

KA2268

TV SOUND MPX FOR KOREA

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

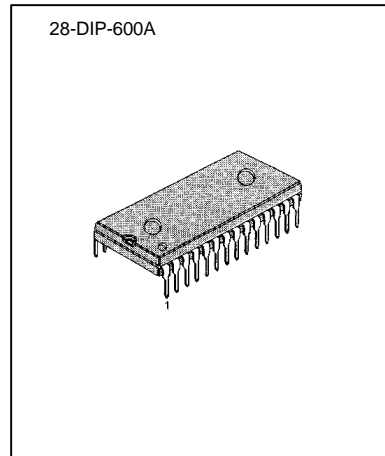
The KA2268N is a monolithic integrated circuit designed for demodulating Korea two-carrier TV-MPX broadcasts. The use of PLL makes reed filters unnecessary.

FUNCTIONS

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

FEATURES

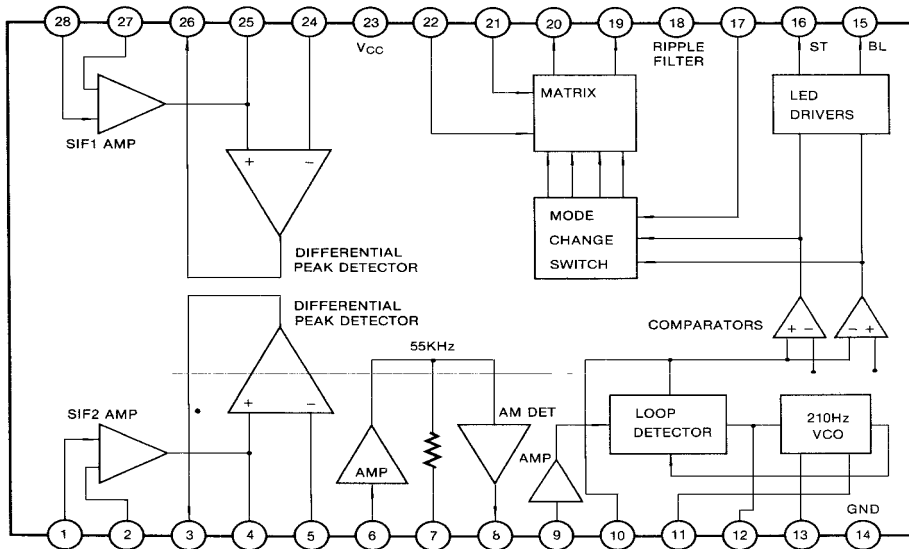
- One input mode change switch
- Auto pilot decoding by phase detector
- Minimum number of external parts required



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				

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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 $=4.5\text{MHz}$ SIF2 $=4.72\text{MHz}$	-2	0	2	dB

PILOT AMP AND DETECTOR

($V_{CC}=12\text{V}$, $f_c=55.125\text{KHz}$, $f_m=150$ or 276Hz , $\text{AM}=50\%$, unless otherwise specified)

Characteristics	Symbol	Condition	Min	Typ	Max	Unit
Input Resistance of Pin 6	Z_{IN6}		-	30	-	Kohm
Maximum Pilot Input	$V_{IN, P_{MAX}}$	$V_o=3\text{dB}$, 0db : $V_i=10\text{mV}$		100	-	mV
Detector Gain	A_{VD}		30	36		dB
Detector Output	V_{OD}	$V_{IN}=10\text{mV}$		270		mV
Output Resistance of Pin 8	Z_{OUT8}		-	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_{IN9}		-	47	-	Kohm
Capture Range	f_C	$V_i=50\text{mV}$		± 5		Hz
Lock Range	f_L	$V_i=50\text{mV}$		± 10		Hz
Stereo Range	f_{ST}	$V_i=100\text{mV}$		150 ± 10		Hz
Bilingual Range	f_{BL}	$V_i=100\text{mV}$		276 ± 10		Hz

KA2268**TV SOUND MPX FOR KOREA****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	$R_{(MM)}$	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

