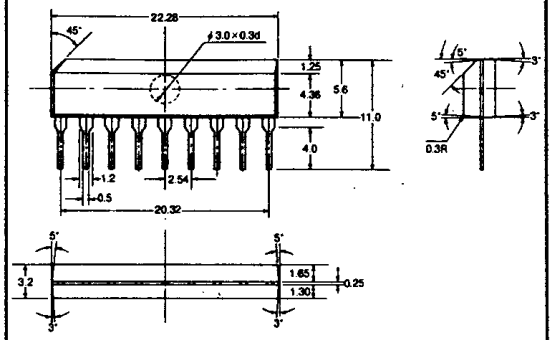
DBL 1009

PLL FM STEREO MULTIPLEX

9SIP Unit: mm



Space merit by the package and wide supply voltage range.

☐ FEATURES

- ○ Excellent pilot lamp turning-on sensitivity :
  $V_{LAMP(ON)}$ =9mVrms (Typ.)
- ○ Suitable for LED driving :
  I_{LAMP} =20mA (Max.)
- ○ Recommendable input voltage range :
  V_{IN} =200~700mVrms
- ○ Operating supply voltage range :
  V_{CC} =3.5~12V
- ○ Excellent channel separation through entire audio frequency range :
  CH_{SEP} =45dB (Typ.)
- ○ Low distortion : THD=0.08% (Typ.) at V_{IN}=200mVrms (stereo)
- ○ VCO stop capability (The VCO is stopped when the Pin 7 is connected with the power supply line, and then the stereo indicator is turn off.)
- ○ Easy adjustment (The monitored free running frequency of VCO is 38KHz at Pin 6.)

☐ APPLICATIONS

- ○ Automotive and portable radios.

☐ MAXIMUM RATINGS (Ta=25°C)

Characteristic		Symbol	Rating	Unit
Supply Voltage		V_{CC}	12	V
Lamp Voltage		V_{LAMP}	16	V
Lamp Current	Continuation	I_{LAMP}	20	mA
	Peak		40	
Operating Temperature		T_{opr}	−30~+ 75	°C
Storage Temperature		T_{stg}	−55~+150	°C
Power Dissipation		P_D	500	mW

* The power dissipation is derated above Ta = 25°C in the proportion of 4mW/°C

☐ ELECTRICAL AC CHARACTERISTICS

(Unless otherwise specified, Ta = 25°C, V_{CC} = 8V, f = 1kHz)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current		I_{CC}	at Lamp Off	—	11	18	mA
Input Resistance		R_{IN}	—	—	33	—	kΩ
Max. Composite Signal Input Voltage		$V_{IN(MAX)}$ (Stereo)	L + R = 90%, P = 10%, THD = 1%	—	900	—	mVrms
Channel Separation		CH_{SEP}	L + R = 180mVrms, P = 20mVrms	36	45	—	dB
Total Harmonic Distortion	Monaural	THD (Monaural)	V_{IN} = 200mVrms	—	0.08	0.3	%
	Stereo	THD (Stereo)	L + R = 180mVrms, P = 20mVrms	—	0.08	—	%
Voltage Gain		G_V	V_{IN} = 200mVrms	−2	0.5	+2	dB
Channel Balance		CH_{BAL}	V_{IN} = 200mVrms	—	0	1.5	dB
Lamp Sensitivity	ON	$V_{L(ON)}$	Pilot Input	—	10	15	mVrms
	OFF	$V_{L(OFF)}$		2	6	—	mVrms
Stereo Lamp Hysteresis		V_H	To Turn Off from Lamp Turn On	—	3	—	mVrms
Capture Range		C.R.	P = 20mVrms	—	±3	—	%
Carrier Leak	19kHz	C.L.	L + R = 180mVrms, P = 20mVrms	—	34	—	dB
	38kHz			—	42	—	
Signal to Noise Ratio		S/N	V_{IN} = 180mVrms, f = 1kHz Rg = 620Ω	—	74	—	dB
Output Current(pin 8, pin 9)		I_{OUT}	R_L = 3.3KΩ, V_{CC} = 3.5V	—	0.3	0.6	mA
			R_L = 3.3KΩ, V_{CC} = 8V	—	1.2	1.8	
			R_L = 3.3KΩ, V_{CC} = 12V	—	1.4	2.1	

