

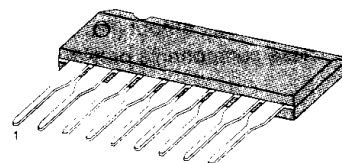
FM STEREO MULTIPLEX DECODER

The KA2263 is a monolithic integrated circuit consisting of a phase locked loop FM stereo demodulator. It was designed for use in car stereo, cassette recorder and other equipment.

FEATURES

- Wide operating supply voltage range: $V_{CC} = 3V \sim 12V$
- High pilot lamp ON sensitivity.
 $V_{L(ON)} = 9mV$ (Typ).
- Built-in stereo indicator lamp drive circuit.
Maximum lamp current: 20mA (continuous).
- High channel separation: $CS = 45dB$ (Typ).
- Low distortion
 $THD = 0.08\%$ (Typ) at $V_i = 200mV$.
- VCO stop and stereo lamp turn off are simultaneously operated by connected pin 7 to V_{CC} .
- Minimum number of external parts required.

9 SIP



ORDERING INFORMATION

Device	Package	Operating Temperature
KA2263	9 SIP	$-20^{\circ}C \sim +70^{\circ}C$

BLOCK DIAGRAM

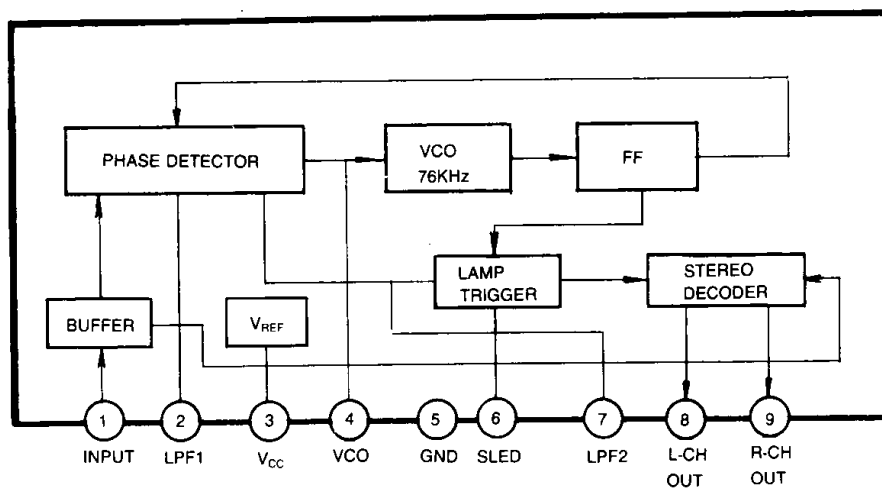


Fig. 1

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	12	V
Lamp Voltage	V_{LAMP}	16	V
Lamp Current	I_{LAMP} (continuous)	20	mA
	$I_{LAMP(PEAK)}$	40	mA
Power Dissipation	P_D	500*	mW
Operating Temperature	T_{OPR}	$-20 \sim +70$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-40 \sim +125$	$^\circ\text{C}$

*Dered at above $T_a = 25^\circ\text{C}$ in the proportion of $4\text{mW}/^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

($T_a = 25^\circ\text{C}$, $V_{CC} = 8\text{V}$, $f = 1\text{KHz}$, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I_{CCO}	$V_i = 0$		11	18	mA
Maximum Input Voltage	$V_{i(MAX)}$	$L+R=90\%$, $P=10\%$, $THD=1\%$		550		mV
Channel Separation	CS	$L+R=180\text{mV}$ $P=20\text{mV}$	36	45		dB
Total Harmonic Distortion	Mono	THD 1	$V_i = 200\text{mV}$	0.08	0.3	%
	Stereo	THD 2	$L+R=180\text{mV}$ $P=20\text{mV}$	0.08		%
Voltage Gain	G_v	$V_i = 200\text{mV}$	-2.0	0	+2.0	dB
Channel Balance	CB	$V_i = 200\text{mV}$		0	1.5	dB
Lamp ON Level	$V_{L(ON)}$	Pilot only		9	15	mV
Lamp OFF Level	$V_{L(OFF)}$	Pilot only	2	6		mV
Lamp Hysteresis	HY			3		mV
Carrier Leakage	19KHz	V_{LKG}	$L+R=180\text{mV}$	34		dB
	38KHz		$P=20\text{mV}$	42		dB

