AN2611K

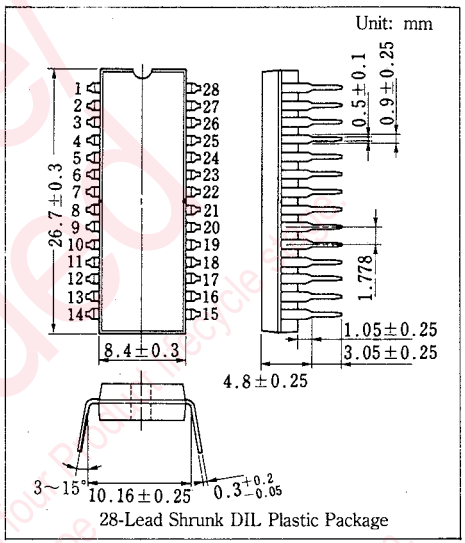
VHD Video Disc Player FM Demodulator Circuit

■ Outline:

The AN2611K is an integrated circuit designed for VHD-system video disk player. It has functions for video signal FM demodulation and luminance signal processing.

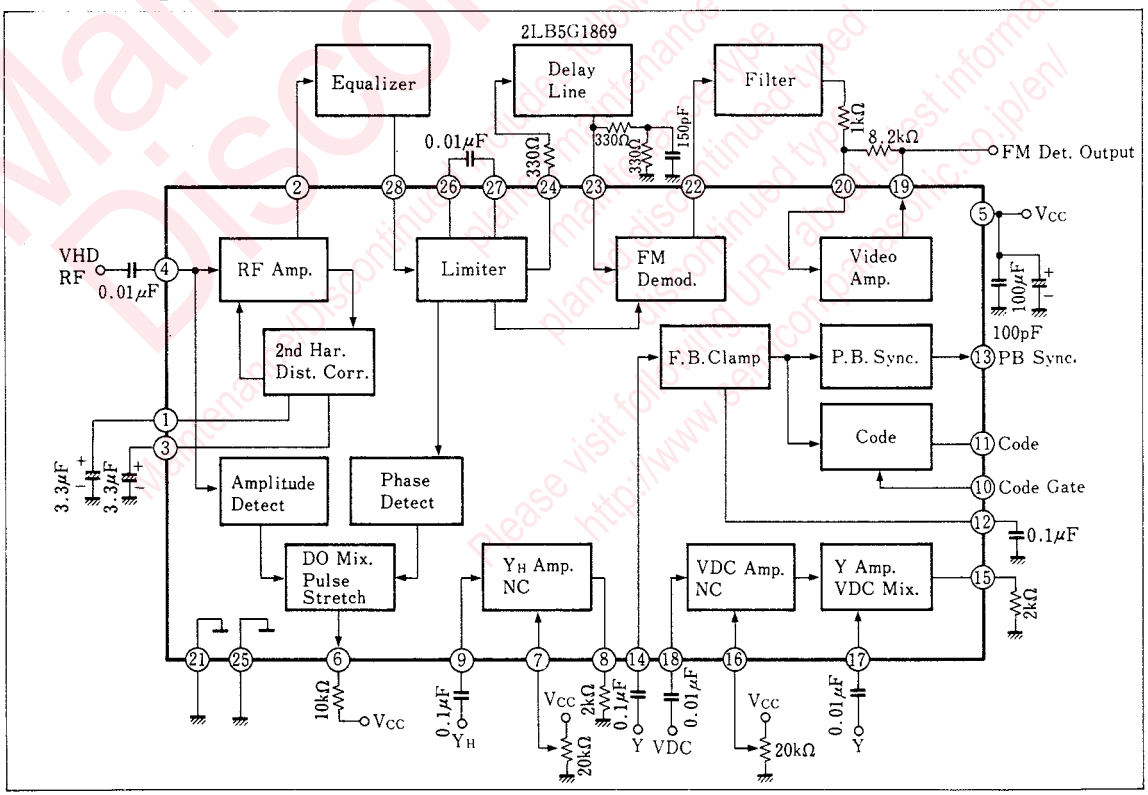
■ Features

- 5.0V supply voltage operation
- FM demodulation with harmonic correction
- Noise cancel for luminance signal
- Separation of code signal and sync signal



