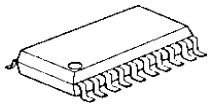
VIF/SIF Demodulator

■ 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

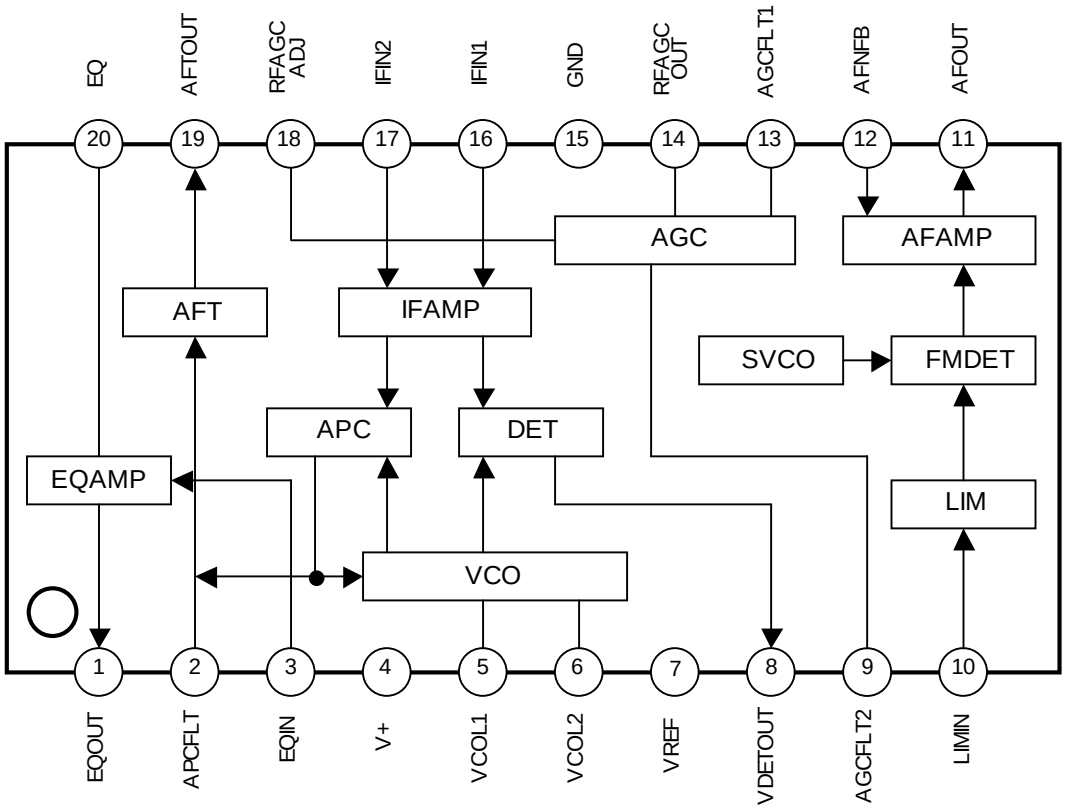


NJM2542V

■ FEATURES

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

■ BLOCK DIAGRAM



■ **ABSOLUTE MAXIMUM RATINGS** (T_A=25°C)

Parameter	Symbol	Ratings	Unit
Supply Voltage	Vcc	6	V
Power Dissipation	P_D	*600	mW
Operating Temperature Range	T_{opr}	-20 to +80	°C
Storage Temperature Range	T_{stg}	-40 to +150	°C

* Test IC soldered on PC board

■ **RECOMMENDED OPERATING VOLTAGE RANGE** (T_A=25°C)

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Operating Voltage		Vcc	4.75	5.0	5.25	V

■ **ELECTRICAL CHARACTERISTICS**

Standard Test Conditions:

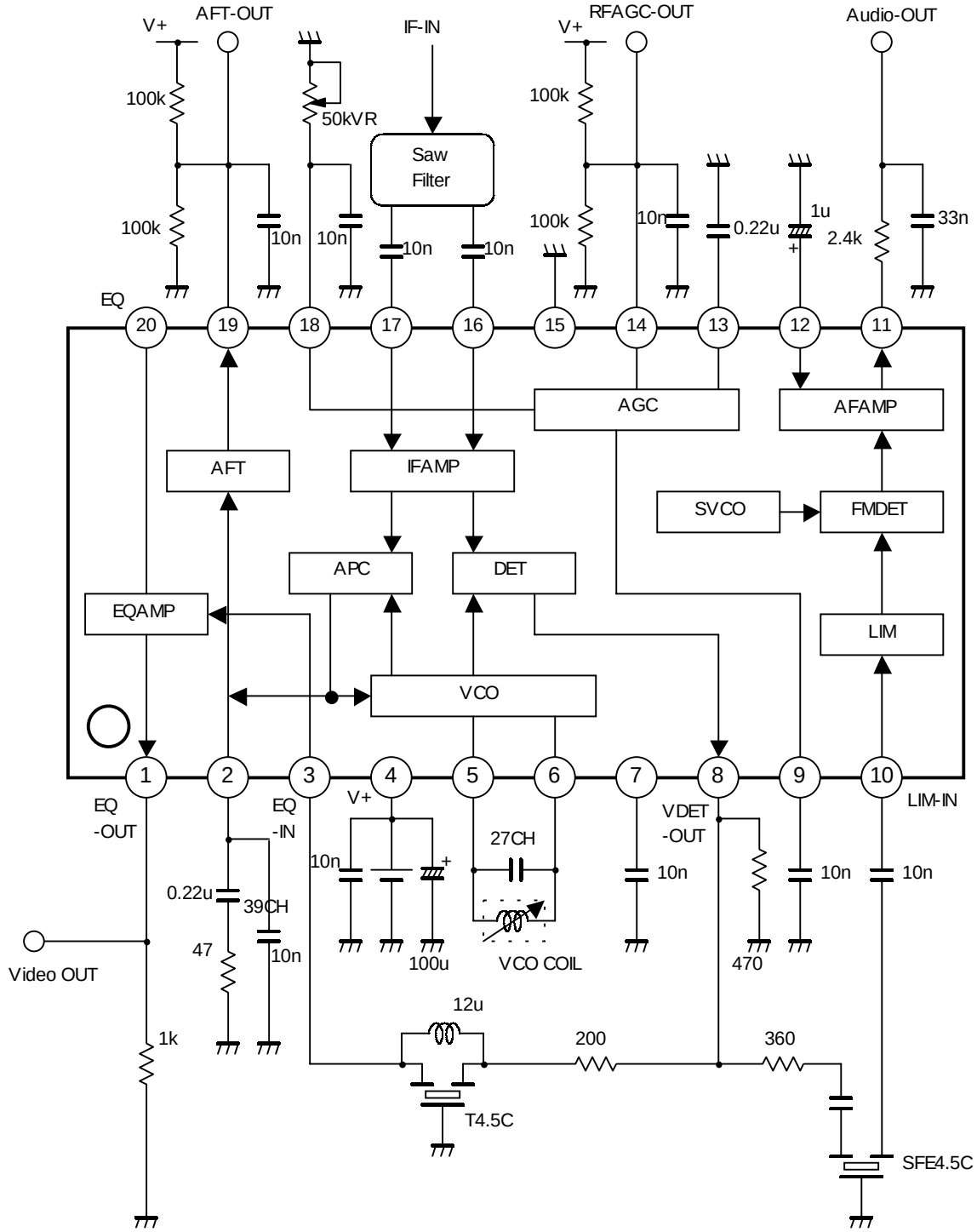
(T_A =25°C,Vcc=5V,IF=45.75MHz/90dBuV,IF IN has 1:1Transformer instead of SAW filter.)

