

Stereo Demodulator

GENERAL DESCRIPTION

The XR-1310 is a unique FM stereo demodulator which uses phase-locked techniques to derive the right and left audio channels from the composite signal. Using a phase-locked loop to regenerate the 38 kHz subcarrier, it requires no external L-C tanks for tuning. Alignment is accomplished with a single potentiometer.

FEATURES

- Requires No Inductors
- Low External Part Count
- Simple, Noncritical Tuning by Single Potentiometer Adjustment
- Internal Stereo/Monaural Switch with 100 mA Lamp Driving Capability
- Wide Dynamic Range: 600 mV (RMS) Maximum Composite Input Signal
- Wide Supply Voltage Range: 8 to 14 Volts
- Excellent Channel Separation
- Low Distortion
- Excellent SCA Rejection

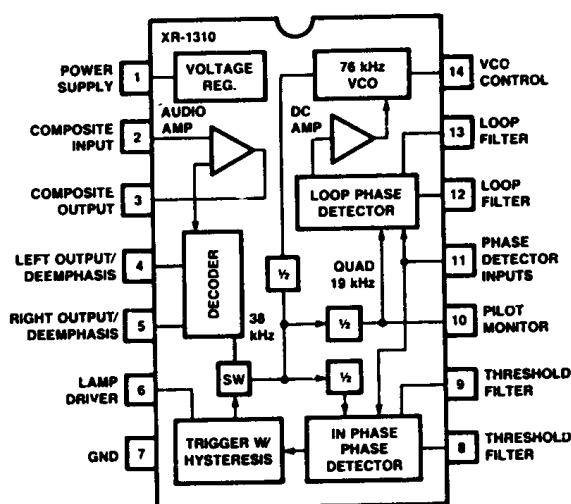
APPLICATIONS

FM Stereo Demodulation
Stereo Indicator

ABSOLUTE MAXIMUM RATINGS

(T _A = +25°C unless otherwise noted)	
Power Supply Voltage	14V
Lamp Current	75 mA
Power Dissipation	625 mW
(package limitation)	
Derate above T _A = +25°C	5.0 mW/°C
Operating Temperature	-40 to +85°C
Range (Ambient)	
Storage Temperature Range	-65 to +150°C

FUNCTIONAL BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Package	Operating Temperature
XR-1310CP	Plastic	-40°C to +85°C

SYSTEM DESCRIPTION

The XR-1310 is a complete stereo demodulator specifically designed for transforming a composite FM stereo signal into its left and right channel components.

The composite FM stereo input signal, from the receiver detector, is applied to the buffer amplifier, Pin 2. Buffered output (gain = 1) is applied to the L + R, L - R decoder.

The VCO of the PLL runs at 76 kHz, four times the 19 kHz pilot frequency. Free-running frequency is set by the parallel RC circuit on Pin 14. The VCO output drives a controlled switch which allows demodulation. When the PLL is locked, the lamp driver open collector output (Pin 6) can sink up to 100 mA.

Left and right channel outputs are taken from Pins 4 and 5 respectively. De-emphasis is performed by the RC circuit here; slightly higher gain is possible by increasing the resistor size, but the RC product should remain constant.

XR-1310

ELECTRICAL CHARACTERISTICS

Test Conditions: Unless otherwise noted; $V_{CC}^* = +12 \text{ Vdc}$, $T_A = +25^\circ\text{C}$, 560 mV (RMS) (2.8 Vp-p) standard multiplex composite signal with L or R channel only modulated at 1.0 kHz and with 100 mV (RMS) (10% pilot level), using circuit of Figure 1.

PARAMETERS	MIN	TYP	MAX	UNIT
Maximum Standard Composite Input Signal (0.5% THD)	2.8			Vp-p
Maximum Monaural Input Signal (1.0% THD)	2.8			Vp-p
Input Impedance		50		k Ω
Stereo Channel Separation (50 Hz — 15 KHz)	30	40		dB
Audio Output Voltage (desired channel)		485		mV (RMS)
Monaural Channel Balance (pilot tone "off")			1.5	dB
Total Harmonic Distortion		0.3		%
Ultrasonic Frequency Rejection 19 kHz 38 kHz		34.4 45		dB
Inherent SCA Rejection (f = 67 kHz; 9.0 kHz beat note measured with 1.0 kHz modulation "off")		80		dB
Stereo Switch Level (19 kHz input for lamp "on") Hysteresis	13	6	20	mV (RMS) dB
Capture Range (permissible tuning error of internal oscillator, reference circuit values of Figure 1)		± 3.5		%
Operating Supply Voltage (loads reduced to 2.7 k Ω for 8.0-volt operation)	8.0		14	Vdc
Current Drain (lamp "off")		13		mAdc

*Symbols conform to JEDEC Engineering Bulletin No. 1 where applicable.