☐ ELECTRICAL DC CHARACTERISTICS (V_{CC}=8V, Terminal Voltage at No Signal)

Characteristic	Symbol	Rating	Unit
Terminal 1. (Input)	V_1	3.5	V
2. (L.P.F 1)	V_2	6.6	V
3. (V_{CC})	V_3	8	V
4. (VCO)	V_4	7.1	V
5. (GND)	V_5	0	V
6. (ST.LAMP)	V_6	—	V
7. (L.P.F 2)	V_7	7.4	V
8. (L-CH Output)	V_8	4	V
9. (R-CH Output)	V_9	4	V

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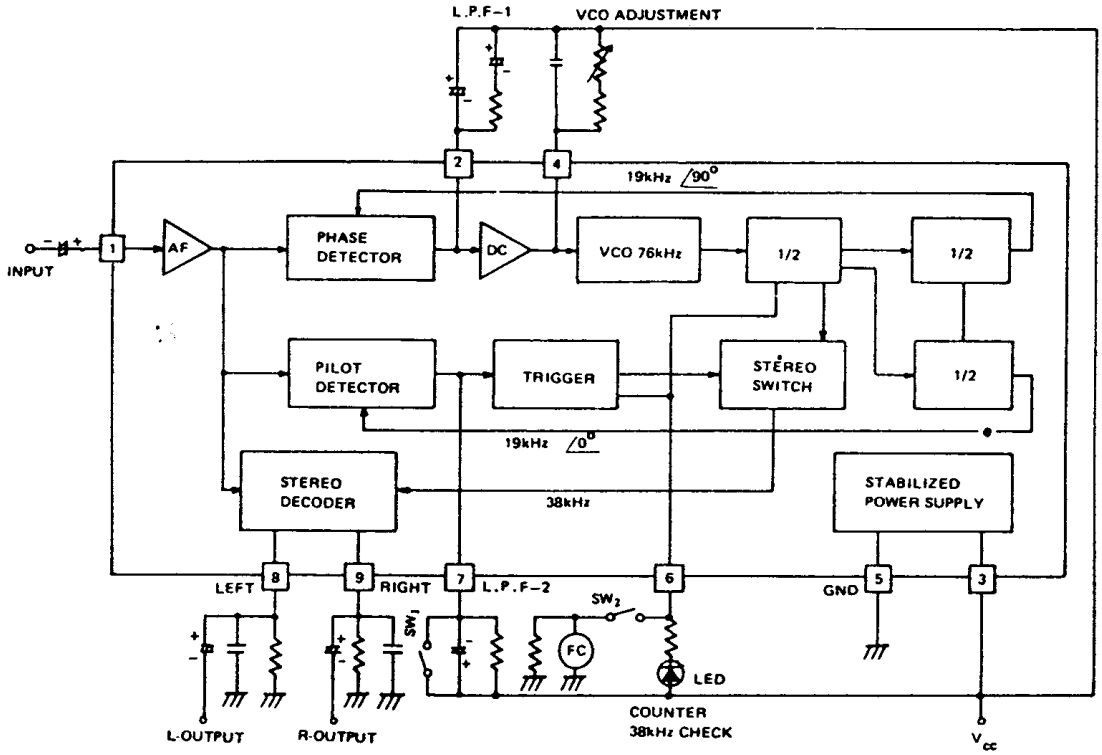
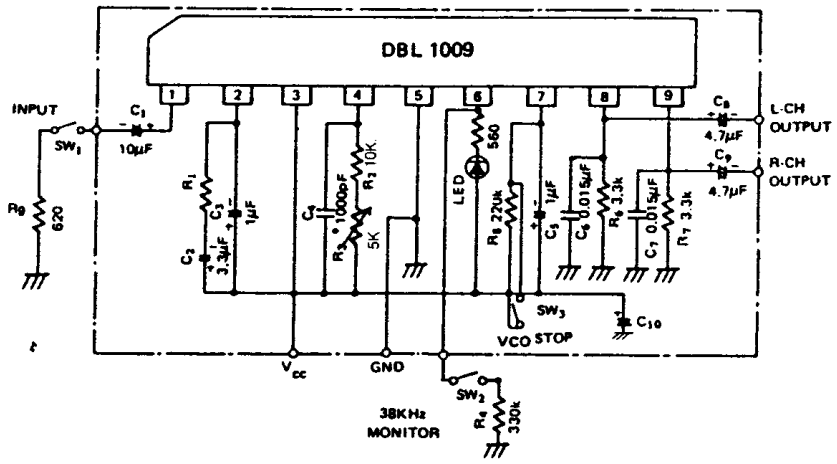
☐ BLOCK DIAGRAM



