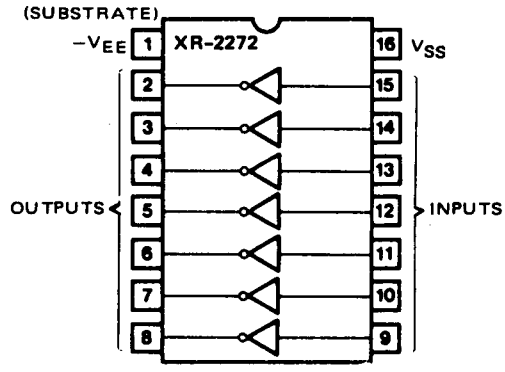
High-Voltage 7-Digit Display Driver

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.

FUNCTIONAL BLOCK DIAGRAM



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

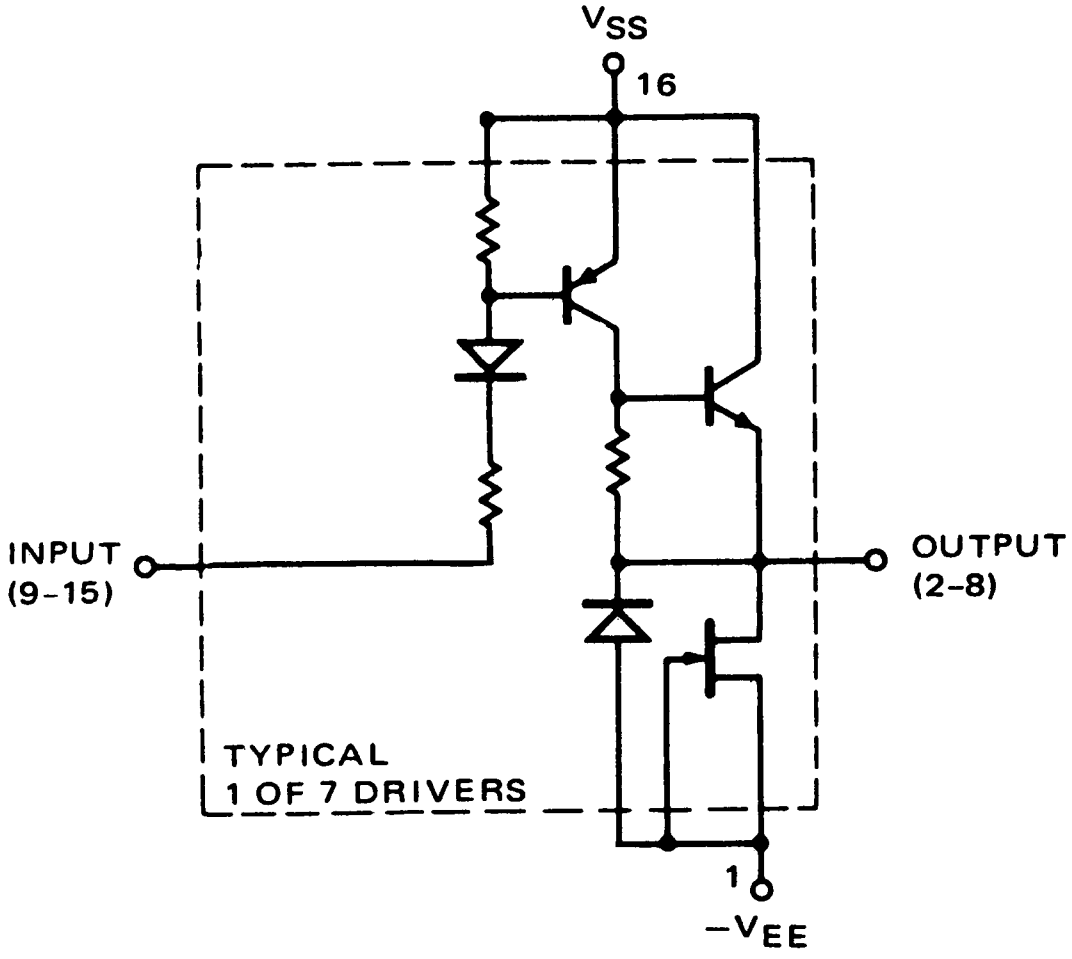
Supply Voltage ($-V_{EE}$)	−75V Max.
Output on Current Each Output	−20 mA Max.
Output on Current All Combined	−50 mA Max.
Positive Supply Current I_{SS}	60 mA Max.
Input Current	±3 mA Max.
Input Voltage	$-V_{EE}$, Min., V_{SS}, Max.
Package Power Dissipation, 25°C	625 mW (Plastic)
Derating above 25°C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

