

Fluorescent Display Driver

GENERAL DESCRIPTION

The XR-2271 is a monolithic 7-digit or 7-segment display driver designed to interface MOS logic with fluorescent displays. It features active high logic and low input current. Each XR-2271 is capable of driving seven digits or segments of a display panel and provides complete input and output isolation. Since the output pull up resistors are incorporated on chip, no external parts are required to interface fluorescent displays.

FEATURES

- Active High Logic
- Low Input Current
- Complete Input Output Isolation
- Output Pull Up Resistors On Chip
- No External Parts Required To Drive Fluorescent Displays

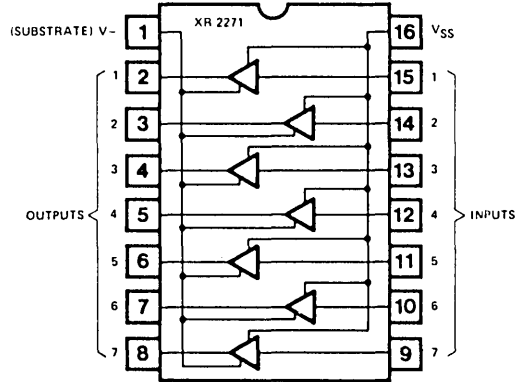
APPLICATIONS

- Fluorescent Display Driver
- MOS Logic/High-Voltage Interface

ABSOLUTE MAXIMUM RATINGS (Note 1)

$V_{SS} - V -$	50V Max.
input to $V -$	50V Max.
Outputs to $V -$	50V Max.
I_{SS}	20 mA Max.
Power Dissipation $T_A \leq 25^\circ C$	625 mW Max.
Derate above $25^\circ C$	5 mW/ $^\circ C$
Storage Temperature	$-65^\circ C$ to $+150^\circ C$

FUNCTIONAL BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Package	Operating Temperature
XR-2271CN	Ceramic	$0^\circ C$ to $+70^\circ C$
XR-2271CP	Plastic	$0^\circ C$ to $+70^\circ C$

SYSTEM DESCRIPTION

The XR-2271 fluorescent display driver requires no additional components to interface seven segment fluorescent displays to MOS Logic. The output is an emitter follower and can switch up to 50V at 20 mA. All inputs are protected to 50V and pull up resistors are integrated onto the device.

XR-2271

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, $V_{SS} = 0\text{V}$, $V_- = -40\text{V}$, Note 2)

PARAMETERS	MIN	TYP	MAX	UNITS	SYMBOL	CONDITIONS
Logical "1" Input Voltage	-1.2		0	V	$V_{in\ on}$	$V_O = -2.0\text{V}$ $I_O = -7.5\text{mA}$
Logical "0" Input Voltage			-6	V	$V_{in\ off}$	$V_O = V_- + 2\text{V}$
Logical "1" Input Current		0.25	0.8	mA	$I_{in\ on}$	$V_{in} = -1.2\text{V}$ $V_O = -2.0\text{V}$
Logical "0" Input Current	-50	0 -90	50	μA μA	$I_{in\ off}$	$V_O = V_- + 2\text{V}$ $V_{in} = -6\text{V}$ $V_{in} = -15\text{V}$
Logical "1" Output Voltage	-2.0	-0.9	0	V	$V_O\ on$	$V_O\ on$
Logical "0" Output Voltage		-40	-38	V	$V_O\ off$	$V_{in} = -6\text{V}$
Output Pull Down Resistance		45		$\text{K}\Omega$	R_O	$V_{in} = -6\text{V}$ Note 3
Output Pull Down Current		350		μA	I_S	$V_O = -5\text{V}$ $V_{in} = -6\text{V}$ Note 3
Power Supply Current		-1.2 -7	-1.4 -12.0	mA mA	I_{-off} I_{-on}	All inputs -6V All inputs -1.2V

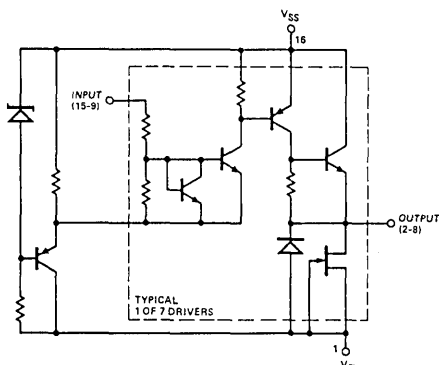
AC Parameters ($T_A = +25^\circ\text{C}$, Test Circuit Figure 2)

PARAMETERS	MIN	TYP	MAX	UNITS	SYMBOL	CONDITIONS
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	$C_L = 25\text{pF}$ $R_L = 10\text{K}\Omega$
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	$C_L = 25\text{pF}$ $R_L = 10\text{K}\Omega$ $R_L = \infty$

Note 1. The "Absolute Maximum Ratings" are those values beyond which the device may be damaged.

Note 2. All voltages measured with respect to V_{SS} unless otherwise noted. Positive current flow is into a device pin.

Note 3. 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 current sink.



EQUIVALENT SCHEMATIC DIAGRAM

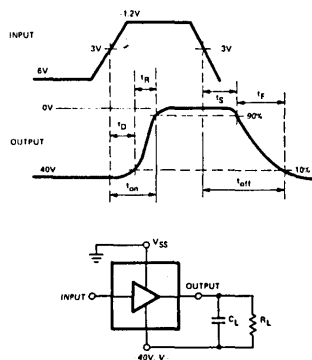


Figure 2. XR-2271 AC Parameter Test Circuit