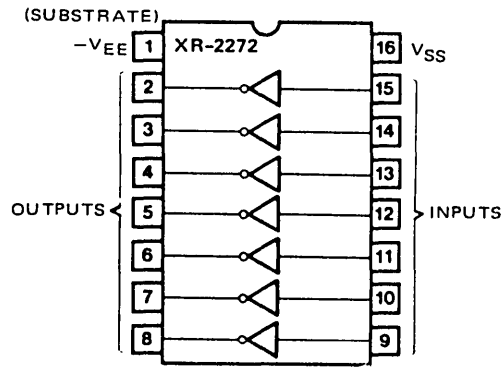
High-Voltage 7-Digit Display Driver

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

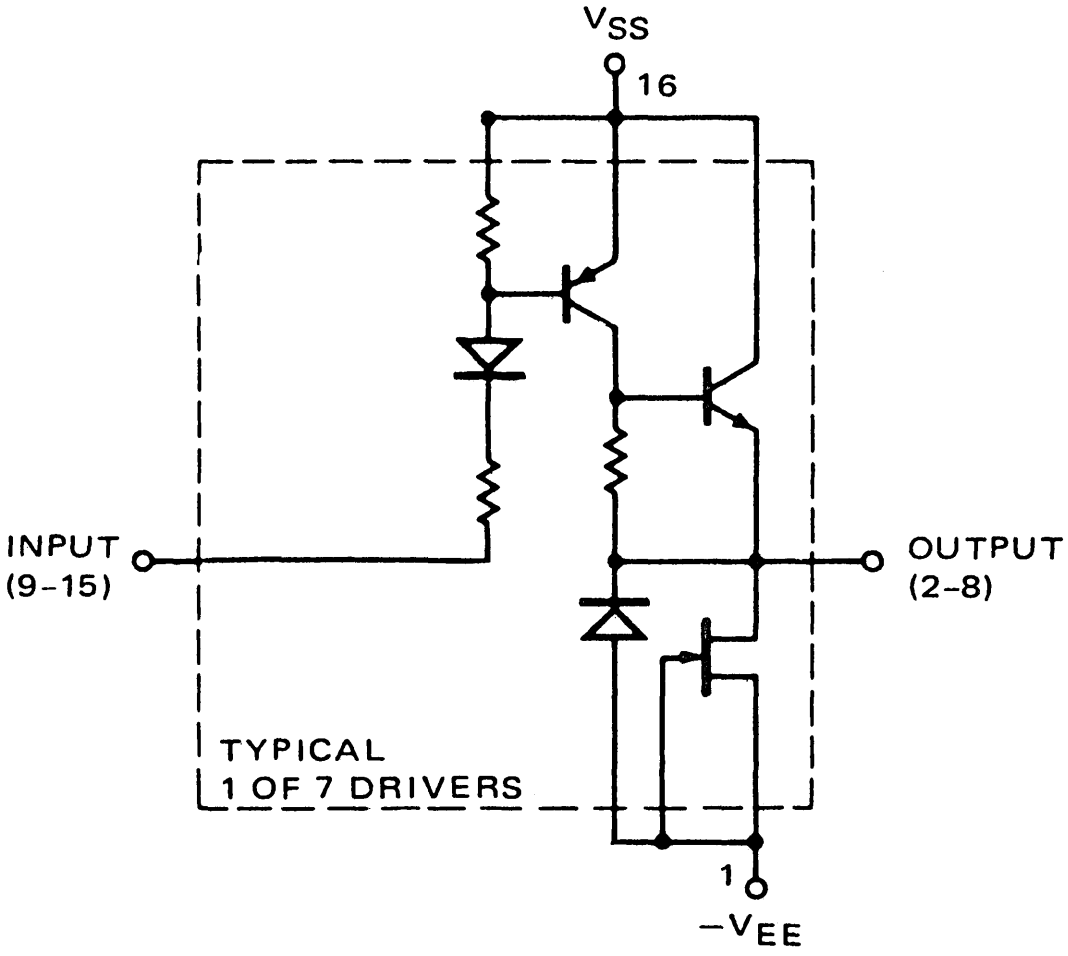
Supply Voltage ($-V_{EE}$)	−75V Max.
Output on Current Each Output	−20 mA Max.
Output on Current All Combined	−50 mA Max.
Positive Supply Current I_{SS}	60 mA Max.
Input Current	±3 mA Max.
Input Voltage	$-V_{EE}$, Min., V_{SS}, Max.
Package Power Dissipation, 25°C	625 mW (Plastic)
Derating above 25°C	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.

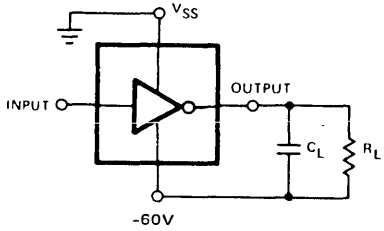


Figure 2. XR-2272 AC Parameter Test Circuit

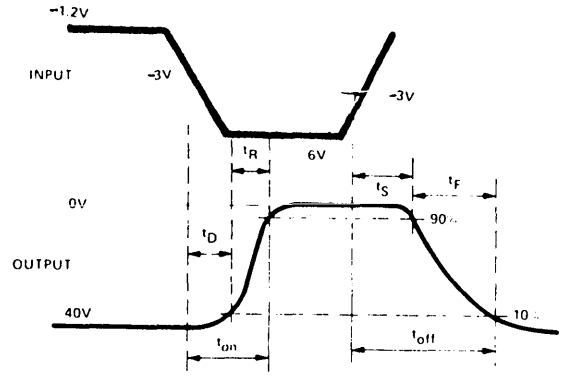


Figure 3. AC Test Waveforms