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Supply Current	AFT-Defeat IFGR-MAX(AGCFLT=GND)	Icc	-	51	-	mA
VIF Section (45.75MHz/90dBuV)						
Video Output Level (DC)	No IF Signal FGR-MAX(AGCFLT=GND)	VDC	-	3.6	-	V
Video Output Level	Video : 100% White,87.5% Mod	Vo	1.5	1.9	2.3	Vp-p
Video Bandwidth	-3dB Point	fvc	-	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	VINMIN	-	44	52	dBuV
Maximum Input signal Voltage	VS Ratio (>24%,<34%)	VINMAX	101	105	-	dBuV
IF Gain Control Range	VINMAX-VINMIN	GR	49	61	-	dB
RF AGC Maximum Voltage	IFGR-MAX(AGCFLT=GND)	VRAH	4.3	4.9	5.0	V
RF AGC Minimum Voltage	IFGR-MIN(AGCFLT= V^+)	VRAL	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		Sf	20	30	-	mV/kHz
AFT Maximum Voltage		VAFH	4.2	4.9	5.0	V
AFT minimum Voltage		VAFL	0	0.05	0.5	V
Sync Level		VOSYNC	-	1.35	-	V
VCO Frequency Range	AFTOUT=2.5V Center=45.65MHz	FVCOWB	-	±250	-	kHz
SIF Section(SIF=4.5MHz/90dBuV)						
Audio Output DC Voltage	LIMIN=4.5MHz CW	VDCA	1.8	2.2	2.6	V
Audio Output	LIMIN=4.5MHz FM±25kHz dev	VAFO	390	540	770	mVrms
Total Harmonic Distortion	LIMIN=4.5MHz FM±25kHz dev	THDAF	-	0.2	1.0	%
Input Limiting Voltage Sensivity		LIM	-	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

■ **TEST CIRCUIT**

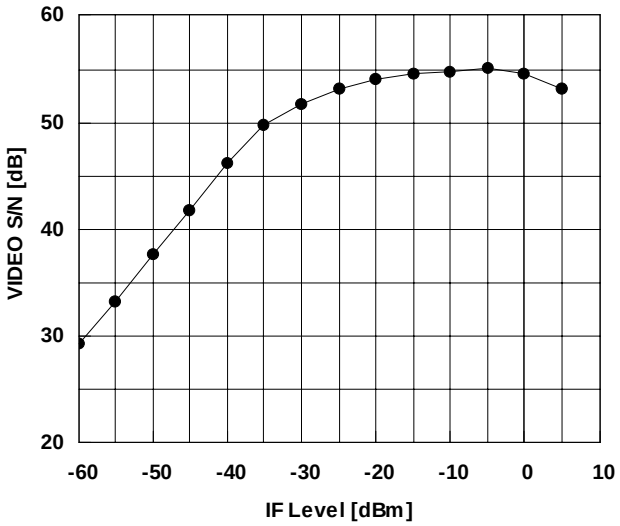


■ TYPICAL CHARACTERISTICS

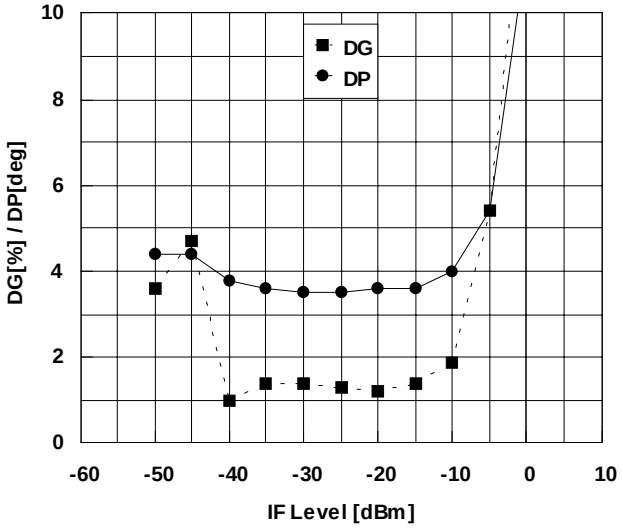
Standard Test Conditions:

(T_A=25°C,Vcc=5V,IF=45.75MHz/90dBuV, IF IN has 1:1Transformer instead of SAW filter.)