28-Lead Shrunk DIL Plastic Package

■ Block Diagram



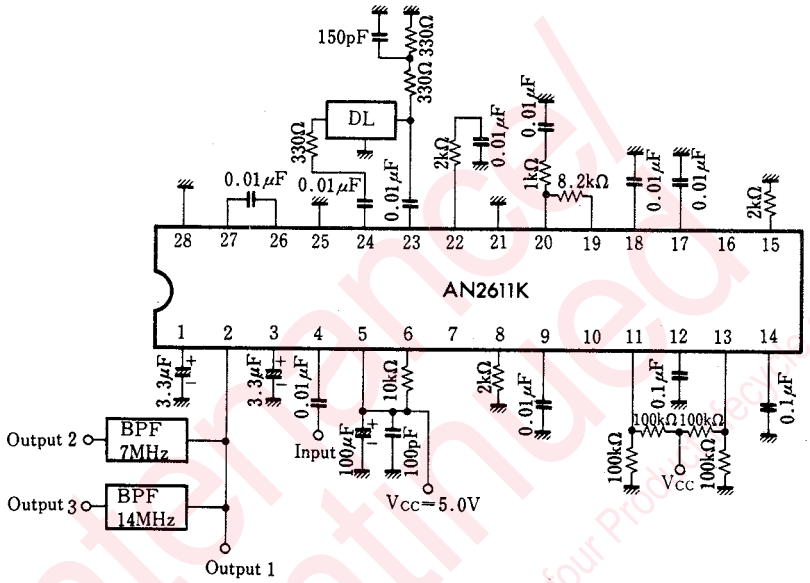
■ Absolute Maximum Rating (Ta=25℃)

Item	Symbol	Rating	Unit
Supply voltage	V_{CC}	6.0	V
Supply current	I_{CC}	72	mA
Power dissipation	P_D	440	mW
Operating ambient temperature	T_{opr}	−20~+70	℃
Storage temperature	T_{stg}	−55~+150	℃

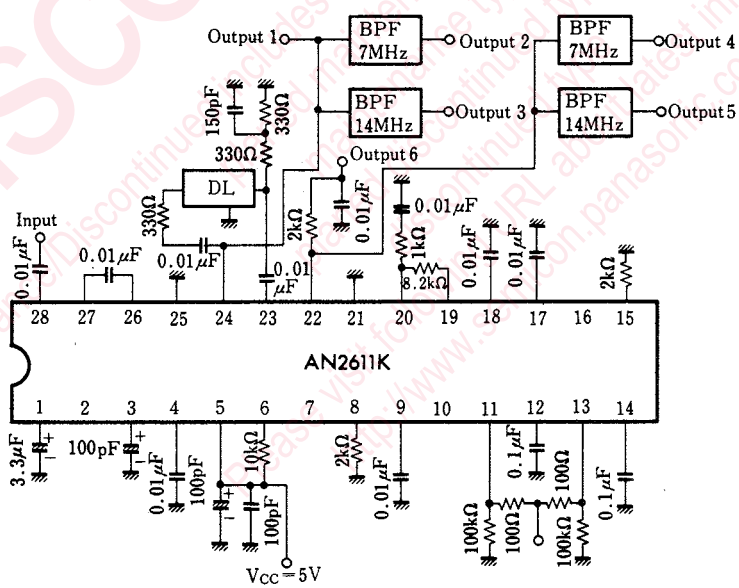
■ Electrical Characteristics (Ta=25℃)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Total circuit current	I_{tot}		V_{CC}=5.0V	31	43	59	mA
Terminal voltage	V_{4-25}		V_{CC}=5.0V	2.5	3.2	3.8	V
Terminal voltage	V_{9-21}		V_{CC}=5.0V	2.4	3.1	3.6	V
Terminal voltage	V_{17-21}		V_{CC}=5.0V	2.4	3.1	3.6	V
Terminal voltage	V_{18-21}		V_{CC}=5.0V	2.4	3.1	3.6	V
Terminal voltage	V_{23-21}		V_{CC}=5.0V	2.6	3.3	3.8	V
Terminal voltage	V_{28-25}		V_{CC}=5.0V	2.5	3.2	3.8	V
Output impedance	Z_2		V_{CC}=5.0V		39	106	Ω
Output impedance	Z_{24}		V_{CC}=5.0V		9	29	Ω
Secondary distortion correction circuit output amplitude	A_D	1	V_{CC}=5.0V, Input: 7MHz, 100mVrms	400	450	510	mV_{P-P}
Secondary distortion correction amount	C_D	1	V_{CC}=5.0V, Input:3.58MHz, double wave rectification wave		−30.5	−27	dB
Limiter output amplitude	A_L	2	V_{CC}=5.0V, Input: 7MHz, 70mVrms	630	700	780	mV_{P-P}
Limiter harmonic distortion	C_L	2	V_{CC}=5.0V, Input: 7MHz, 70mVrms			−28.5	dB
Carrier leak	C_{CL}	2	V_{CC}=5.0V, Input: 7MHz, 70mVrms			−13.5	dB
Demodulation sensitivity	α	2	V_{CC}=5.0V, Input: 6MHz, 8MHz	0.085	0.1	0.12	V/MHz
Dropout detection(I)	D_H	3	V_{CC}=5.0V, Input: 4MHz, 40mVrms	4.5	4.9	5.2	V
Dropout detection(II)	D_{LA}	3	V_{CC}=5.0V, Input: 4MHz, 20mVrms	0.1	0.3	0.6	V
Dropout detection(III)	D_{LP}	3	V_{CC}=5.0V, Input: 3MHz, 40mVrms	0.1	0.3	0.6	V
Video amp gain	G_V	4	V_{CC}=5.0V, Input: 100kHz, 30mVrms	15	16.5	18	dB
Luminance amp. gain	G_Y	4	V_{CC}=5.0V, Input: 100kHz, 220mVrms	3	4.9	7	dB
VDC amp. gain	G_{VDC}	4	V_{CC}=5.0V, Input: 100kHz, 220mVrms	3	4.7	7	dB
VDC slice	A_{SL1}	4	V_{CC}=5.0V, Input:100 kHz, rectangular wave	50	84	120	mV
Nose canceler gain	G_{NC}	4	V_{CC}=5.0V, Input: 100kHz, 220mVrms	3	5.5	8	dB
Noise canceler slice	A_{SL2}	4	V_{CC}=5.0V, Input:100 kHz, rectangular wave	170	225	290	mV
Low-level sync. separation	V_{Lsyn}	5	Vcc=5.0V, Input: Video signal	0.3	0.6	0.8	V
High-level sync. separation	V_{Hsyn}	5	Vcc=5.0V, Input: Video signal	4	4.3	4.6	V
Low-level code separation	V_{Lcod}	5	Vcc=5.0V, Input: Video signal	0.3	0.6	0.8	V
High-level code separation	V_{Hcod}	5	Vcc=5.0V, Input: Video signal	4	4.3	4.6	V
Code separation gate	V_{LG}	5	Vcc=5.0V, Input: Video signal	0.3	0.6	0.8	V

