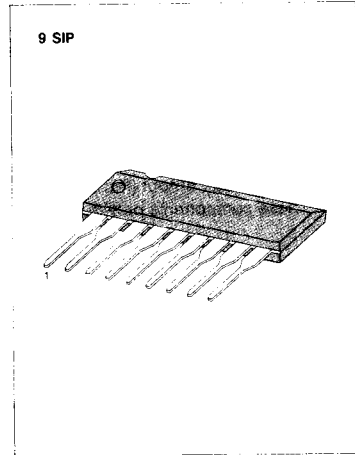


**FM STEREO MULTIPLEX DECODER**

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.



**ORDERING INFORMATION**

Device	Package	Operating Temperature
KA2263	9 SIP	-20°C ~ +70°C

**BLOCK DIAGRAM**

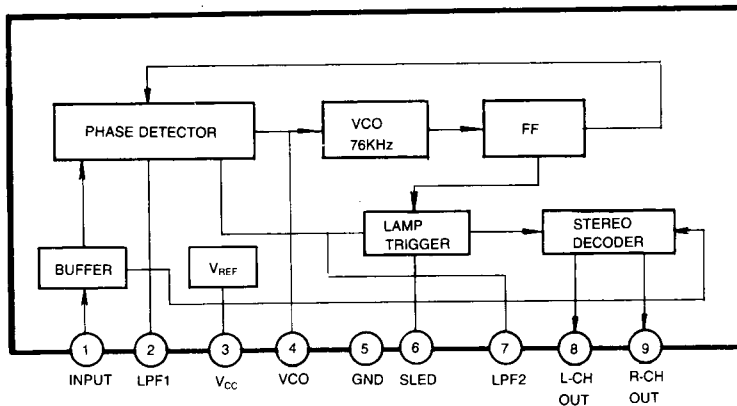


Fig. 1

ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	12	V
Lamp Voltage	V <sub>LAMP</sub>	16	V
Lamp Current	I <sub>LAMP</sub> (CONTINUOUS)	20	mA
	I <sub>LAMP(PEAK)</sub>	40	mA
Power Dissipation	P <sub>D</sub>	500	mW
Operating Temperature	T <sub>OPR</sub>	-20 ~ +70	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +125	°C

\*Derated above T<sub>a</sub> = 25°C in the proportion of 4mW/°C

ELECTRICAL CHARACTERISTICS

(T<sub>a</sub> = 25°C, V<sub>CC</sub> = 8V, f = 1KHz, unless otherwise specified)

Characteristic		Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current		I <sub>CCO</sub>	V <sub>I</sub> = 0		11	18	mA
Maximum Input Voltage		V <sub>I(MAX)</sub>	L + R = 90%, P = 10%, THD = 1%		550		mV
Channel Separation		CS	L + R = 180mV P = 20mV	36	45		dB
Total Harmonic Distortion	Mono	THD 1	V <sub>I</sub> = 200mV		0.08	0.3	%
	Stereo	THD 2	L + R = 180mV P = 20mV		0.08		%
Voltage Gain		G <sub>V</sub>	V <sub>I</sub> = 200mV	-2.0	0	+2.0	dB
Channel Balance		C B	V <sub>I</sub> = 200mV		0	1.5	dB
Lamp ON Level		V <sub>L(ON)</sub>	Pilot only		9	15	mV
Lamp OFF Level		V <sub>L(OFF)</sub>	Pilot only	2	6		mV
Lamp Hysteresis		HY			3		mV
Carrier Leakage	19KHz	V <sub>LKG</sub>	L + R = 180mV		34		dB
	38KHz		P = 20mV		42		dB