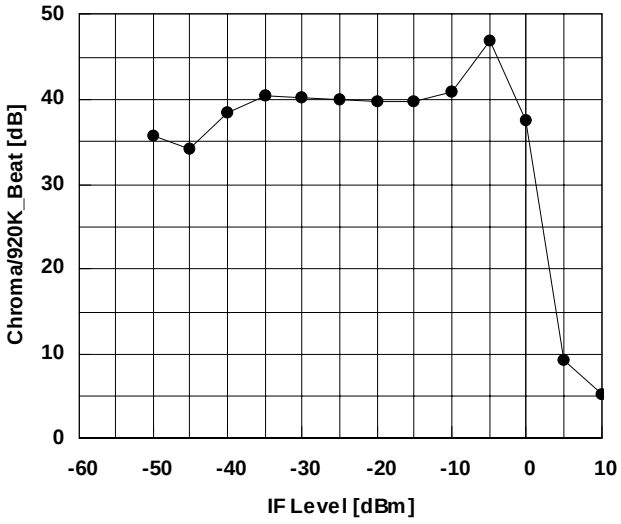
VIDEO S/N



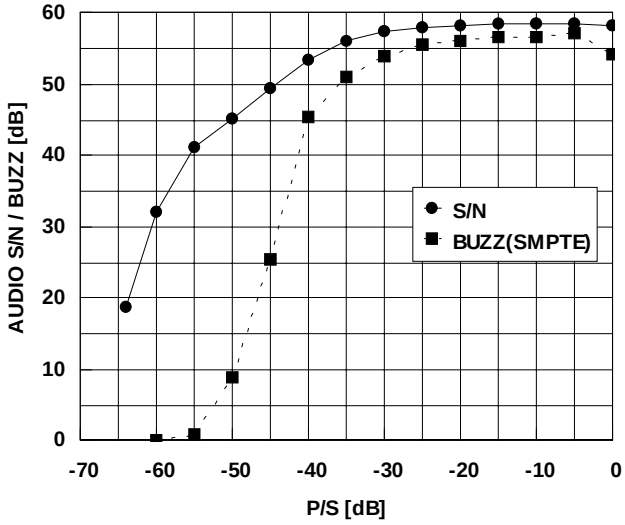
VIDEO DG/DP



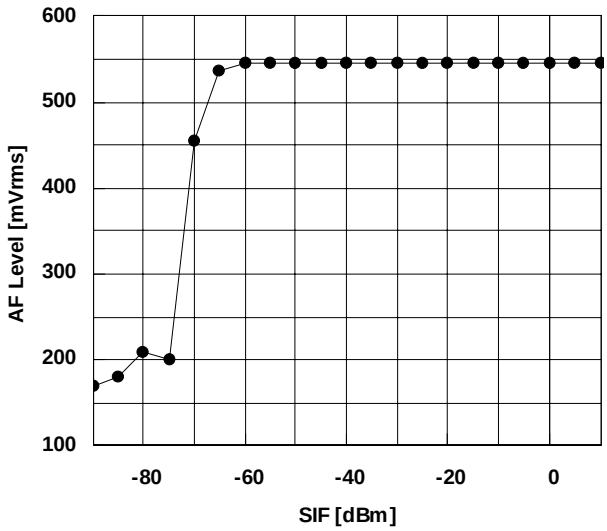
VIDEO Chroma/920K_Beat



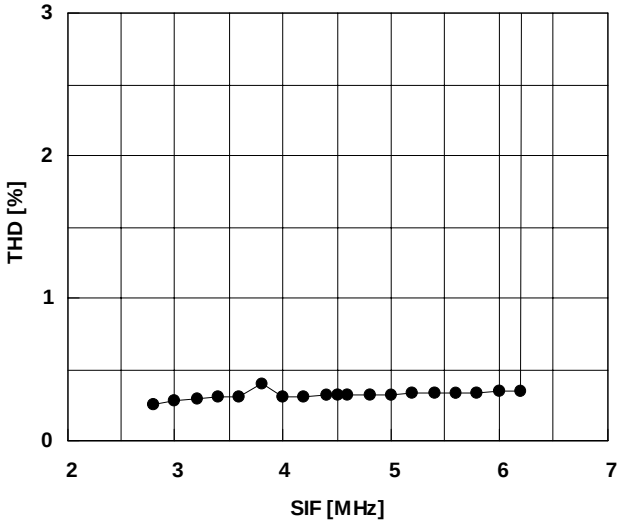
AUDIO S/N / BUZZ



AF Level



THD



MEMO

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