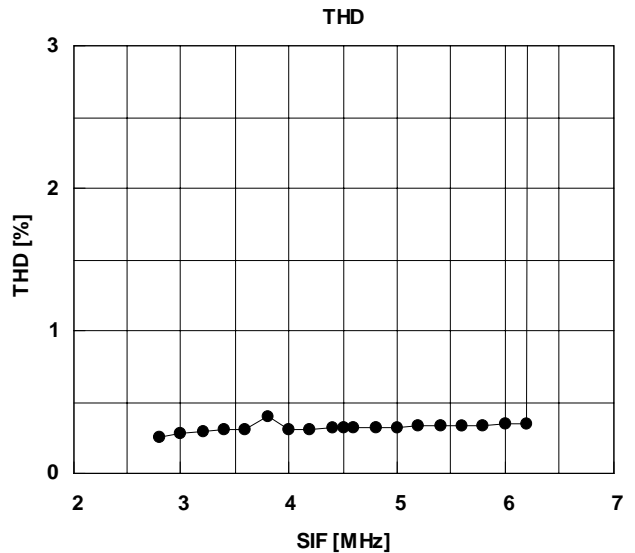
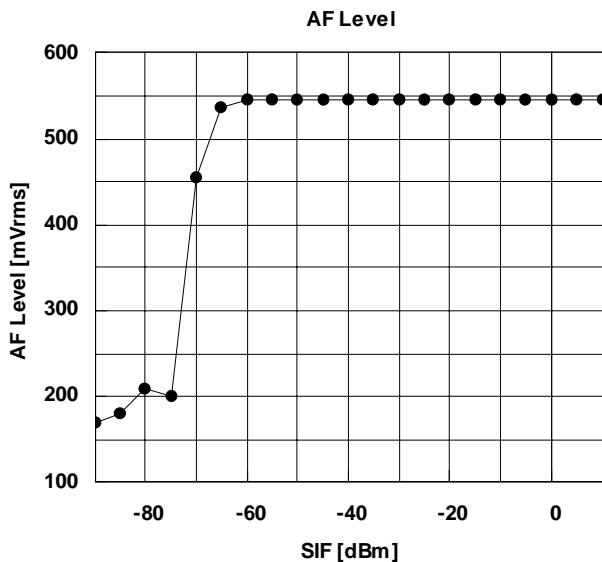
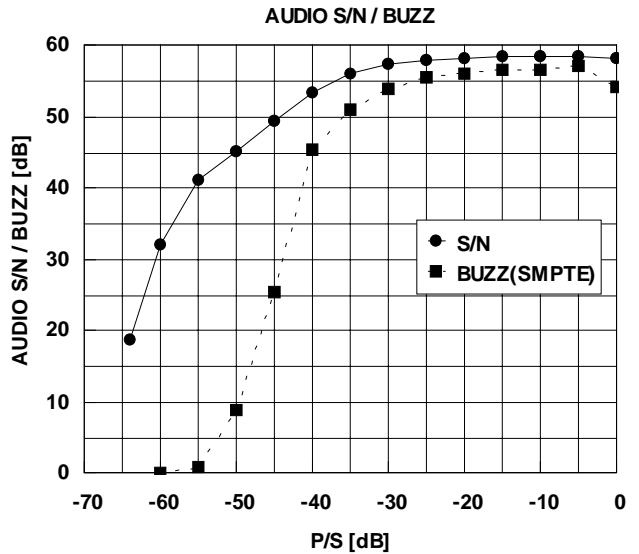
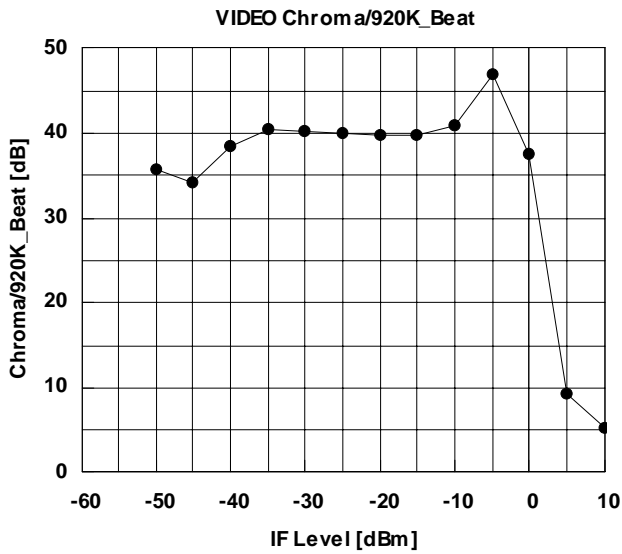
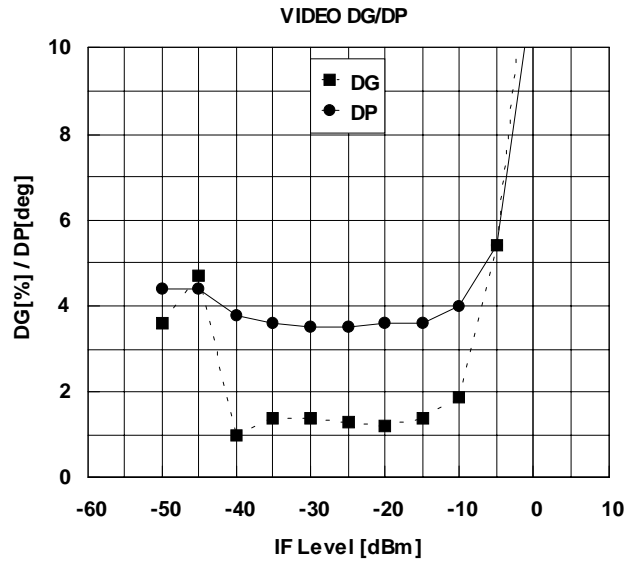
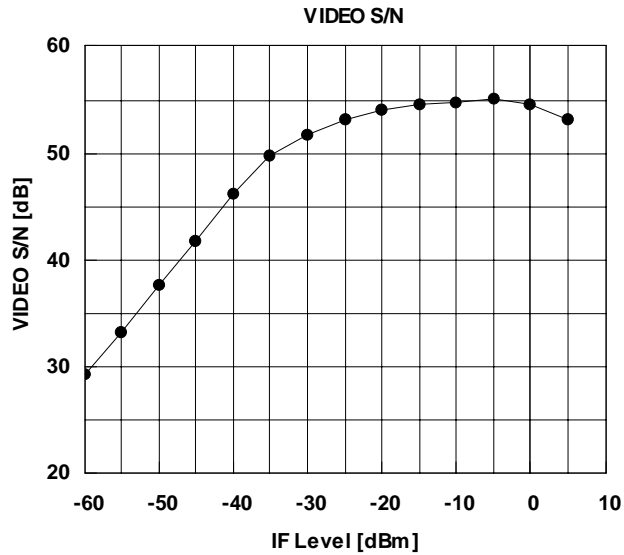
## TEST CIRCUIT



## ■ TYPICAL CHARACTERISTICS

Standard Test Conditions:

( $T_A=25^\circ\text{C}$ ,  $V_{CC}=5\text{V}$ ,  $I_F=45.75\text{MHz}/90\text{dBuV}$ , IF IN has 1:1 Transformer instead of SAW filter.)



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# MEMO

**[CAUTION]**

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