

High-Voltage 7-Digit Display Driver

GENERAL DESCRIPTION

The XR-2272 is a monolithic high voltage display driver array specifically designed to drive gas-filled digit displays. The circuit is made up of seven independent digit driver sections in the same monolithic package. Its main application is to act as buffer interface between MOS outputs and the anodes of a gas discharge panel. The XR-2272 is particularly well suited to interfacing with Panaplex II type displays.

FEATURES

- Active Low Inputs
- High Breakdown Voltage
- Low Power Dissipation
- Complete Input-Output Isolation
- On-Chip Pull-Up Resistors
- Versatility for Display Interface

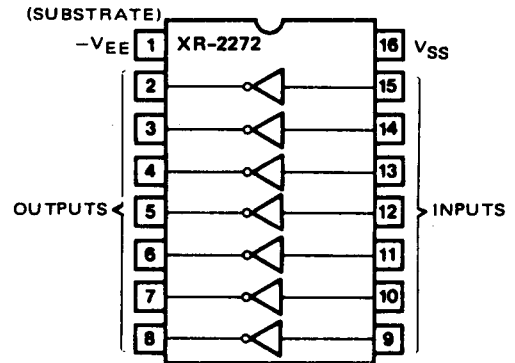
APPLICATIONS

- Gas Discharge Display Driver
- Panaplex Display Driver
- MOS Logic to High-Voltage Interface

ABSOLUTE MAXIMUM RATINGS

Supply Voltage ($-V_{EE}$)	-75V Max.
Output on Current Each Output	-20 mA Max.
Output on Current All Combined	-50 mA Max.
Positive Supply Current I_{SS}	60 mA Max.
Input Current	± 3 mA Max.
Input Voltage	$-V_{EE}, \text{Min.}, V_{SS}, \text{Max.}$
Package Power Dissipation, 25°C	625 mW (Plastic)
Derating above 25°C	5 mW/°C
Operating Temperature Range	0°C to +70°C
Storage Temperature Range	-65°C to 150°C

