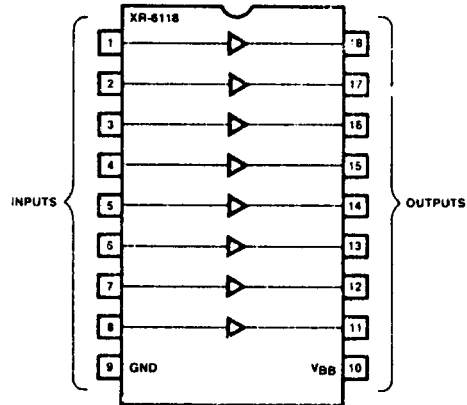


# Fluorescent Display Drivers

## GENERAL DESCRIPTION

The XR-6118 is a high-voltage display driver array which is designed to interface between low-level digital logic and vacuum fluorescent displays. The circuit consists of eight independent signal channels comprised of Darlington output stages and common-emitter type inputs. All stages on the chip share common power supply and ground connections. The device is capable of driving digits and/or segments of fluorescent displays, and all of the eight outputs can be activated simultaneously.

## PIN ASSIGNMENT



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## FEATURES

- Direct Replacement for Sprague UDN-6118A, and UDN-6118P-2 (60V)
- Digit or Segment Drive Capability
- Low Input Current
- Integral Output Pulldown Resistors
- Low Power
- High Output Breakdown Voltage

## ORDERING INFORMATION

Part Number	Package	Operating Temp
XR-6118P	Plastic	0°C to +70°C
XR-6118P-2	Plastic	0°C to +70°C

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage, $V_{BB}$	85V
Output Voltage, $V_{OUT}$	85V
Input Voltage, $V_{IN}$	20V
Output Current, $I_{OUT}$	40 mA
Power Dissipation, ( $T_A \leq 25^\circ\text{C}$ )	1 W
Derate Above 25°C	8 mW/°C
Operating Temperature	0°C to +85°C
Storage Temperature	-55°C to +150°C

## SYSTEM DESCRIPTION

The XR-6118 is a fluorescent display driver which can switch up to 85V and 40mA. Inputs are protected to 20V. The XR-6118 is compatible with TTL, Schottky TTL, DTL and 5 Volt CMOS logic families. The output load is activated when the inputs are pulled toward positive supply. Output pulldown resistors are included on the die.

# XR-6118

## ELECTRICAL CHARACTERISTICS

Test Conditions: ( $T_A = 25^\circ\text{C}$ ,  $V_{BB} = 80\text{V}$ ) Full Temp. Range  $0^\circ\text{C}$  to  $+70^\circ\text{C}$ , XR-6118A only.  $V_{BB} = 60\text{V}$  for XR-6118 P-2.

SYMBOL	PARAMETERS	MIN	TYP	MAX	UNIT	CONDITIONS
ICEX	Output Leakage Current			15	$\mu\text{A}$	$V_{IN} = 0.4\text{V}$
VOUT	Output ON Voltage	77			V	$I_{OUT} = 25\text{ mA}$ $V_{IN} = 2.4\text{ V (XR-6118)}$
	Input ON Voltage	2.4		15	V	$I_{OUT} = 25\text{ mA}$
$I_{BB}(\text{OFF})$	Supply Current OFF Condition			650	$\mu\text{A}$	$V_{IN} = 5\text{ V (XR-6118)}$
$I_{BB}(\text{ON})$	ON Condition		100		$\mu\text{A}$	All Inputs Open
			9		mA	$V_{IN} = 2.4\text{ V (XR-6118)}$ (All Inputs)
$I_{OUT}$	Output Pulldown			1100	$\mu\text{A}$	All Inputs Open $V_{OUT} = 80\text{V}$