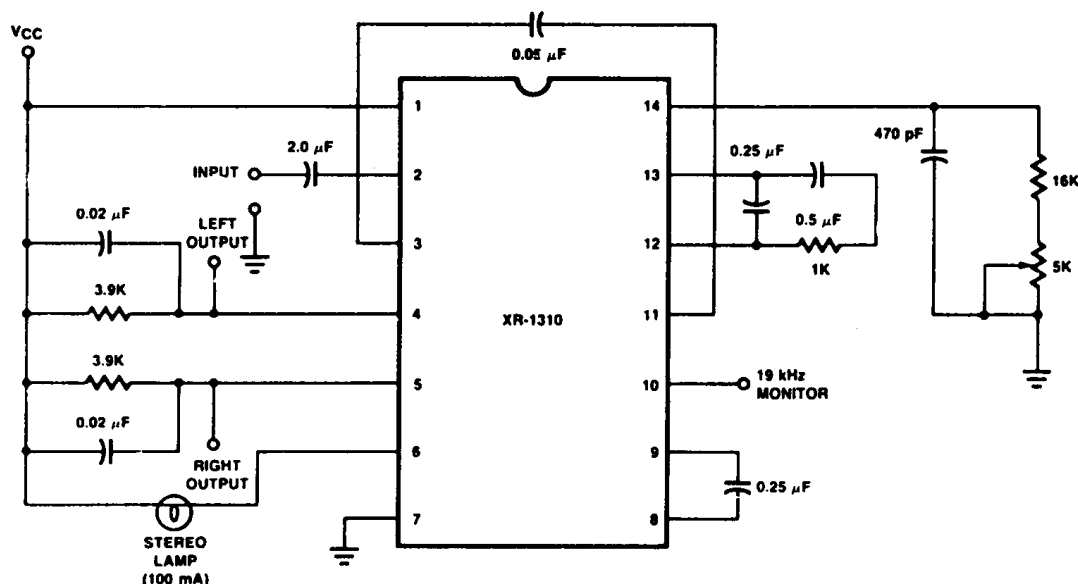


Figure 1. Typical Application

Quad Line Driver/Receiver

GENERAL DESCRIPTION

The XR-1488 is a monolithic quad line driver designed to interface data terminal equipment with data communications equipment in conformance with the specifications of EIA Standard No. RS232C. This extremely versatile integrated circuit can be used to perform a wide range of applications. Features such as output current limiting, independent positive and negative power supply driving elements, and compatibility with all DTL and TTL logic families greatly enhance the versatility of the circuit.

The XR-1489A is a monolithic quad line receiver designed to interface data terminal equipment with data communications equipment. The XR-1489A quad receiver along with its companion circuit, the XR-1488 quad driver, provide a complete interface system between DTL or TTL logic levels and the RS232C defined voltage and impedance levels.

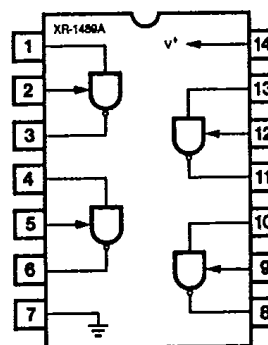
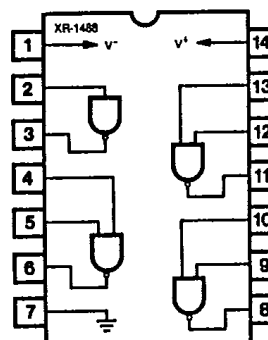
ABSOLUTE MAXIMUM RATINGS

