

# LA3390



3021B

Monolithic Linear IC

## PLL FM MPX Demodulator with Post Amplifier

E674B

The LA3390 is a multifunctional MPX demodulator IC of a new type for use in FM stereo tuner applications. It has both FM input pin and AM input pin, performs the accessory function of output select and muting operation by means of the control pins as well as the FM MPX demodulation function, and meets electronic tuning requirements.

### Functions

- . PLL MPX stereo demodulator
- . Gain variable type post amp
- . FM-AM select
- . Muting during FM-AM switchover
- . Muting
- . VCO stop and forced monaural

### Features

- . Low distortion: 0.02% typ./mono 1kHz 300mV input.
- . High S/N: 84dB typ./mono 300mV input.
- . Good ripple rejection of power supply: 40dB typ.
- . High voltage gain: Approximately 9dB/FM, approximately 15dB/AM at standard circuit constants.
- . Wide dynamic range: Distortion 1.0% or less at mono 1000mV, 1kHz input.
- . Separation adjustable.

### Maximum Ratings at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Value	Unit
Maximum Supply Voltage	$V_{CC\max}$	16	V
Lamp Drive Current	$I_{L\max}$	40	mA
Allowable Power Dissipation	$P_{d\max}$	550	mW
Operating Temperature	$T_{opg}$	-20 to +75	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-40 to +125	$^{\circ}\text{C}$

$T_a \leq 45^{\circ}\text{C}$

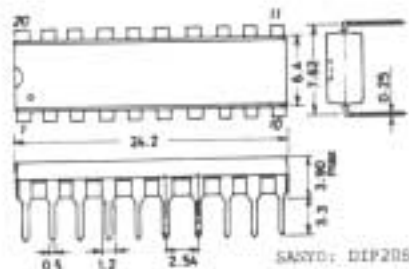
### Recommended Operating Conditions at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	10 to 14	V
Input Signal Voltage	$v_i$	300	mV

### Operating Characteristics at $T_a=25^{\circ}\text{C}$ , $V_{CC}=12\text{V}$ , Input=300mV, $f=1\text{kHz}$ , L+R=90%, pilot=10%, specified test circuit

Parameter	Symbol	min	typ	max	unit
Quiescent Current	$I_{oco}$		24	32	mA
Ripple Rejection of Power Supply			40		dB
Input Resistance	$r_i$	15k	20k		ohm

Case Outline 3021B-D20SIC  
(unit:mm)



			min	typ	max	unit
Channel Separation	Sep	f=100Hz		45		dB
		f=1kHz	40	50		dB
		f=10kHz		45		dB
Stereo Distortion	THD <sub>st</sub>	f=100Hz, main		0.05		%
		f=1kHz, main		0.05	0.15	%
		f=10kHz, main		0.2		%
Monaural Distortion	THD <sub>mono</sub>	Mono signal input		0.02	0.1	%
AM Distortion	THD <sub>AM</sub>	Pin 2 input 150mV		0.02	0.1	%
Allowable Input Level	V <sub>in</sub> max	FM THD 1%	700			mV
		AM THD 1%	400			mV
S/N (FM)	-	Mono, R <sub>g</sub> =5.1kohm, IHF BPF	80	86		dB
		Mono, R <sub>g</sub> =5.kohm, LPF only		84		dB
Muting Attenuation	ATT <sub>mute</sub>	V <sub>c</sub> =5V	70	80		dB
Crosstalk		AM→FM	70	80		dB
		FM→AM	70	80		dB
Muting ON Voltage	V <sub>mete</sub>	Pin 5, minimum of ON-voltage	3.4			V
Muting OFF Voltage	V <sub>off</sub>	Pin 5, maximum of OFF-voltage (lower limit of distribution)			0.9	V
		Pin 5		10		dB
Muting Hysteresis	V <sub>hys</sub>	Pin 5				dB
AM FM Switchover Voltage	V <sub>AM-FM</sub>	Pin 6 AM→FM			0.4	V
		Pin 6 FM→AM	1.1			V
Lamp Lighting Level	V <sub>L</sub>	Pilot level		10		mV
Hysteresis	h <sub>v</sub>			3		dB
Chapture Range	CR		±1.0	±3		%
Output Level	V <sub>oFMmono</sub>	Mono signal input, pins 8,10	600	800	1067	mV
		AM signal input, pins 8,10	1125	1500	2005	mV
Carrier Leak	V <sub>oAM</sub>			31		dB
Output DC Variation	CL	mono→ST		30	85	mV
		ST→mute		30	85	mV
		mono→mute		30	85	mV
		AM→mute		30	85	mV
VCO Stop Voltage		Pin 11	6		11	V
Channel Balance		CB			1.0	dB
SCA Rejection				80		dB

