

# μA758

## FM Stereo Multiplex Decoder, Phase-Locked Loop

### Product Specification

#### DESCRIPTION

The μA758 is a monolithic phase-locked loop FM stereo multiplex decoder. The device decodes an FM stereo multiplex signal into right and left audio channels while inherently suppressing SCA information when it is contained in the composite input signal. The device includes automatic mono-stereo mode switching and drive for an external lamp to indicate stereo mode operation.

The μA758 operates over a large voltage range and requires a minimum number of external components. A simple setting of an external potentiometer adjusts the oscillator frequency. No coils are required.

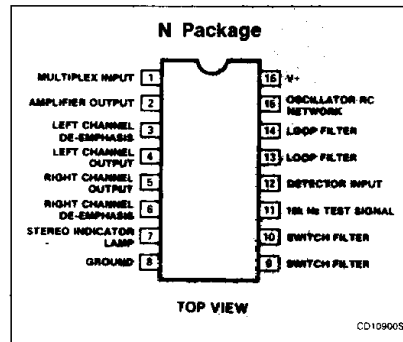
#### FEATURES

- 45dB channel separation
- Automatic stereo/mono switching
- 70dB SCA rejection
- 10V to 16V supply range
- High impedance input — low impedance output

#### APPLICATIONS

- Stereo decoder for radios

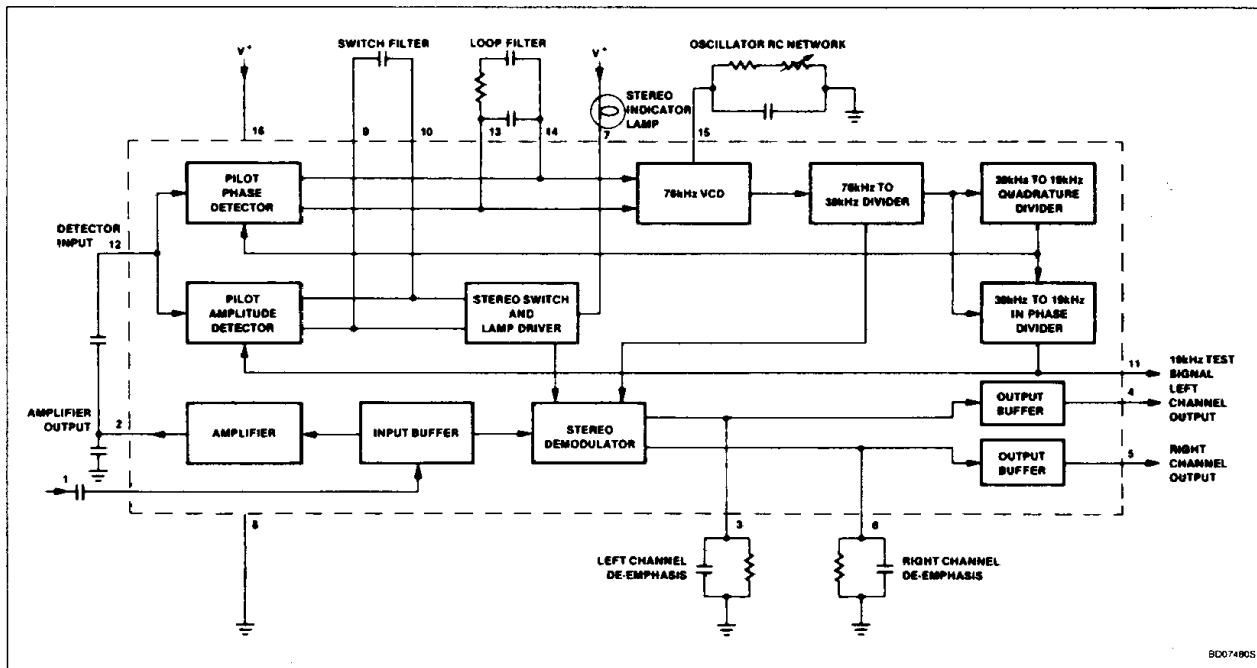
#### PIN CONFIGURATION



#### ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
16-Pin Plastic DIP	-40°C to +85°C	μA758N

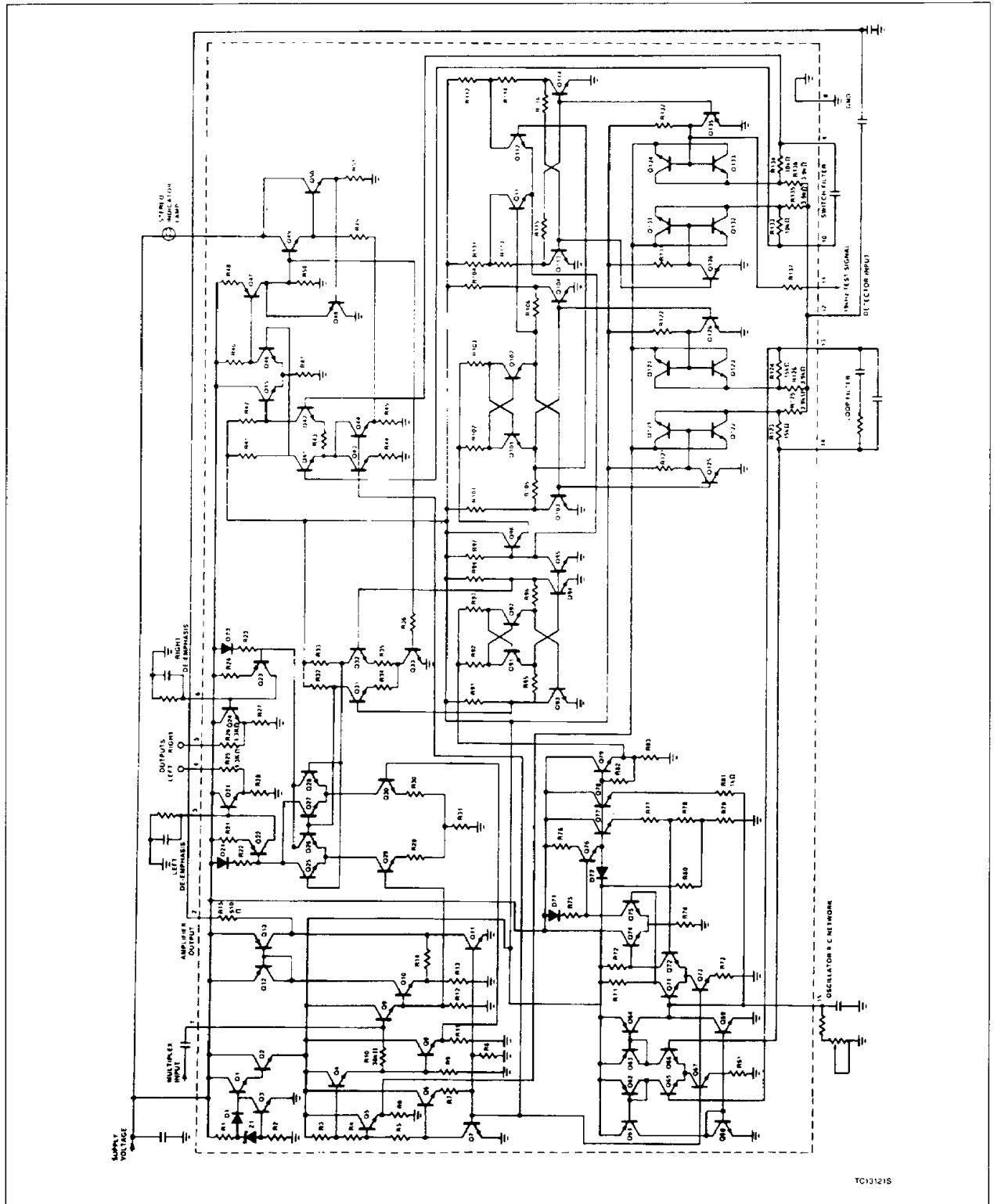