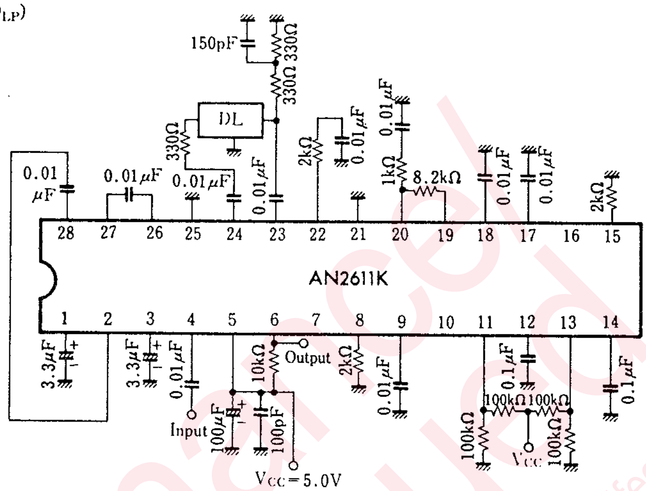
Test Circuit 1 (A_D, C_D)



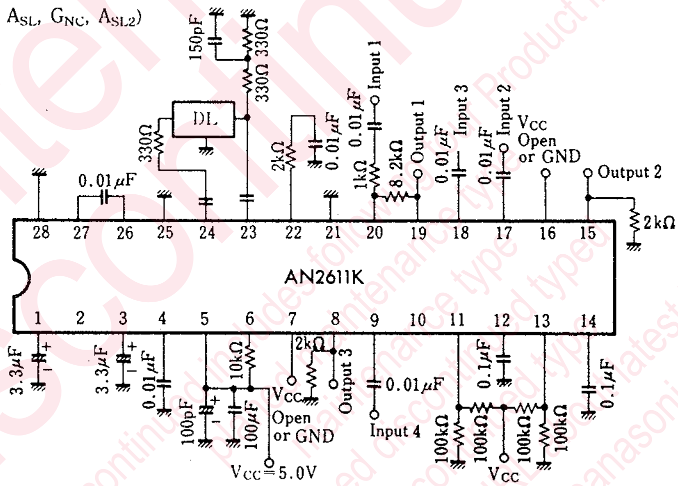
Test Circuit 2 (A_L, C_L, C_{CL}, α)