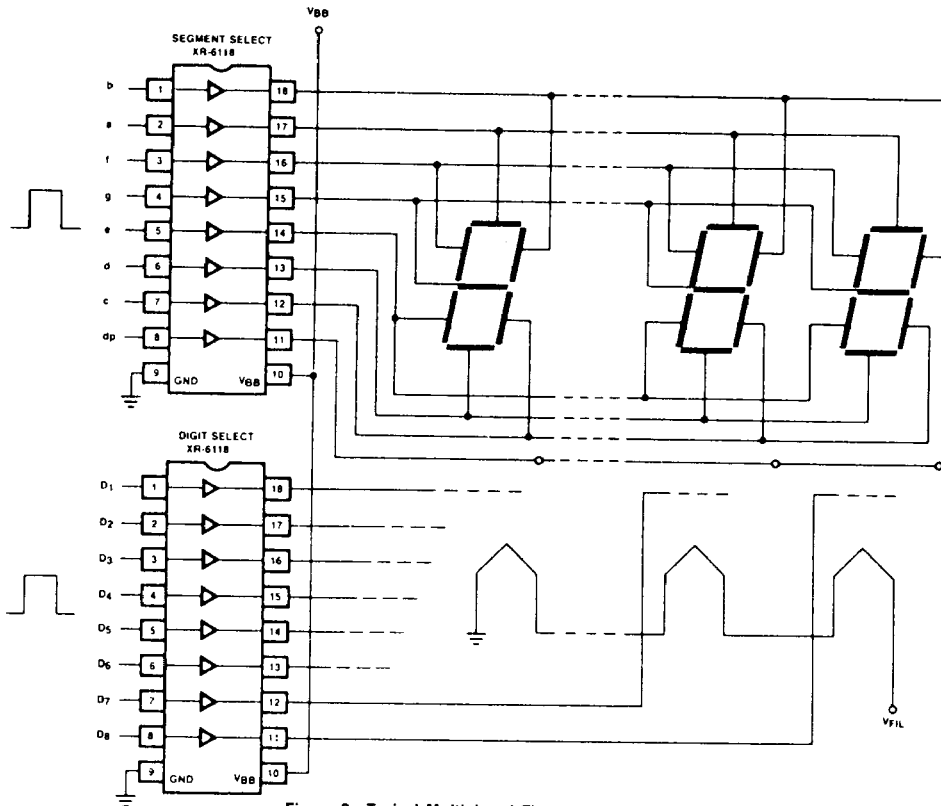
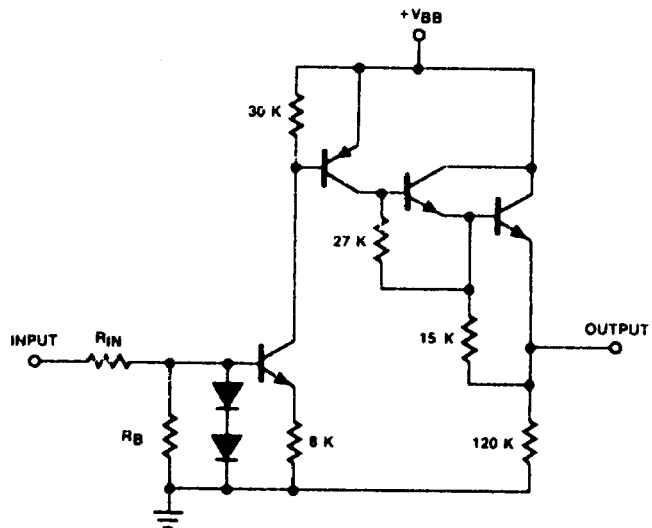


Figure 2. Typical Multiplexed Fluorescent Display Drive Application



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One of Eight  
Stages

$$R_{IN} = 10 \text{ K}, R_B = 30 \text{ K}$$

### EQUIVALENT SCHEMATIC DIAGRAM

3422618 EXAR CORP

**EXAR**

91D 04225

07-75-45-05

**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.

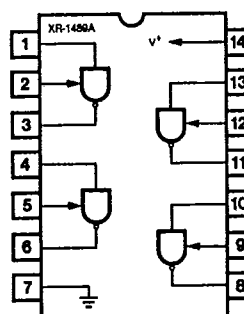
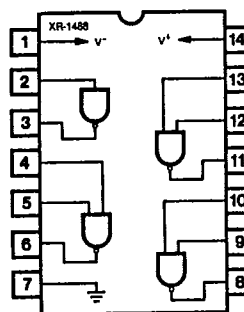
### ABSOLUTE MAXIMUM RATINGS

Power Supply		
XR-1488		$\pm 15$ 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