#### BLOCK DIAGRAM



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### EQUIVALENT SCHEMATIC



November 14, 1986

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## ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V <sub>CC</sub>	Supply voltage	+18	V
V <sub>CC</sub>	Supply voltage ( $\leq 15$ seconds)	+22	V
	Voltage at lamp driver terminal (Lamp OFF)	+22	V
P <sub>D</sub>	Internal power dissipation	730	mW
T <sub>A</sub>	Operating ambient temperature range	-40 to +85	°C
T <sub>STG</sub>	Storage temperature range	-65 to +125	°C
T <sub>SOLD</sub>	Lead soldering temperature (10sec max)	300	°C

**DC ELECTRICAL CHARACTERISTICS** T<sub>A</sub> = 25°C, V<sub>+</sub> = +12V, 19kHz pilot level = 30mV<sub>RMS</sub>, multiplex signal (L = R, pilot OFF) = 300V<sub>RMS</sub>, modulation frequency = 400Hz or 1Hz, Test Circuit 1, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			Min	Typ	Max	
I <sub>CC</sub>	Supply current	Lamp OFF		31	38	mA
I <sub>L</sub>	Maximum available lamp current		75	150		mA
V <sub>7</sub>	Voltage at lamp driver terminal	Lamp = 50mA		1.3	1.8	V
R <sub>IN</sub>	Input resistance		20	35		k $\Omega$
R <sub>OUT</sub>	Output resistance		0.9	1.3	2.0	k $\Omega$

