

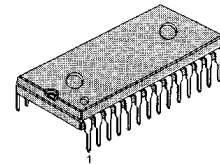
ONE-CHIP TV SOUND MPX (KOREA TWO-CARRIER SYSTEM)

The KA2268 is a monolithic integrated circuit designed for demodulating Korea two-carrier TV-MPX broadcasts. The use of PLL makes reed filters unnecessary.

FUNCTIONS

- 1st Sound IF
- 2nd Sound IF
- Matrix for Stereo
- Pilot Amp and Detector
- Pilot Decoder
- Mode Change Switch
- Indicators (Stereo, Bilingual)

28-DIP-600A



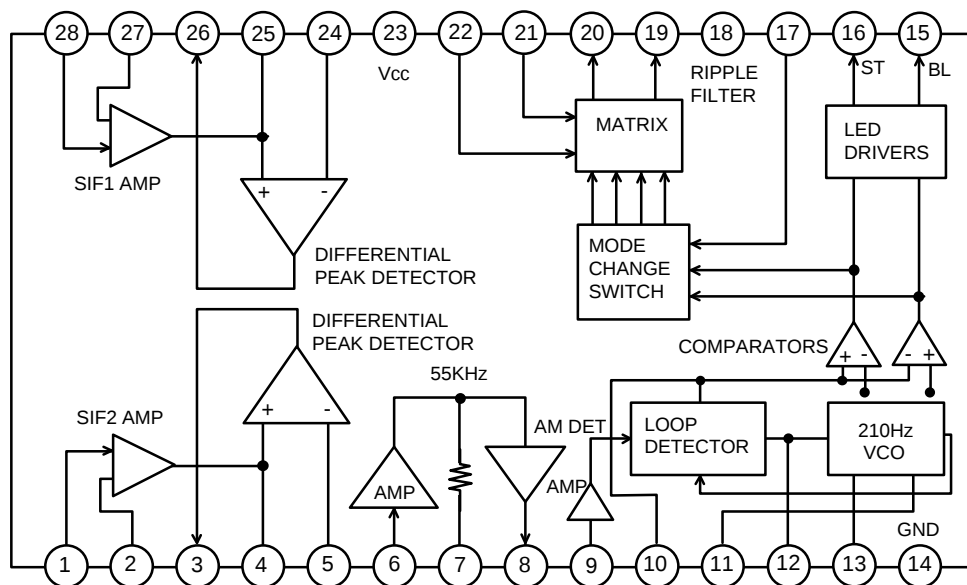
FEATURES

- One input mode change switch
- Auto pilot decoding by phase detector
- Minimum number of external parts required

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2268	28-DIP-600A	-20°C ~+70°C

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Characteristics	Symbol	Condition	Value	Unit
Maximum Supply Voltage	V _{CC} max	V _I =0	15	V
Pin 15 Output Current	I ₁₅		30	mA
Pin 16 Output Current	I ₁₆		30	mA
Maximum Mode SW Voltage	V ₁₇		-0.3~V _{CC}	V
Power Dissipation	P _D		1.5	W
Operating Temperature	T _{OPR}		-20~+70	°C
Storage Temperature	T _{STG}		-40~+125	°C

RECOMMENDED OPERATING CONDITIONS

Characteristics	Symbol	Min	Typ	Max	Unit
Operating Voltage	V _{OPR}	9	12	15	V

ELECTRICAL CHARACTERISTICS

SIF SECTION (V_{CC}=12V, f_m=400Hz, V_I=100dBμ, T_A=25°C Δf=± 30KHz, unless otherwise specified)

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Total Circuit Current	I _{CC}	V _I =0		40	60	mA
Input Limiting Voltage 1	V _{LIM1}	f _o =4.5MHz, V _o =-3dB			52	dBμ
Input Limiting Voltage 2	V _{LIM2}	f _o =4.72MHz, V _o =-3dB			52	dBμ
Detector Output 1	V _{o1}	f _o =4.5MHz	0.7	0.9	1.3	V _{rms}
Detector Output 2	V _{o2}	f _o =4.72MHz	0.7	0.9	1.3	V _{rms}
T.H.D. 1	THD1	f _o =4.5MHz	-	0.5	2	%
T.H.D. 2	THD2	f _o =4.72MHz	-	0.5	2	%
AM Rejection Ratio 1	AMR1	f _o =4.5MHz, AM=30%	35	45	-	dB
AM Rejection Ratio 2	AMR2	f _o =4.72MHz, AM=30%	35	45	-	dB
Input Impedance of Pin 28	Z _{IN28}	f=4.5MHz		40		Kohm
Input Impedance of Pin 1	Z _{IN1}	f=4.72MHz		40		Kohm
Output Resistance of DET Output	Z26			1.2		Kohm
Output Resistance of DET Output	Z3			1.2		Kohm
Cross Talk (SIF1 →SIF2)	CT1	SIF1 f _o =4.5MHz, f _m =400Hz-5KHz	50	55	-	dB
		SIF2 f _o =4.72MHz Δf=0				