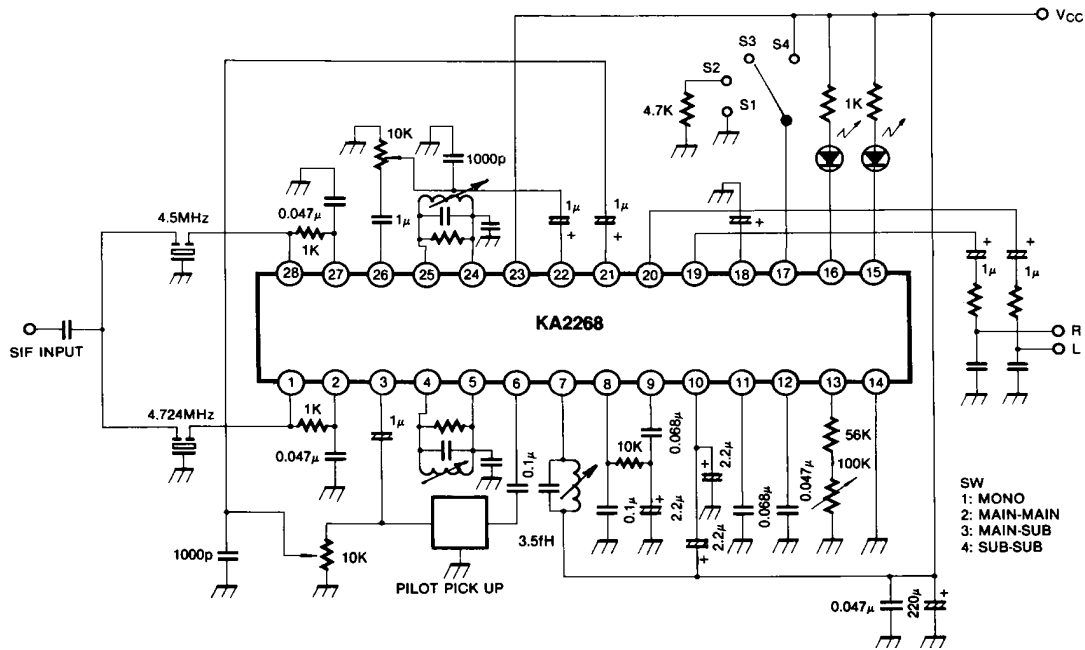
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PIN CONFIGURATION

Pin No	Description	Pin No	Description
1	SIF2 Input	15	Indicator (Bilingual)
2	SIF2 Bias	16	Indicator (Stereo)
3	SIF2 DET Output	17	Mode Switch
4	SIF2 Coil	18	Ripple Filter
5	SIF2 Coil	19	R(Sub) Output
6	Pilot Input	20	L(Main) Output
7	3.5fH Coil	21	Sub Input
8	Pilot DET Output	22	Main Input
9	PLL Input	23	V _{CC}
10	Phase DET Filter	24	SIF1 Coil
11	Loop Filter	25	SIF1 Coil
12	C-Time	26	SIF1 DET Output
13	R-Time	27	SIF1 Bias
14	GND	28	SIF1 Input

