

Hammer Driver

GENERAL DESCRIPTION

The XR-2200 is an array of five Darlington transistor pairs which are capable of driving high-current loads such as solenoids, relays, and LED's. Each of the five circuits contained on the XR-2200 is capable of sinking up to 400 mA. The XR-2200 was specifically designed for use with 14 V to 25 V PMOS devices.

FEATURES

Output Capability of 400 mA for Each Driver
Drivers may be used in parallel for increased output drive capability.
Input is directly compatible with PMOS outputs

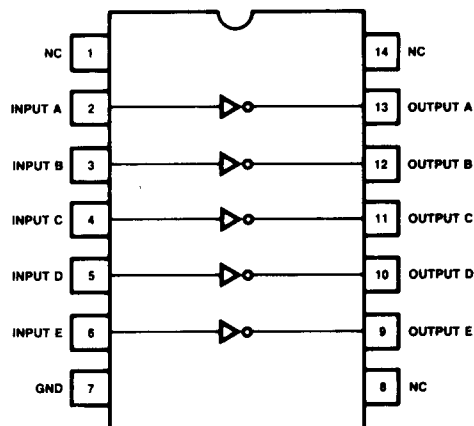
APPLICATIONS

Printing Calculator Hammer Driver
High Current LED Driver
Solenoid and Relay Driver
Tungsten Lamp Driver
High Current Switch

ABSOLUTE MAXIMUM RATINGS

Collector to Base Voltage	30V
Collector to Emitter Voltage	30V
Emitter to Base Voltage	5.5V
Collector Current	450 mA
Input Terminal Breakdown Voltage (plus)	30V
Input Terminal Breakdown Voltage (minus)	-0.5V
Power Dissipation	550 mW

FUNCTIONAL BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Package Type	Operating Temperature
XR-2200 CP	Plastic	- 25°C to + 70°C

SYSTEM DESCRIPTION

The XR-2200 hammer driver contains five Darlington connected transistor pairs, each capable of switching 30V. All five emitters are connected to a common ground (Pin 7). With a guaranteed current gain of 2000, each section of the XR-2200 can sink 400 mA.

XR-2200

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

PARAMETERS	LIMITS			UNITS	CONDITIONS
	MIN	TYP	MAX		
Power Supply Voltage			26	Vdc	
Output Leakage Current			100	μA	$V_{CE} = 26\text{ V}, V_{IN} = 0\text{ V}$
Output Current One Driver			400	mA	
Output Current 5 Drivers					See Figure 2
Output Saturation Voltage			2.2	Vdc	$I_{OUT} = 400\text{ mA}$ $V_{IN} = 17\text{ V}$ $I_{OUT} = 200\text{ mA}$ $V_{IN} = 17\text{ V}$
Current Gain	2000				$V_{CE} = 3\text{ V}$ $I_{OUT} = 200\text{ mA}$
Input Current		0.7		mA	$V_{IN} = 17\text{ V}$ $I_{OUT} = 0\text{ mA}$

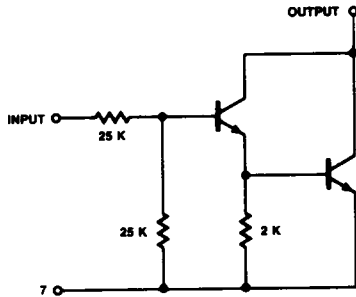


Figure 1. Schematic Diagram (1 of 5 Circuits Shown)

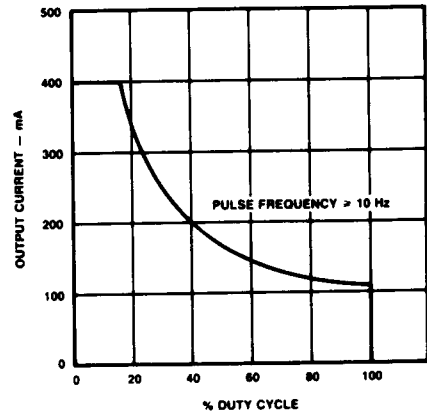


Figure 2. Maximum Permissible Output Current per Driver vs Duty Cycle with 5 Drivers Pulsed Simultaneously.

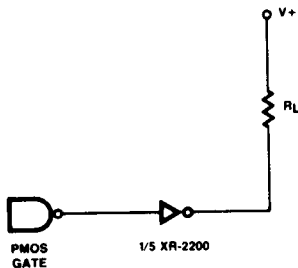


Figure 3. Circuit Connection for Driving Non-inductive Loads

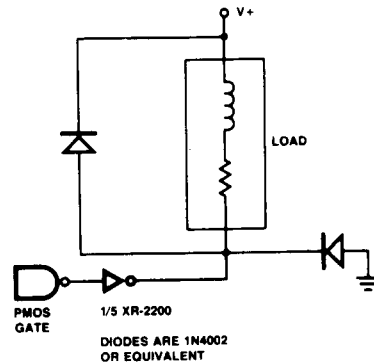


Figure 4. Circuit Connection for Driving Inductive Loads.
NOTE: The XR-2200 may be damaged if the diodes are omitted when driving an inductive load.