FUNCTIONAL BLOCK DIAGRAM

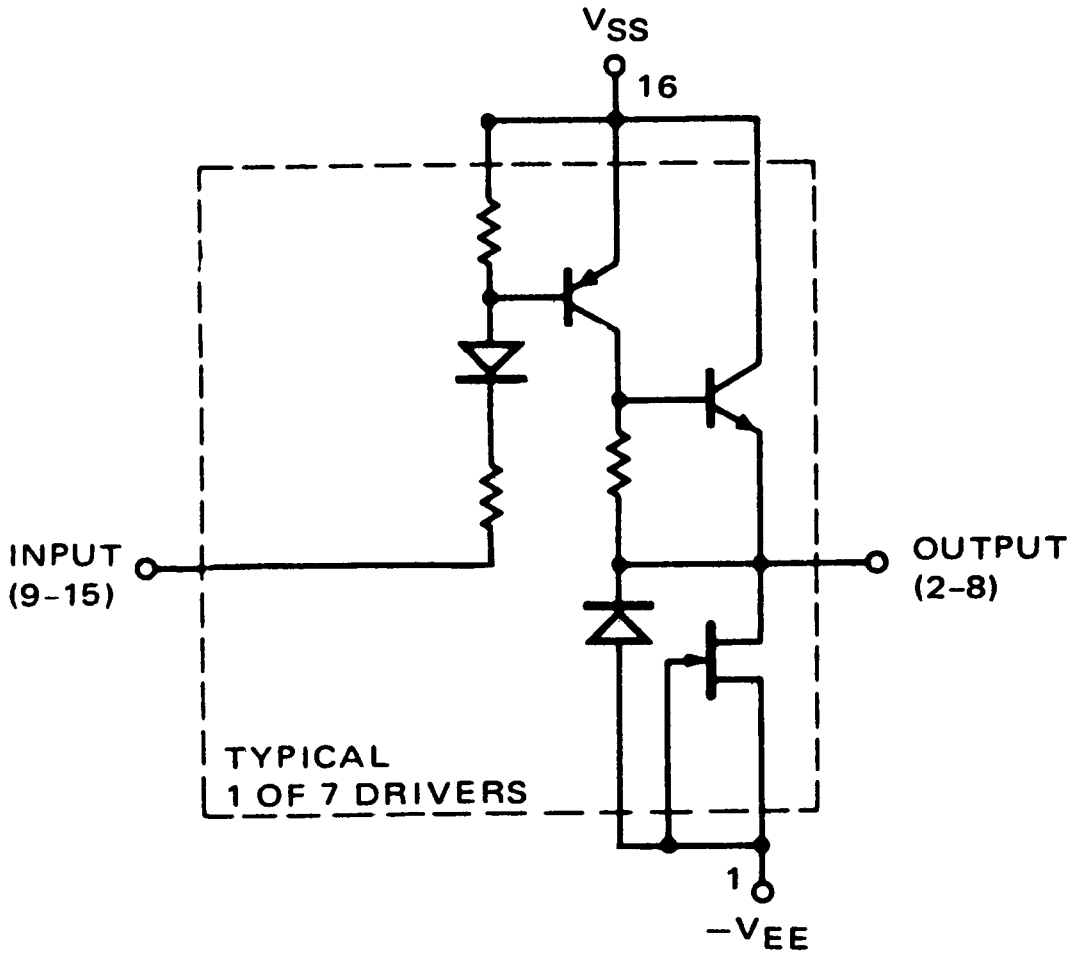


ORDERING INFORMATION

Part Number	Package	Operating Temperature
XR-2272CN	Ceramic	0°C to +70°C
XR-2272CP	Plastic	0°C to +70°C

SYSTEM DESCRIPTION

The XR-2272 high voltage display driver features seven independent sections, each capable of switching -75 V at up to 20 mA. Each has active low inputs and monolithic pull-up resistors. The output is an emitter follower.



EQUIVALENT SCHEMATIC DIAGRAM

XR-2272

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, $V_{SS} = 0\text{V}$, $V_- = -60\text{V}$, Note 1)

PARAMETERS	MIN	TYP	MAX	UNITS	SYMBOL	CONDITIONS
Input Off Voltage		-1.8	-1.2	V	$V_{in\text{off}}$	$I_O = -5\ \mu\text{A}$
Input Off Current		-20		μA	$I_{in\text{off}}$	$V_{in} = -1.2\text{V}$ $I_O = -5\ \mu\text{A}$
Input On Voltage			-6	V	$V_{in\text{ on}}$	$V_O = -1.4\text{V}$ $I_O = -15\ \text{mA}$
Input On Current	-600	-250	-100	μA	$I_{in\text{ on}}$	$V_O = -1.4\text{V}$ $I_O = -15\ \text{mA}$
Output Off Voltage		-60	-48	V	$V_O\text{ off}$	$V_{in} = -1.2\text{V}$
Output On Voltage	-1.4	-0.9	0	V	$V_O\text{ on}$	$V_{in} = -6\text{V}$ $I_O = -15\ \text{mA}$
Output Pull Down Resistance		45		K Ω	R_O	$V_{in} = -6\text{V}$ Note 2
Output Pull Down Current		350		μA	I_S	$V_O = -5\text{V}$ $V_{in} = -6\text{V}$ Note 2
Supply Current Off State		1	150	μA	I_-	All inputs at -1.2V
One Segment On		0.35	2	mA	I_-	One input at -6V
All Segments On		2.2	6	mA	I_-	All inputs at -6V

AC Parameters ($T_A = +25^\circ\text{C}$, Test Circuit Figure 2)

Output on Delay Time		1	5	μS	t_d	$C_L = 25\ \text{pF}$ $R_L = 10\ \text{K}\Omega$
Output on Rise Time		0.5	2	μS	t_r	$C_L = 25\ \text{pF}$ $R_L = 10\ \text{K}$
Output off Storage Time		0.8	5	μS	t_s	$C_L = 25\ \text{pF}$ $R_L = 10\ \text{K}\Omega$
Output off Fall Time		0.6 2	2.0 25	μS μS	t_f	$C_L = 25\ \text{pF}$ $R_L = 10\text{K}$ $R_L = \infty$

Note 1. All voltages measured with respect to V_{SS} unless otherwise noted. Positive current flow is into a device pin.

Note 2. The output pull down resistance is an N-Channel junction FET. For $V_O \approx V_-$ it is resistive, and for $|V_O - (V_-)| > 20\text{V}$, it is a current sink.

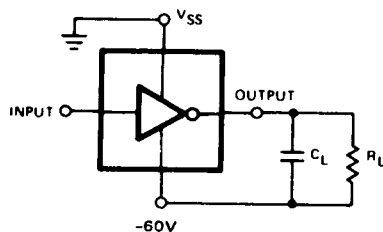


Figure 2. XR-2272 AC Parameter Test Circuit

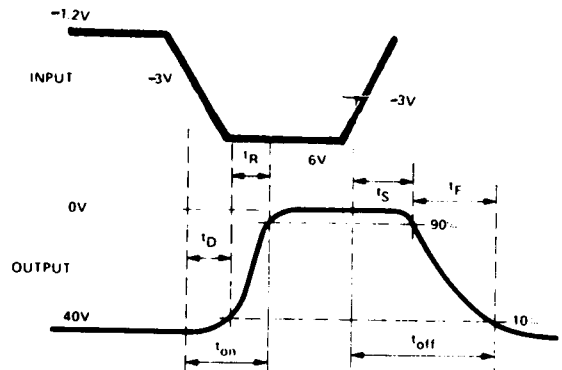


Figure 3. AC Test Waveforms

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EXAR

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XR-1488/1489A

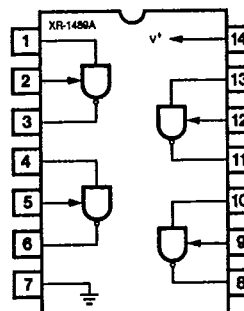
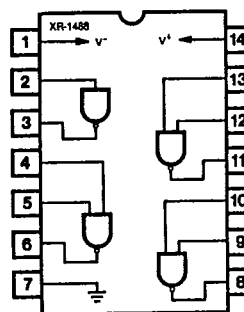
Quad Line Driver/Receiver