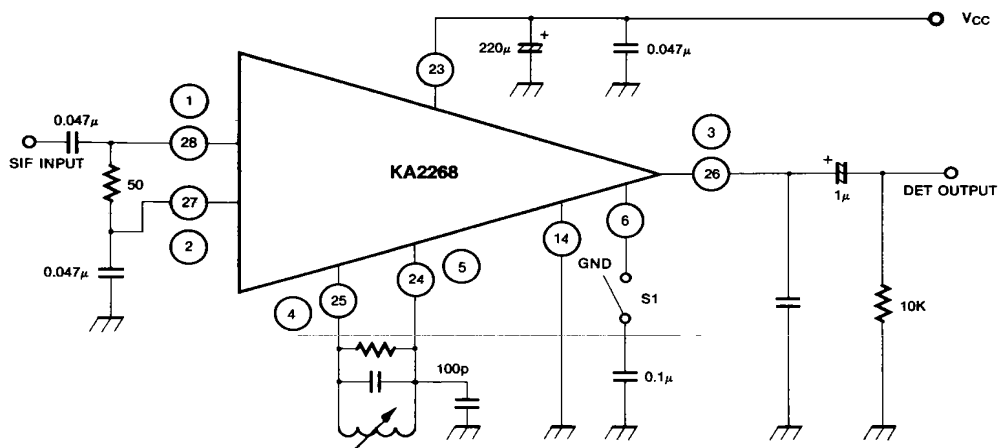
TYPICAL APPLICATION CIRCUIT



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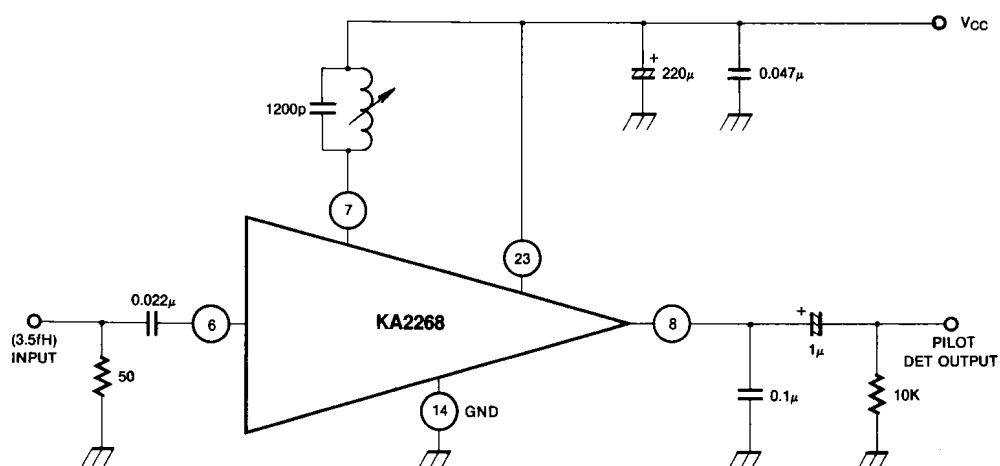
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TEST CIRCUIT 1 SIF SECTION