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XR-1488/1489A

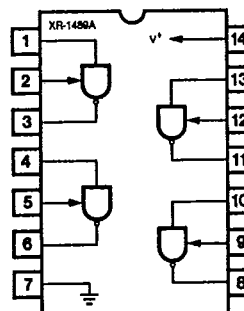
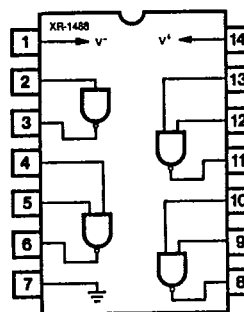
Quad Line Driver/Receiver

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.

FUNCTIONAL BLOCK DIAGRAMS



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

SYSTEM DESCRIPTION

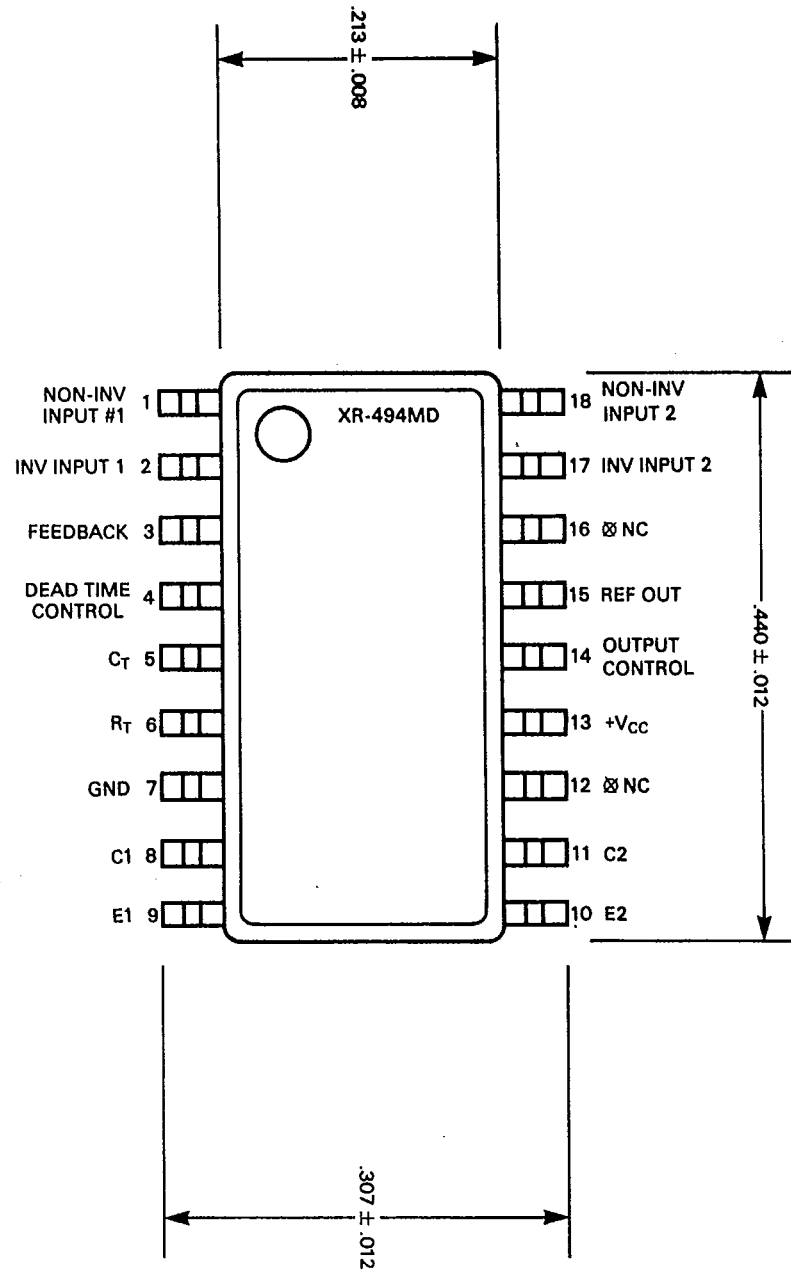
The XR-1488 and XR-1489A are a matched set of quad line drivers and line receivers designed for interfacing between TTL/DTL and RS232C data communication lines.

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.

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XR-494

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T-58-11-31



91D 04475

DT-58-11-03

XR-1468/1568

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 $\pm 15V$ Outputs
- ± 100 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

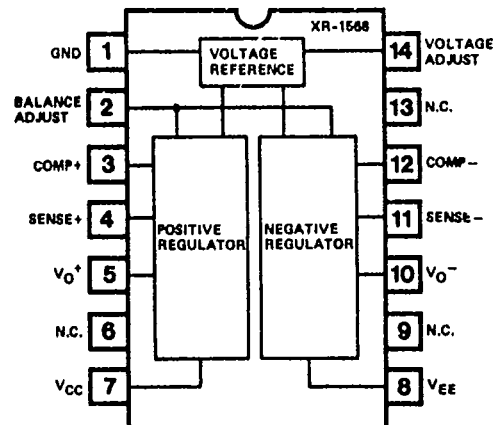
APPLICATIONS

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

ABSOLUTE MAXIMUM RATINGS

Power Supply	± 30 Volts
Minimum Short-Circuit Resistance	4.0 Ohms
Load Current, Peak	± 100 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	± 150 mV max	Ceramic
XR-1568N	0°C to +70°C	± 150 mV max	Ceramic
XR-1468CN	0°C to +70°C	± 300 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 ± 15 Volts but can be externally adjusted between ± 8.0 to ± 20 Volts with a single control. The circuit features ± 100 mA output current, with externally adjustable current limiting, and provision for remote voltage sensing.