ELECTRICAL CHARACTERISTICS (Continued)

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Cross Talk (SIF2 → SIF1)	CT2	SIF1 $f_o=4.5\text{MHz}$ SIF2 $f_o=4.72\text{MHz}$ $f_m=400\text{Hz}-5\text{KHz}$	50	55	-	dB
Frequency Response of Detector	F1	$f_o=4.5\text{MHz}$ $f_m=40\text{Hz}-55\text{KHz}$	-3	0	1.5	dB
Frequency Response of Detector	F2	$f_o=4.724\text{MHz}$ $f_m=40\text{Hz}-55\text{KHz}$	-3	0	1.5	dB
Detector Output Balance	C.B.	SIF1 =4.5MHz SIF2=4.72MHz	-2	0	2	dB

PILOT AMP AND DETECTOR(V_{CC}=12V, f_c=55.125KHz, f_m=150 or 276Hz, AM=50%, unless otherwise specified)

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Input Resistance of Pin 6	Z _{IN} 6		-	30	-	Kohm
Maximum Pilot Input	V _{IN} , P _{MAX}	V _O =3dB, 0dB:V _I =10mV		100	-	mV
Detector Gain	A _{VD}		30	36		dB
Detector Output	V _{OD}	V _{IN} =10mV		270		mV
Output Resistance of Pin 8	Z _{OUT} 8		-	700	-	ohm

PILOT DECODER (V_{CC}=12, f=150 or 276Hz, unless otherwise specified)

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Input Sensitivity	V _{SENS}	f=150 or 276Hz		10	20	mV _{rms}
Input Resistance of Pin 9	Z _{IN} 9		-	47	-	Kohm
Capture Range	f _C	V _I =50mV		± 5		Hz
Lock Range	f _L	V _I =50mV		± 10		Hz
Stereo Range	f _{ST}	V _I =100mV		150 ± 10		Hz
Bilingual Range	f _{BL}	V _I =100mV		276 ± 10		Hz

INDICATOR ($V_{CC}=12V$)

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Saturation Voltage	V_{SAT}	$I_{15}, I_{16}=30mA$		0.7		V
LED On Time	t_{ON}	$f=150, 276Hz$ $V_i=0mV \rightarrow 50mV$	-	100	200	mS
LED Off Time	t_{OFF}	$f=150, 276Hz$ $V_i=50mV \rightarrow 0mV$	-	100	200	mS

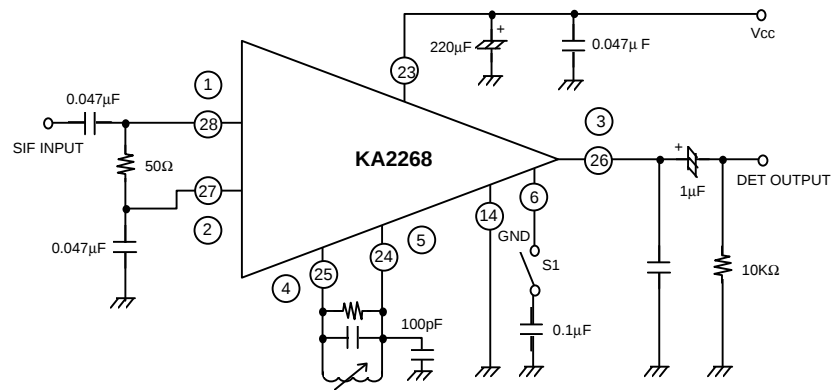
MODE CHANGE SWITCH CIRCUIT

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Main/Main Resistance	$R_{(m/m)}$	SW=2	3.1	4.7	7.0	Kohm
Forced Mono Voltage	V_{MONO}	SW=1		0	1.0	V
Main/Sub Supply Current	$I_{M/S}$	SW=3	-0.2	0	0.2	mA
Sub/Sub Supply Voltage	$V_{S/S}$	SW=4	11	12		V