Power Supply	
XR-1488	± 15 Vdc
XR-1489A	+ 10 Vdc
Power Dissipation	
Ceramic Package	1000 mW
Derate above +25°C	6.7 mW/°C
Plastic Package	650 mW/°C
Derate above +25°C	5 mW/°C

ORDERING INFORMATION

Part Number	Package	Operating Temperature
XR-1488N	Ceramic	0°C to +70°C
XR-1488P	Plastic	0°C to +70°C
XR-1489AN	Ceramic	0°C to +70°C
XR-1489AP	Plastic	0°C to +70°C

FUNCTIONAL BLOCK DIAGRAMS

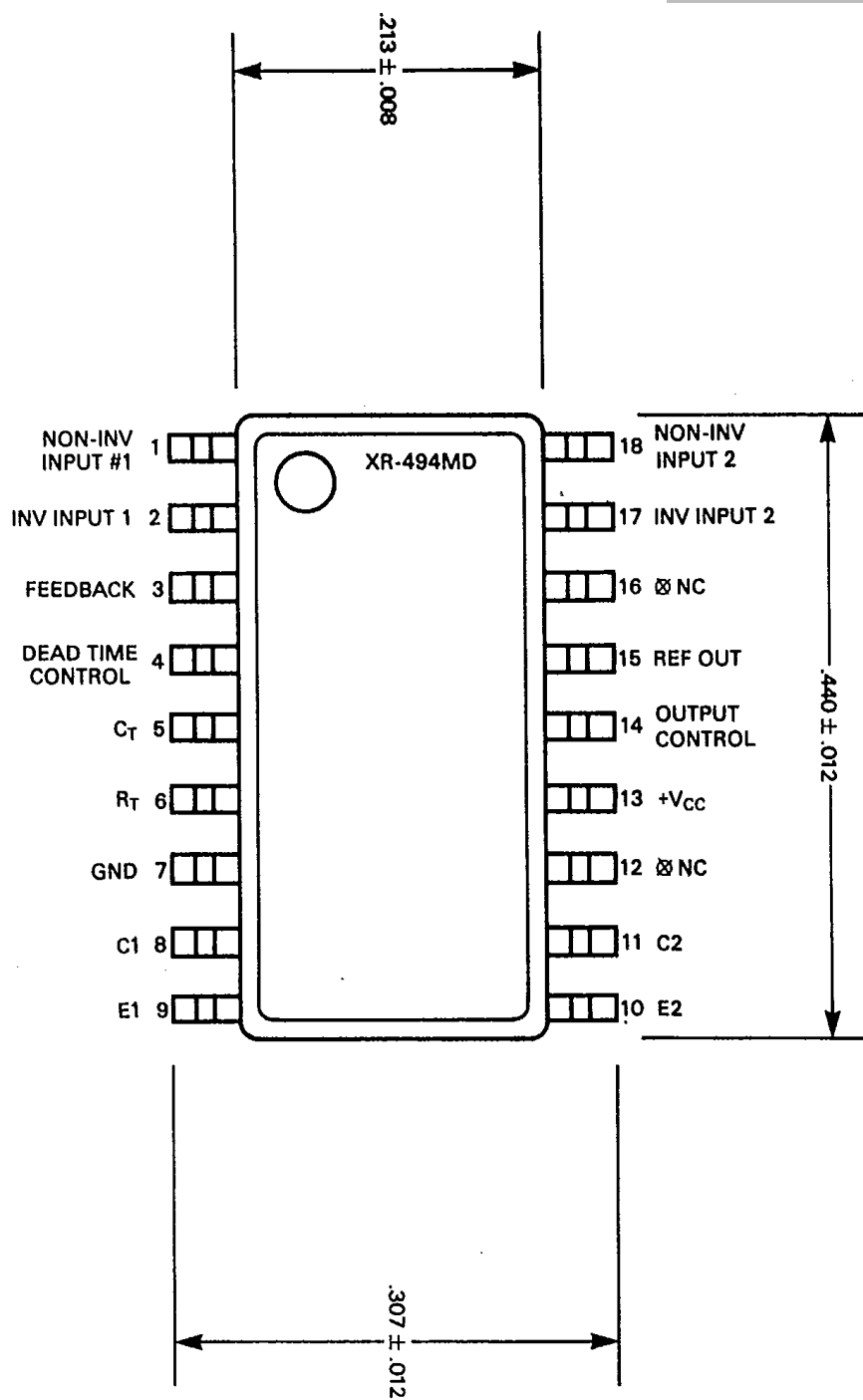


SYSTEM DESCRIPTION

The XR-1488 and XR-1489A are a matched set of quad line drivers and line receivers designed for interfacing between TTL/DTL and RS232C data communication lines.