TEST CIRCUIT

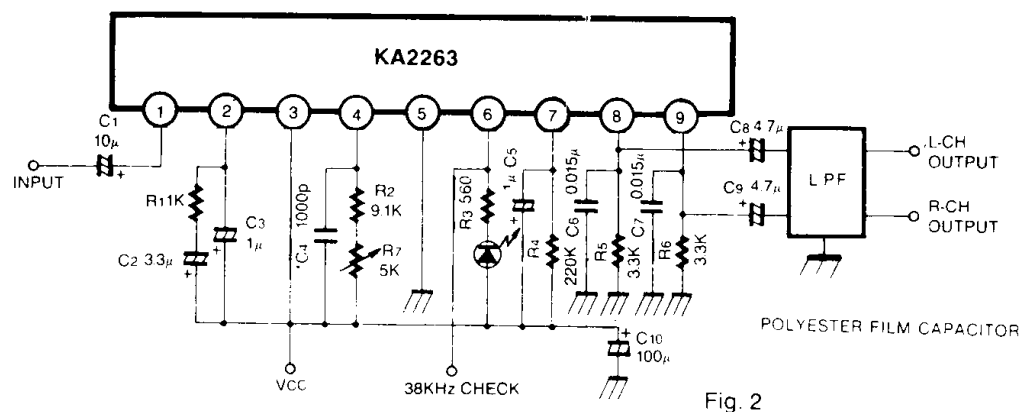
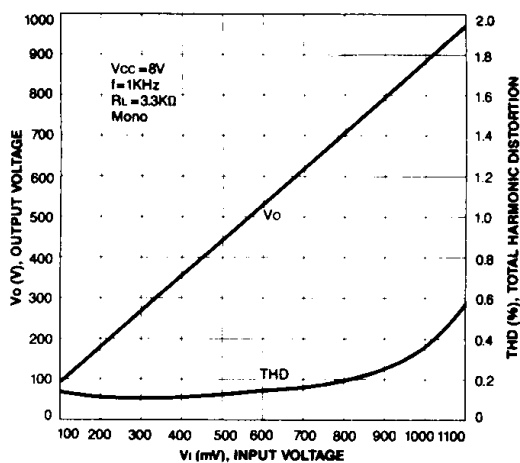
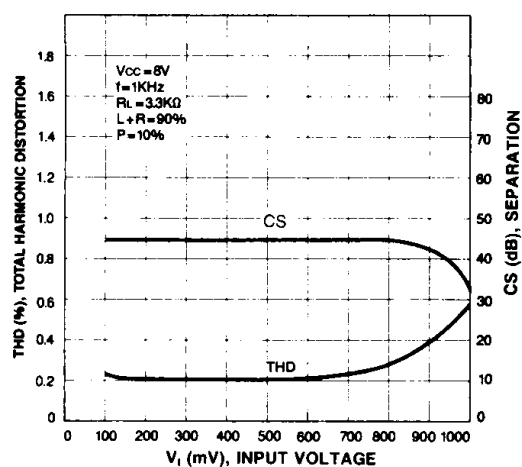


Fig. 2

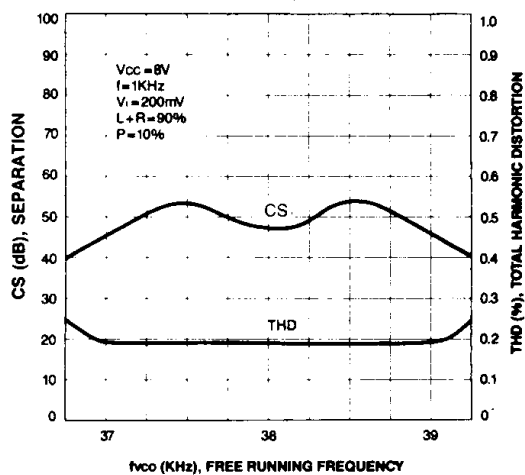
OUTPUT VOLTAGE
TOTAL HARMONIC DISTORTION—INPUT VOLTAGE