S1: PILOT INPUT NOISE BYPASS

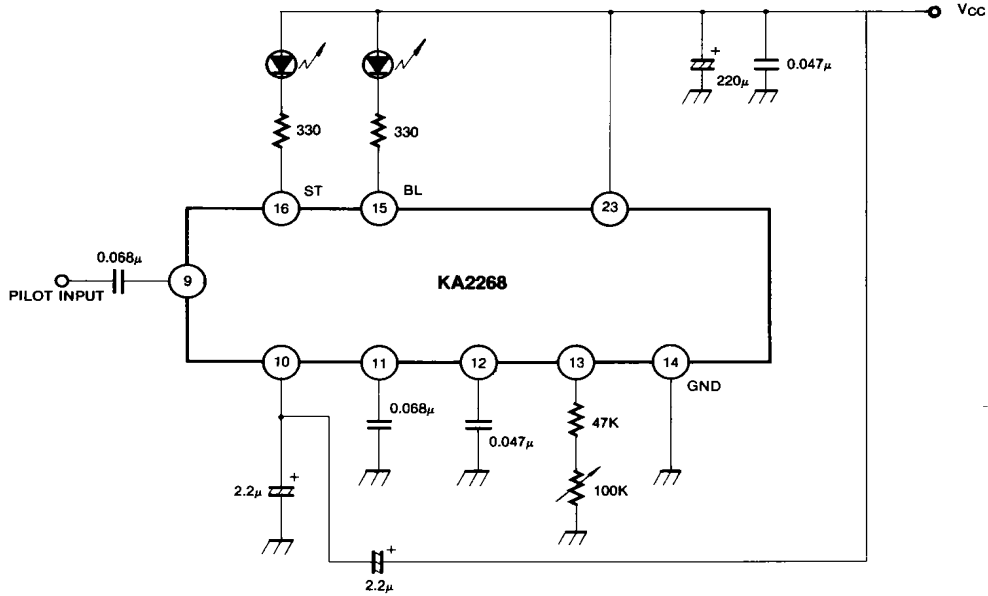
TEST CIRCUIT 2 PILOT AMP/DET SECTION



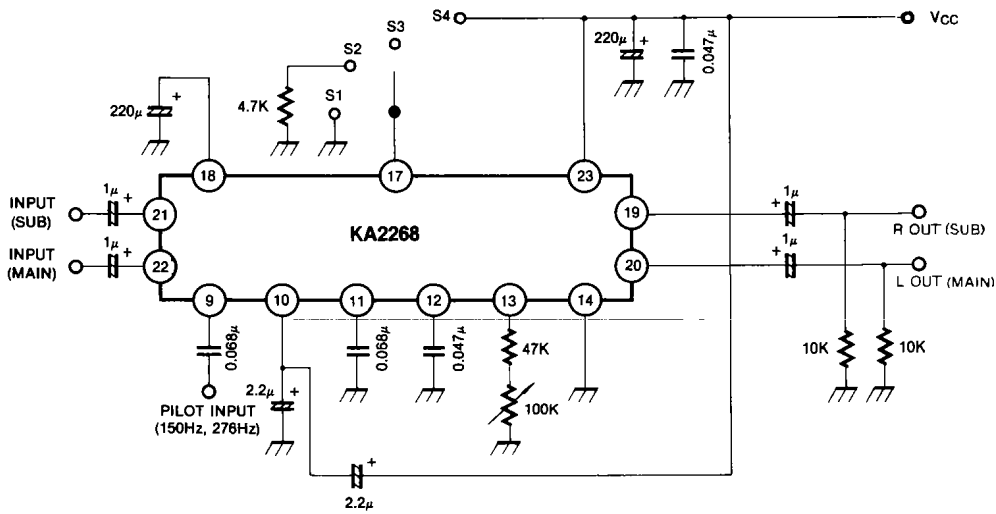
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TEST CIRCUIT 3 PILOT PLL/INDICATOR SECTION