The XR-1488 contains four independent split supply line drivers, each with a ± 10 mA current limited output. For RS232C applications, the slew rate can be reduced to the 30 V/ μ S limit by shunting the output to ground with a 410 pF capacitor. The XR-1489A contains four independent line receivers, designed for interfacing RS232C to TTL/DTL. Each receiver features independently programmable switching thresholds with hysteresis, and input protection to ± 30 V. The output can typically source 3 mA and sink 20 mA.

XR-494



Dual-Polarity Tracking Voltage Regulator

GENERAL DESCRIPTION

The XR-1468/1568 is a dual polarity tracking voltage regulator, internally trimmed for symmetrical positive and negative 15V outputs. Current output capability is 100 mA, and may be increased by adding external pass transistors. The device is intended for local "on-card" regulation, which eliminates the distribution problems associated with single point regulation.

The XR-1468CN and XR-1568N are guaranteed over the 0°C to 70°C commercial temperature range. The XR-1568M is rated over the full military temperature range of -55°C to +125°C.

FEATURES

- Internally Set for $\pm 15\text{V}$ Outputs
- $\pm 100\text{ mA}$ Peak Output Current
- Output Voltages Balanced Within 1% (XR-1568)
- 0.06% Line and Load Regulation
- Low Stand-By Current
- Output Externally Adjustable from ± 8 to ± 20 Volts
- Externally Adjustable Current Limiting
- Remote Sensing

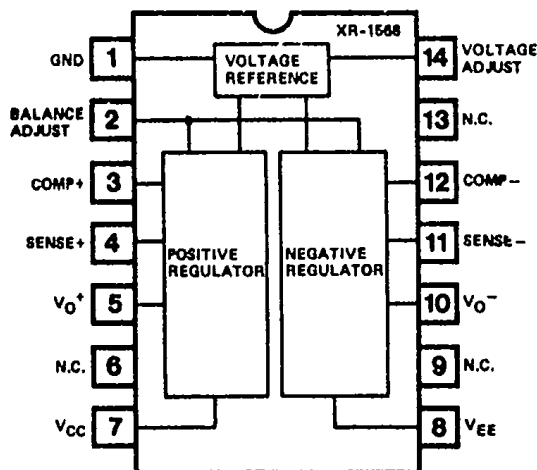
APPLICATIONS

- Main Regulation in Small Instruments
- On-Card Regulation in Analog and Digital Systems
- Point-of-Load Precision Regulation

ABSOLUTE MAXIMUM RATINGS

Power Supply	$\pm 30\text{ Volts}$
Minimum Short-Circuit Resistance	4.0 Ohms
Load Current, Peak	$\pm 100\text{ mA}$
Power Dissipation	
Ceramic (N) Package	1.0 Watt
Derate Above +25°C	6.7 mW/°C
Operating Temperature	
XR-1568M	-55°C to +125°C
XR-1568/XR-1468C	0°C to +70°C
Storage Temperature	-65°C to +150°C

FUNCTIONAL BLOCK DIAGRAM



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ORDERING INFORMATION

Part Number	Temperature	Output Offset	Package
XR-1568M	-55°C to +125°C	$\pm 150\text{ mV max}$	Ceramic
XR-1568N	0°C to +70°C	$\pm 150\text{ mV max}$	Ceramic
XR-1468CN	0°C to +70°C	$\pm 300\text{ mV max}$	Ceramic

SYSTEM DESCRIPTION

The XR-1468/1568 is a dual polarity tracking voltage regulator combining two separate regulators with a common reference element in a single monolithic circuit, thus providing a very close balance between the positive and negative output voltages. Outputs are internally set to $\pm 15\text{ Volts}$ but can be externally adjusted between ± 8.0 to $\pm 20\text{ Volts}$ with a single control. The circuit features $\pm 100\text{ mA}$ output current, with externally adjustable current limiting, and provision for remote voltage sensing.