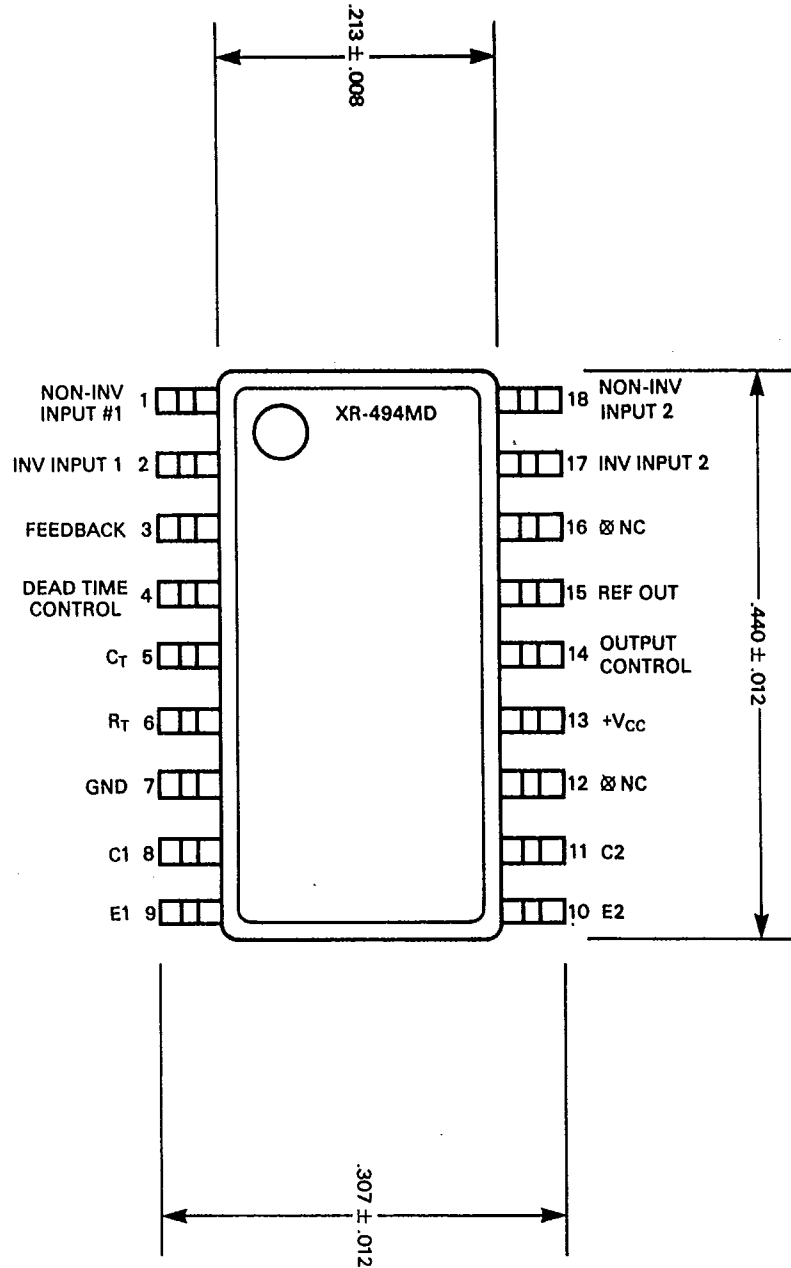
The XR-1488 and XR-1489A are a matched set of quad line drivers and line receivers designed for interfacing between TTL/DTL and RS232C data communication lines.

The XR-1488 contains four independent split supply line drivers, each with a  $\pm 10$  mA current limited output. For RS232C applications, the slew rate can be reduced to the 30 V/ $\mu$ 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  $\pm 30$  V. The output can typically source 3 mA and sink 20 mA.

3422618 EXAR CORP  
**XR-494**

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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
- $\pm 100$  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  $\pm 8$  to  $\pm 20$  Volts
- Externally Adjustable Current Limiting
- Remote Sensing

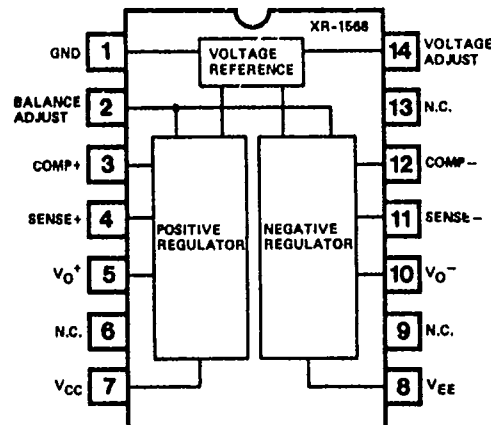
### APPLICATIONS

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

### ABSOLUTE MAXIMUM RATINGS

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