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°C, V_{SS} = 0V, V− = −60V, Note 1)

PARAMETERS	MIN	TYP	MAX	UNITS	SYMBOL	CONDITIONS
Input Off Voltage		−1.8	−1.2	V	$V_{in}off$	I_O = −5 μA
Input Off Current		−20		μA	$I_{in}off$	V_{in} = −1.2V I_O = −5 μA
Input On Voltage			−6	V	V_{in} on	V_O = −1.4V I_O = −15 mA
Input On Current	−600	−250	−100	μA	I_{in} on	V_O = −1.4V I_O = −15 mA
Output Off Voltage		−60	−48	V	V_O off	V_{in} = −1.2V
Output On Voltage	−1.4	−0.9	0	V	V_O on	V_{in} = −6V I_O = −15 mA
Output Pull Down Resistance		45		KΩ	R_O	V_{in} = −6V Note 2
Output Pull Down Current		350		μA	I_S	V_O = −5V V_{in} = −6V 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°C, Test Circuit Figure 2)

Output on Delay Time		1	5	μS	t_d	C_L = 25 pF R_L = 10 KΩ
Output on Rise Time		0.5	2	μS	t_r	C_L = 25 pF R_L = 10 K
Output off Storage Time		0.8	5	μS	t_s	C_L = 25 pF R_L = 10 KΩ
Output off Fall Time		0.6 2	2.0 25	μS μS	t_f	C_L = 25 pF R_L = 10K R_L = ∞

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 $|V_O - (V-)| > 20V$, it is a current sink.

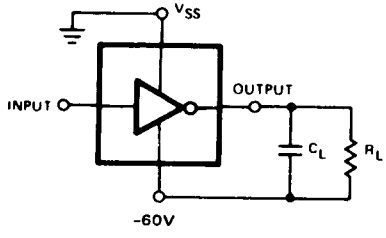


Figure 2. XR-2272 AC Parameter Test Circuit

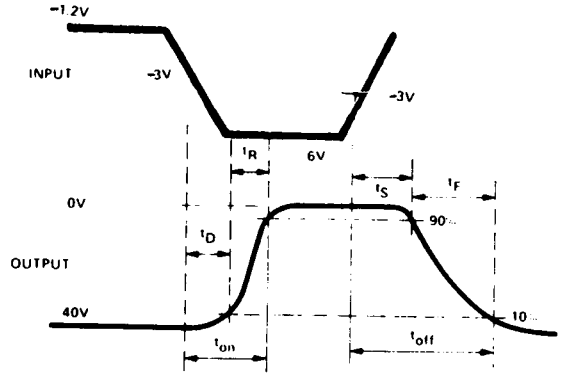


Figure 3. AC Test Waveforms

EXAR

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.

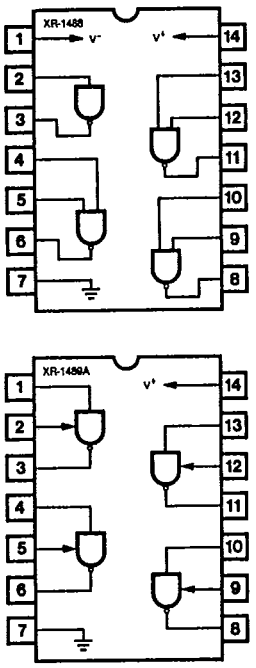
ABSOLUTE MAXIMUM RATINGS

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/μS 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