SW_1 : VCO STOP SWITCH
SW_2 : 38kHz MONITOR SWITCH

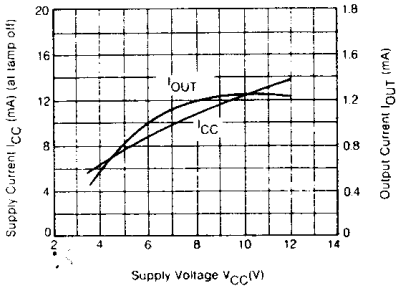
☐ TEST CIRCUIT



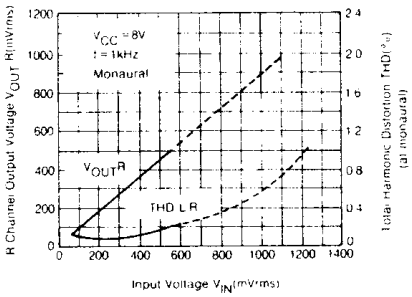
* Each C_6 and C_7 is 0.015μF for Demphasis (50 μsec) but 0.022μF for (75μsec)

☐ TYPICAL PERFORMANCE CHARACTERISTICS

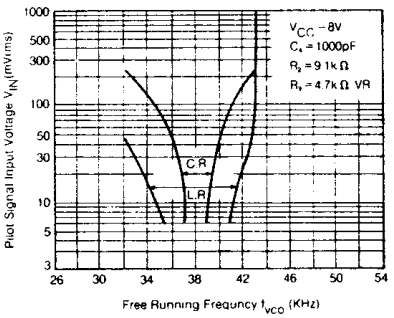
I_{CC}, I_{OUT} – V_{CC}



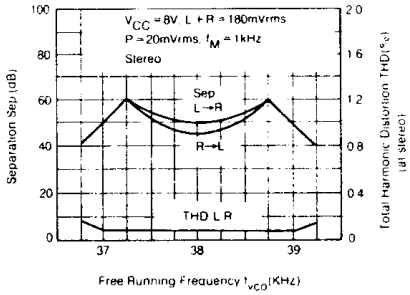
V_{OUT} R, THD – V_{IN}



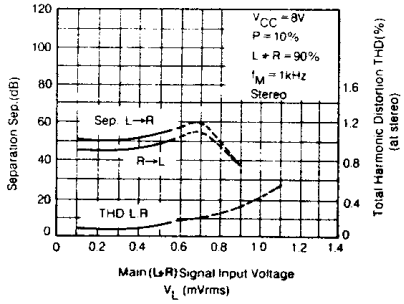
C.R & L.R



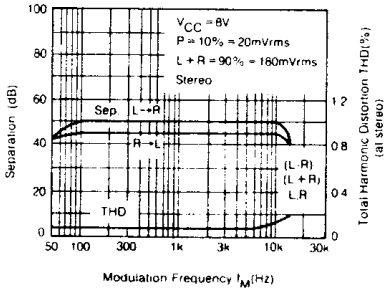
THD, Sep. – f_{VCO}



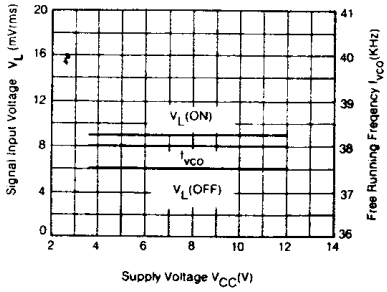
THD, Sep. – V_{IN}



THD, Sep – f_M



V_{IN}, f_{VCO} – V_{CC}



THD, Sep. – V_{CC}