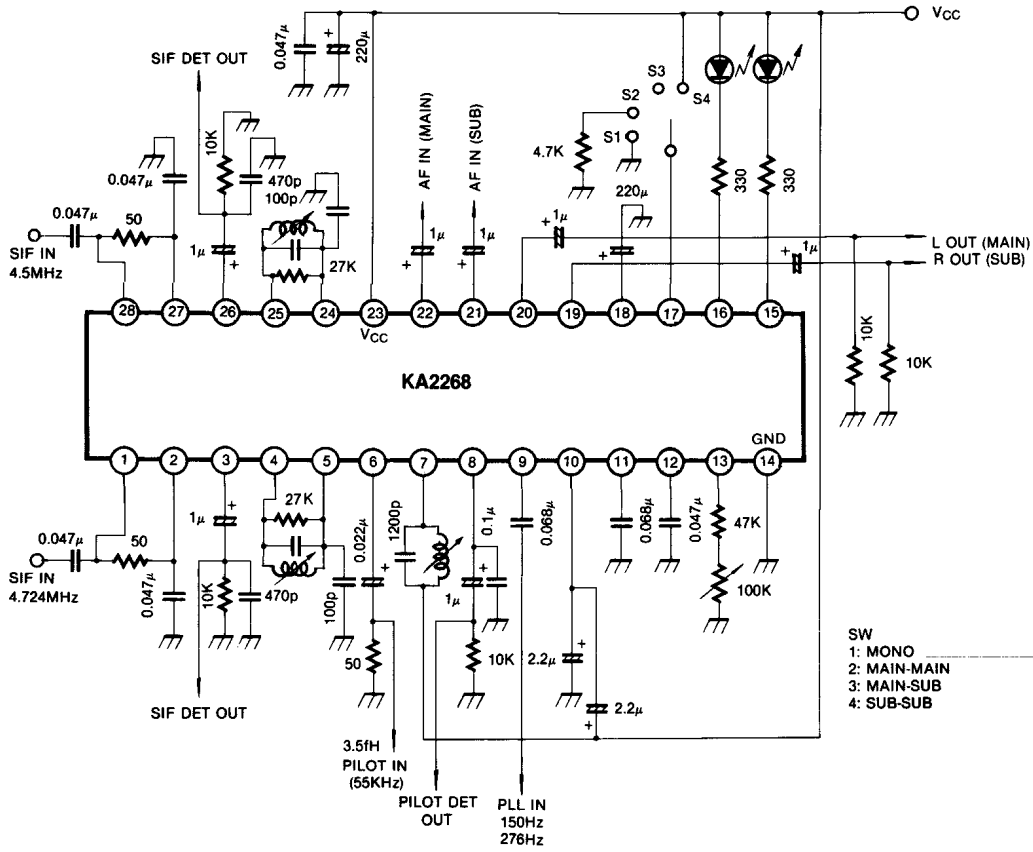
TEST CIRCUIT 4 MATRIX MODE SECTION



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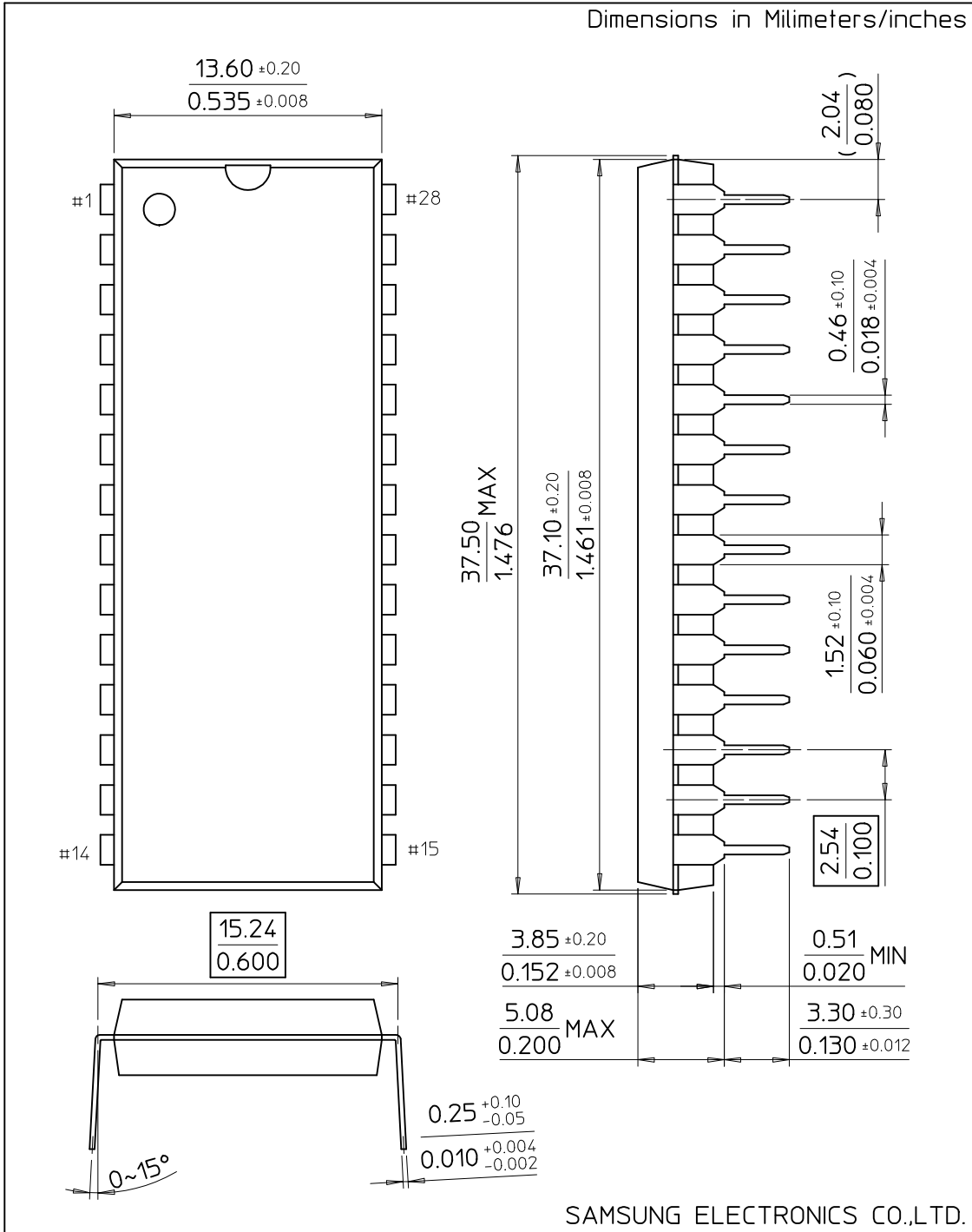
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TEST CIRCUIT 5



28-DIP-600A

Dimensions in Millimeters/inches



SAMSUNG ELECTRONICS CO.,LTD.