TEST CIRCUIT

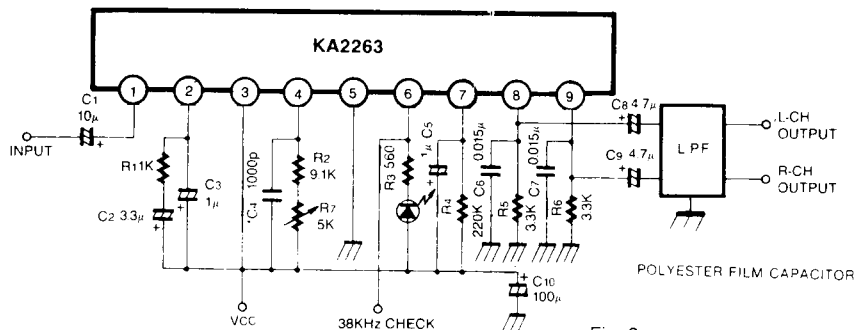
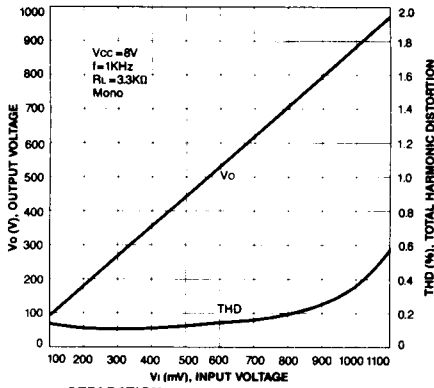
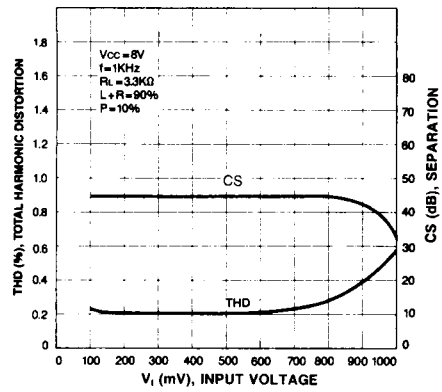


Fig. 2

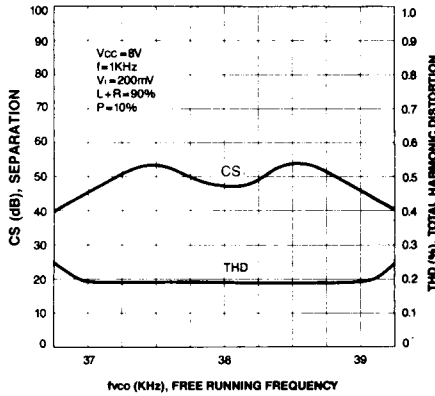
OUTPUT VOLTAGE  
TOTAL HARMONIC DISTORTION—INPUT VOLTAGE



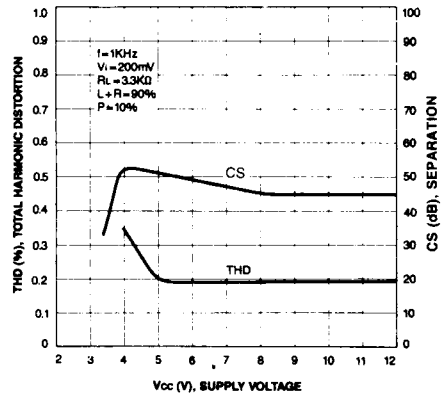
SEPARATION  
TOTAL HARMONIC DISTORTION—INPUT VOLTAGE



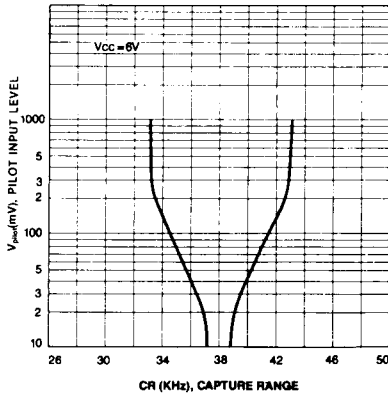
SEPARATION  
TOTAL HARMONIC DISTORTION  
—FREE RUNNING FREQUENCY



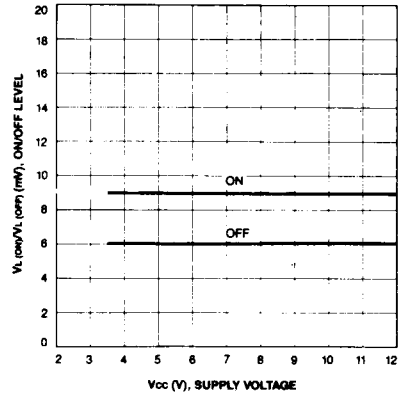
SEPARATION  
TOTAL HARMONIC DISTORTION—SUPPLY VOLTAGE



CAPTURE RANGE



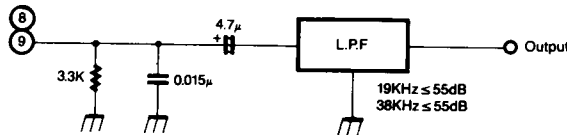
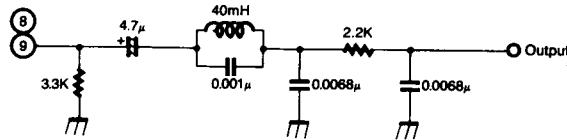
LAMP ON/OFF LEVEL—SUPPLY VOLTAGE



**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.