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

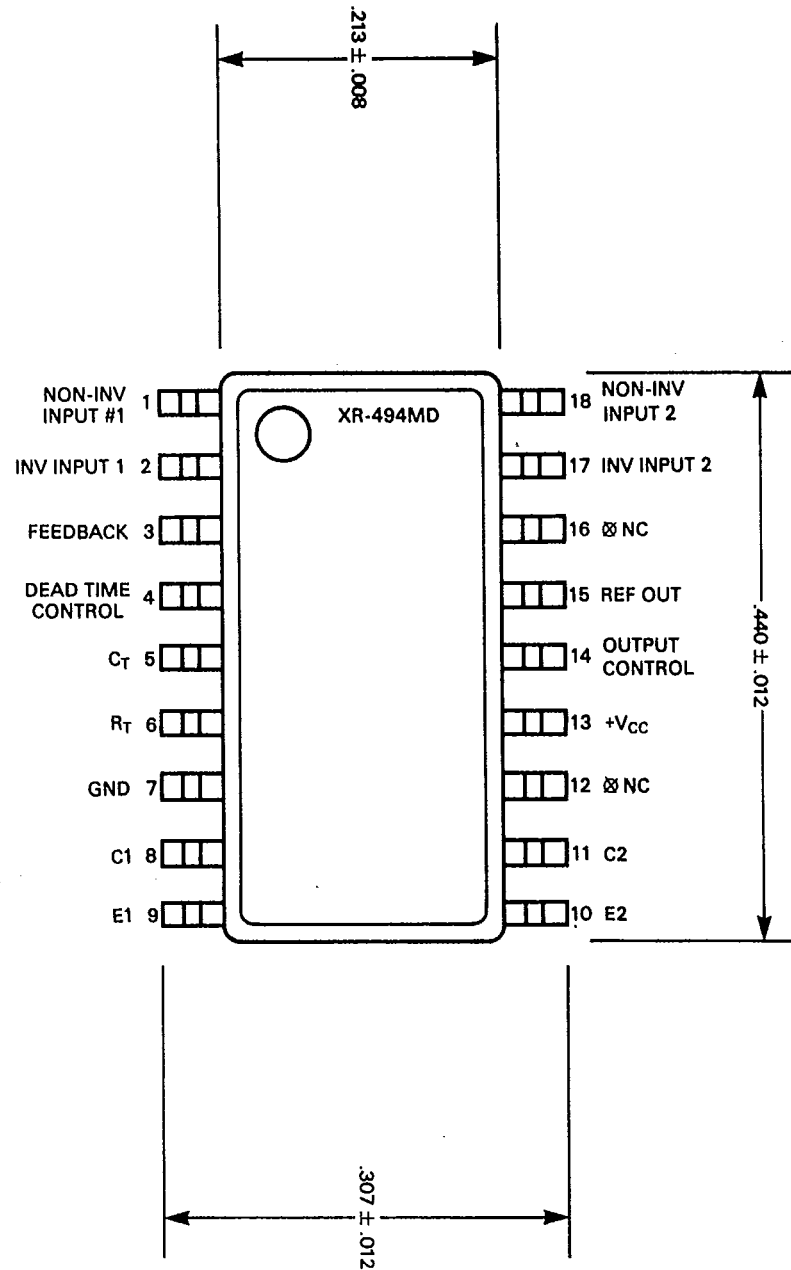
The XR-1488 and XR-1489A are a matched set of quad line drivers and line receivers designed for interfacing between TTL/DTL and RS232C data communication lines.

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

91D 04470 D

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

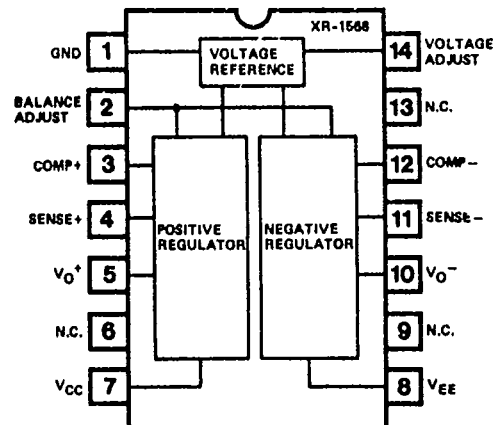
APPLICATIONS

- 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.