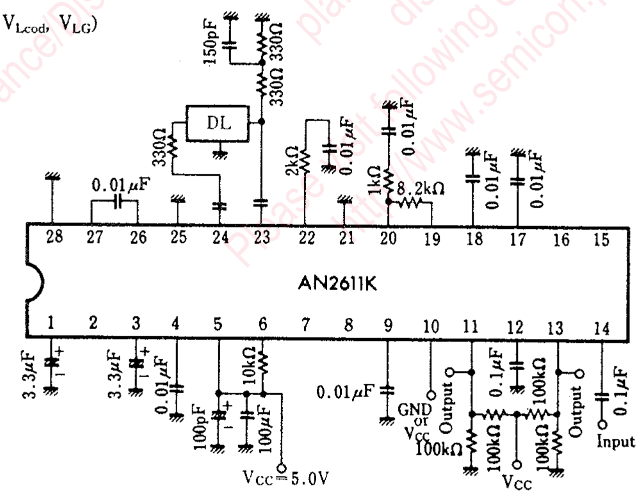
Test Circuit 3 (D_H, D_{LA}, D_{LP})



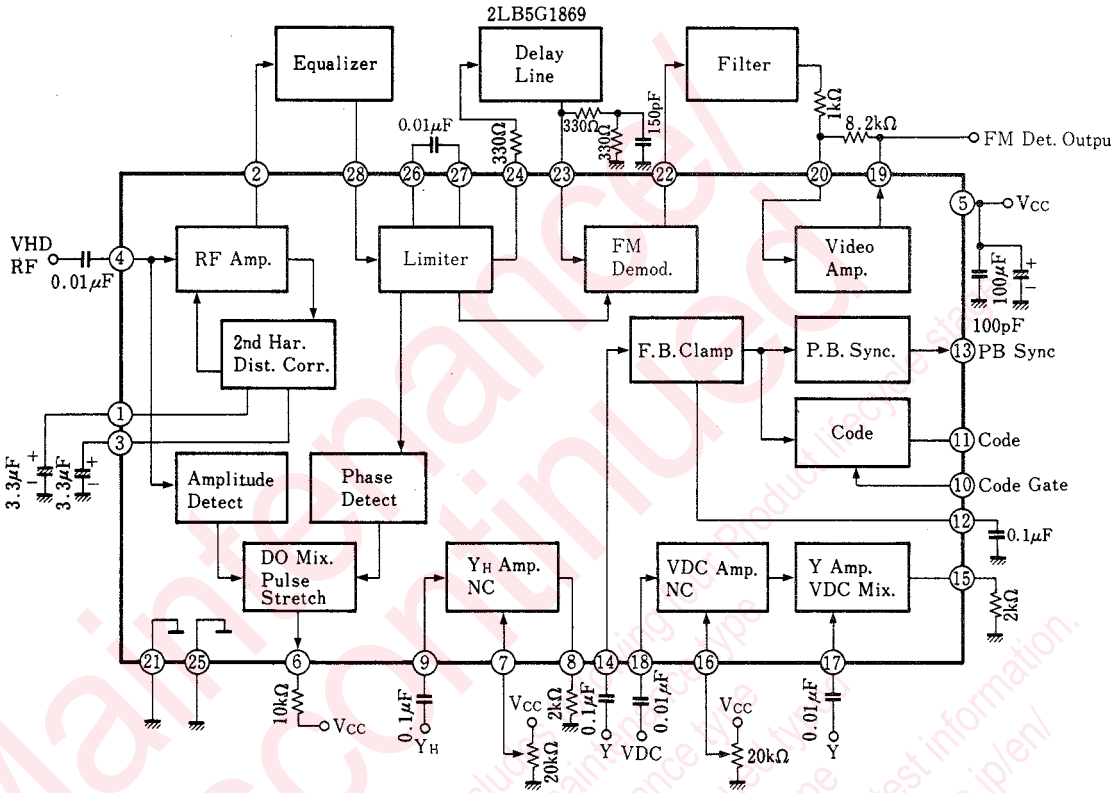
Test Circuit 4 (G_V, G_Y, G_{VDC}, A_{SL}, G_{NC}, A_{SL2})



Test Circuit 5 (V_{Lsyn}, V_{Hsyn}, V_{Lcod}, V_{LG})



■ Application Circuit



■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	2nd Harmonic Correction	15	Y Amp. Ouput
2	2nd Harmonic Correction Output	16	VDC Noise Cancel Control
3	2nd Harmonic Correction	17	Y Amp. Input
4	2nd Harmonic Correction Input	18	VDC Amp. Input
5	V_{CC}	19	Video Amp. Output
6	Drop Out Output	20	Video Amp. Input
7	Y_H Noise Cancel Control	21	GND
8	Y_H Noise Cancel Output	22	FM Demodulator Output
9	Y_H Noise Cancel Input	23	FM Demodulator Input
10	Code Separation Gate Input	24	Limiter Output
11	Code Separation Output	25	GND
12	Clamp	26	Limiter
13	Playback Sync. Output	27	Limiter
14	Code and Sync. Separation Input	28	Limiter Input

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