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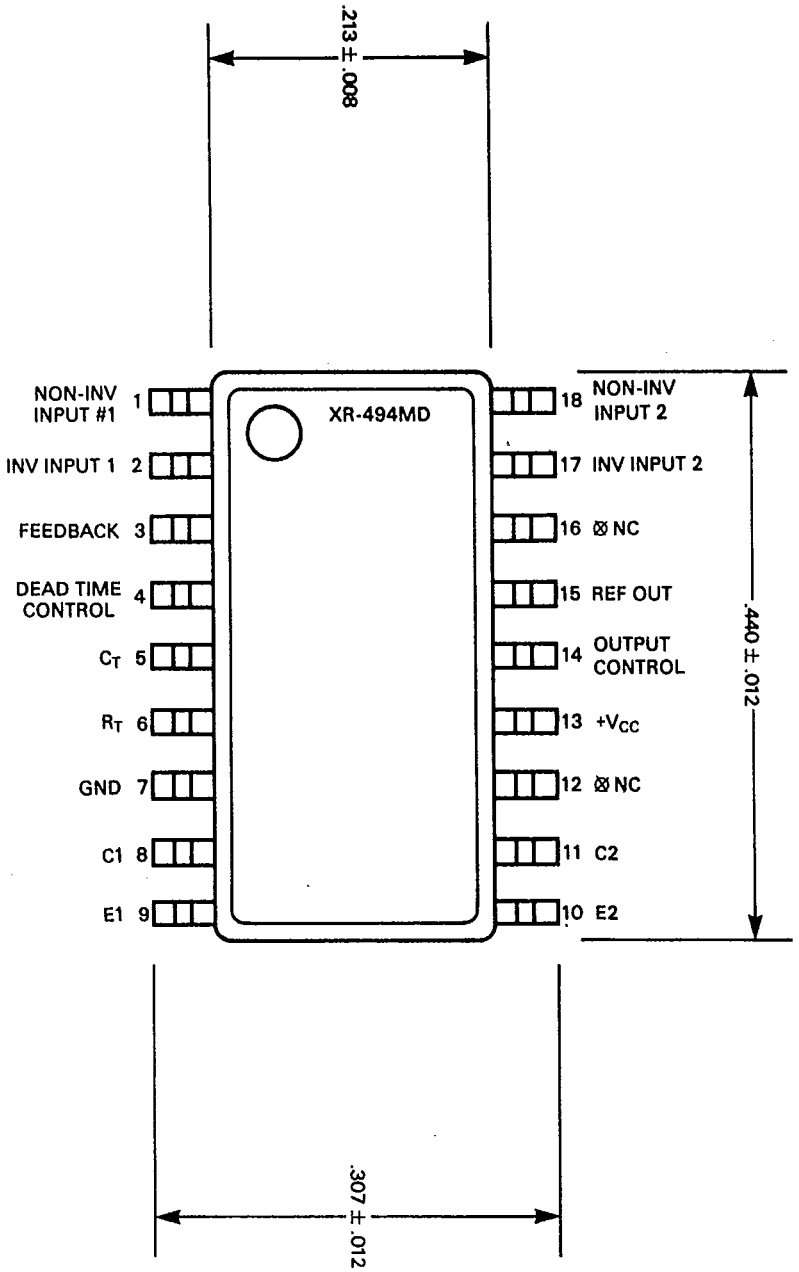


EXAR

XR-1468/1568

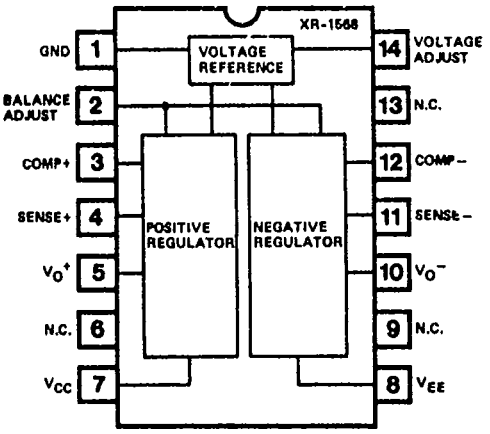
Dual-Polarity Tracking Voltage Regulator

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.

FUNCTIONAL BLOCK DIAGRAM



FEATURES

Internally Set for ±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

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

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

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.

5