## AC ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			Min	Typ	Max	
$\Delta(V_4 \& V_5)$	DC voltage shift at either output terminal	Stereo to mono operation		30	150	mV
PSRR	Power supply ripple rejection	200Hz, 200mV <sub>RMS</sub>	35			dB
SEP	Channel separation	100Hz 400Hz 10kHz	30	40 45 45		dB dB dB
BAL	Channel balance			0.3	1.5	dB
A <sub>V</sub>	Voltage gain	1kHz	0.5	0.9	1.4	V/V
	Pilot input level	Lamp turn-on Lamp turn-off	2.0	18 7.0	25	mV <sub>RMS</sub> mV <sub>RMS</sub>
	Pilot input level hysteresis	Lamp turn-off to turn-on	3.0	7.0		dB
THD	Capture range Total harmonic distortion	Multiplex level = 600mV <sub>RMS</sub> pilot OFF	2.0	4.0 0.4	6.0 1.0	% %
	19kHz rejection 38kHz rejection SCA rejection <sup>1</sup>		25 25	35 45 70		dB dB dB
VCO	Tuning resistance <sup>2</sup>		21.0	23.3	25.5	k $\Omega$
VCO	Frequency drift	0°C $\leq$ T <sub>A</sub> $\leq$ 25°C 25°C $\leq$ T <sub>A</sub> $\leq$ 70°C		+0.1 -0.4	$\pm 2$ $\pm 2$	% %

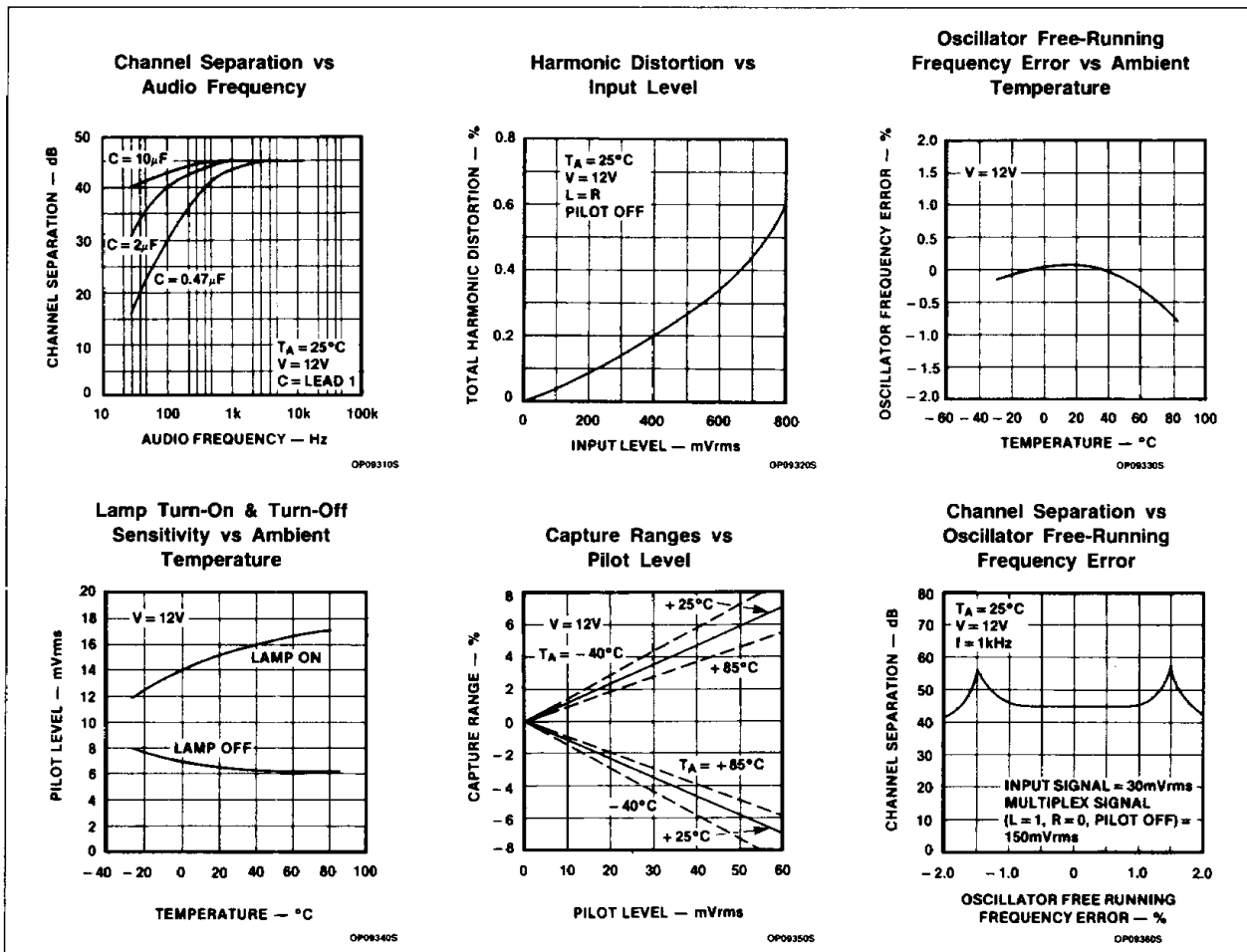
## NOTES:

- Measured with a stereo composite consistency of 80% stereo, 10% pilot and 10% SCA as defined in the FCC Rules on Broadcasting.
- Total resistance from Pin 15 to ground, in Test Circuit, required to set reference frequency at Pin 11 to 19kHz  $\pm$  10Hz.

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## TYPICAL PERFORMANCE CHARACTERISTICS



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## TEST CIRCUIT AND TYPICAL APPLICATION