MATRIX CIRCUIT

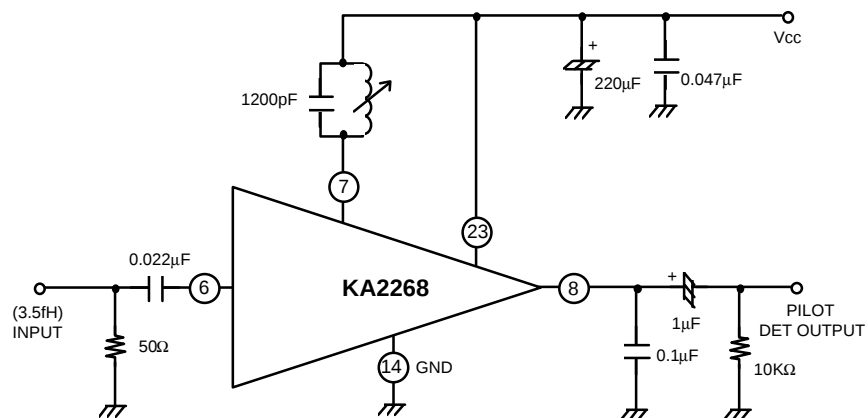
Characteristics	Symbol	Condition	Min	Typ	Max	Unit
T.H.D In Main Mode	THD_M	$V_i=50mV$	-	0.3	1.0	%
T.H.D In Sub Mode	THD_S	$V_i=50mV$	-	0.3	1.0	%
T.H.D In Stereo Mode	THD_{ST}	$V_i=50mV$	-	0.3	1.0	%
Cross Talk (M/M $\rightarrow$ S/S)	$CT_{MM \rightarrow SS}$	$V_i=50mV$	50	55	-	dB
Cross Talk (S/S $\rightarrow$ M/M)	$CT_{SS \rightarrow MM}$	$V_i=50mV$	50	55	-	dB
Cross Talk (M $\rightarrow$ S)	$CT_{M \rightarrow S}$	$V_i=50mV$	50	55	-	dB
Cross Talk (S $\rightarrow$ M)	$CT_{S \rightarrow M}$	$V_i=50mV$	50	55	-	dB
Separation(L $\rightarrow$ R)	$SEP_{L \rightarrow R}$	$V_i=50mV$	30	35	-	dB
Separation(R $\rightarrow$ L)	$SEP_{R \rightarrow L}$	$V_i=50mV$	30	35	-	dB
Voltage Gain of Matrix	A_v	$V_i=50mV$	8	10	12	dB

TEST CIRCUIT 1 SIF SECTION

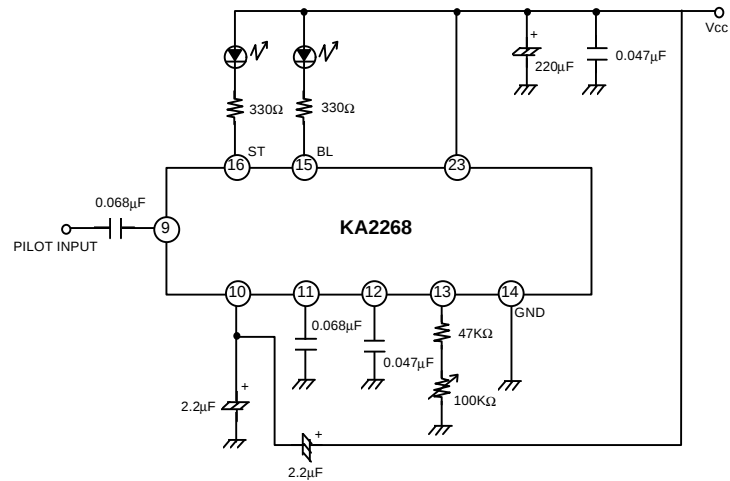


S1 : PILOT INPUT NOISE BYPASS

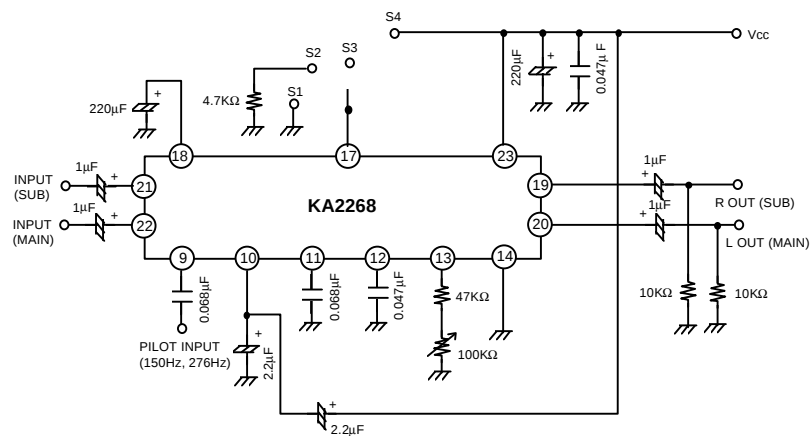
TEST CIRCUIT 2 PILOT AMP/DET SECTION



TEST CIRCUIT 3 PILOT PLL/INDICATOR SECTION



TEST CIRCUIT 4 MATRIX MODE SECTION



TEST CIRCUIT 5