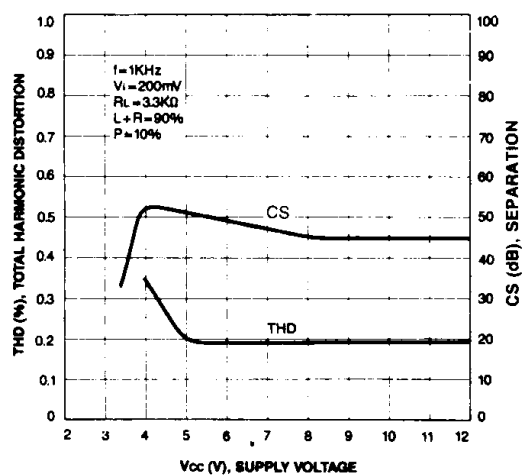
SEPARATION
TOTAL HARMONIC DISTORTION—INPUT VOLTAGE



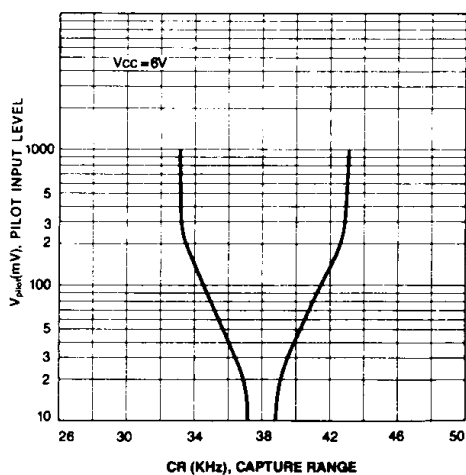
SEPARATION
TOTAL HARMONIC DISTORTION
—FREE RUNNING FREQUENCY



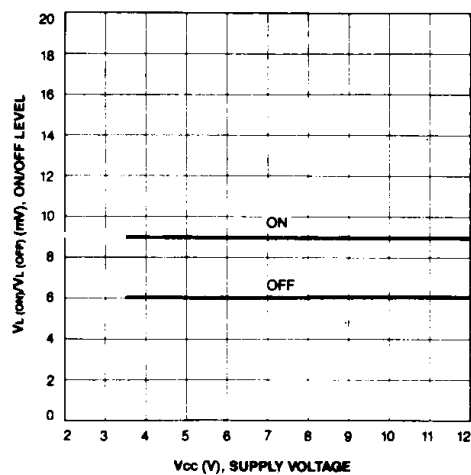
SEPARATION
TOTAL HARMONIC DISTORTION—SUPPLY VOLTAGE



CAPTURE RANGE



LAMP ON/OFF LEVEL—SUPPLY VOLTAGE



APPLICATION INFORMATION

External Components (Refer to Test Circuit)

1. Input coupling capacitor (C_1)

The recommended value is $10\mu\text{F}$. If smaller values than $10\mu\text{F}$ are used, low frequency separation will worsen, and if larger values are used, pop noise occurs strongly.

2. Low pass filter (C_2, C_1, R_1)

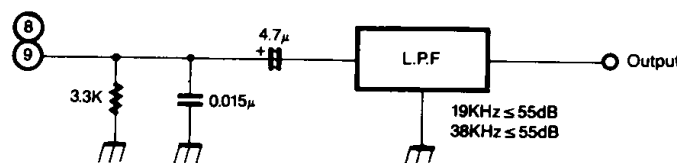
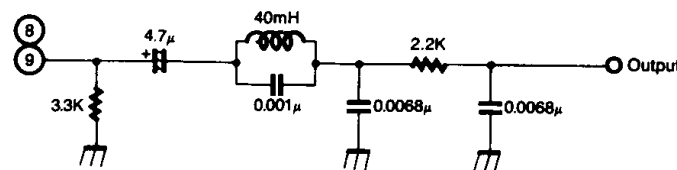
This is the low pass filter for the PLL, which is determined the capture range and THD at low frequency.

3. VCO network (C_4, R_2, R_7)

The VCO free running frequency is adjusted by connecting a frequency counter to monitor the 38KHz output of Pin 6.

4. Decoder output (Pins 8, 9)

These components provide R and L channel output load circuits. The recommended circuits as follows:

5. Lamp sensitivity control (R_4)

Lamp on level can be controlled by this resistor.

