

# Dual Line Driver

## GENERAL DESCRIPTION

The XR-T5675 is a bipolar monolithic dual line driver designed to drive PCM lines up to a 10 MBPS rate. The device is powered from a single 5V  $\pm$  5% source. Its current consumption is 14mA (typical) and the output can be pulled up to 20VDC.

## FEATURES

- 50mA Output Drive Current Capability
- Low Current Consumption (18mA Max.)
- High Speed Switching
- Dual Matched Driver Outputs
- High Output Voltage
- TTL or DTL Compatible Inputs

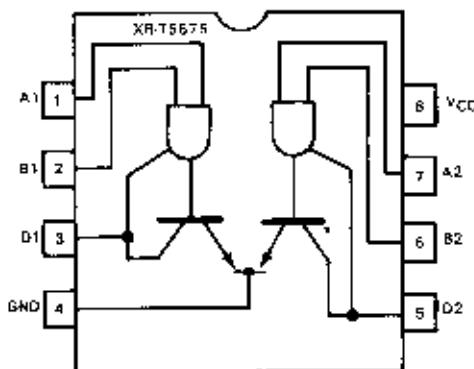
## APPLICATIONS

- T1, T1C, T2, 2.048MBPS and 8.448MBPS PCM Line Driver
- LAN Line Driver
- Relay Driver
- LED/Lamp Driver

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage ( $V_{CC}$ )	+7.0V
Input Voltage (Pin 1,2,6,7)	-0.2V to + $V_{CC}$
Output Pull-up Voltages (Pin 3,5)	+35.0V
Power Dissipation	
Ceramic	700mW
Plastic	600mW
Storage Temperature	-65°C to 150°C

## PIN ASSIGNMENT



## ORDERING INFORMATION

Part Number	Package	Operating Temperature
XR-T5675CP	Plastic	0°C to +70°C
XR-T5675CN	Ceramic	0°C to +70°C
XR-T5675 D	SOIC	0°C to +70°C

## SYSTEM DESCRIPTION

Figure 1 contains the Functional Block Diagram of the XR-T5675. The circuit consists of two AND logic gates with their outputs internally connected to the bases of the output transistors. The low level outputs are clamped at 1 VBE to ground to insure non-saturating operation for fast switching.

A	B	OUTPUT (D)
L	L	H (OFF)
L	H	H (OFF)
H	L	H (OFF)
H	H	L (ON)

Truth Table — XR-T5675  
H = High Level, L = Low Level

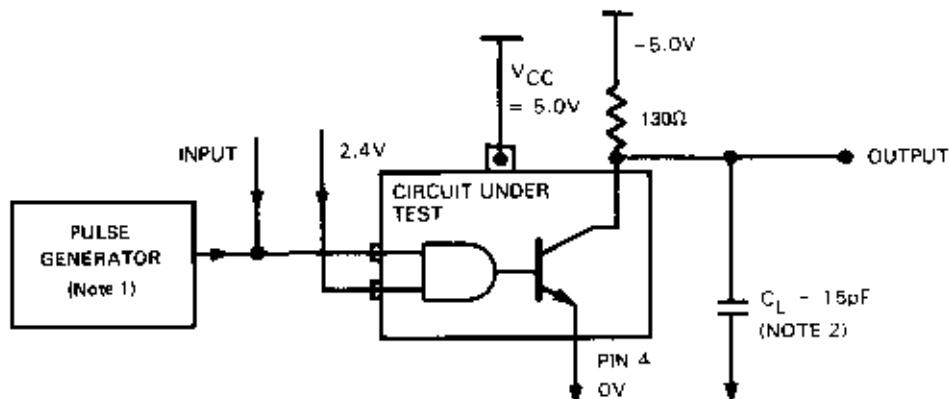
**ELECTRICAL CHARACTERISTICS**Test Conditions:  $V_{CC} = 5.0V$ ,  $T_A = 0^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ , unless specified otherwise.

SYMBOL	PARAMETERS	PINS	MIN	TYP	MAX	UNIT	CONDITIONS
$V_{CC}$	Supply Voltage	8	4.75	5.0	5.25	V	
$V_{IH}$	High Level Input Voltage	1,2,6,7	2.2			V	$I_{OL} = 50\text{mA}$ , $V_{OL} = 0.95\text{V}$
$V_{IL}$	Low Level Input Voltage	1,2,6,7			0.8	V	
$I_{IH}$	High Level Input Current	1,2,6,7			40	$\mu\text{A}$	$V_{IH} = 2.7\text{V}$ , Pins 3 & 5 Open
$I_{IL}$	Low Level Input Current	1,2,6,7			-1.2	mA	$V_{IL} = 0.4\text{V}$ , Pins 3 & 5 Open
$V_{OL}$	Low Level Output Voltage	3,5	0.6		0.96	V	$V_{IH} = 2.2\text{V}$ , $I_{OL} = 50\text{mA}$
$I_{OL}$	Low Level Output Current	3,5			50	mA	$V_{IH} = 2.2\text{V}$ , $V_{OL} = 0.95\text{V}$
$I_{OH}$	High Level Leakage Current	3,5			100	$\mu\text{A}$	Pins 3 & 5, Pull-up to +20V
$I_{OPH}$	Supply Current Output High	8			3.0	mA	Pins 3 & 5 Open
$I_{OPL}$	Supply Current Output Low	8		14.0	18.0	mA	Pins 3 & 5 Open

**SWITCHING CHARACTERISTICS,  $V_{CC} = 5.0V \pm 5\%$ ,  $T_A = +25^{\circ}\text{C}$** 

$t_{PLH}$	Propagation Delay, Low to High	3,5		15		ns	See Figure 2
$t_{PHL}$	Propagation Delay, High to Low	3,5		15		ns	See Figure 2
$t_{Rise}$	Rise Time	3,5		15	24	ns	See Figure 2
$t_{Fall}$	Fall Time	3,5		10	24	ns	See Figure 2
	Output Pulse Imbalance			2.5		ns	At 50% Output Level

# XR-T5675



Note 1. Pulse Generator Frequency  $\times 2.0\text{MHz}$ ,  $Z_{OUT} = 50\Omega$ .

Note 2.  $C_L$  Included — Probe and Jig Capacitance

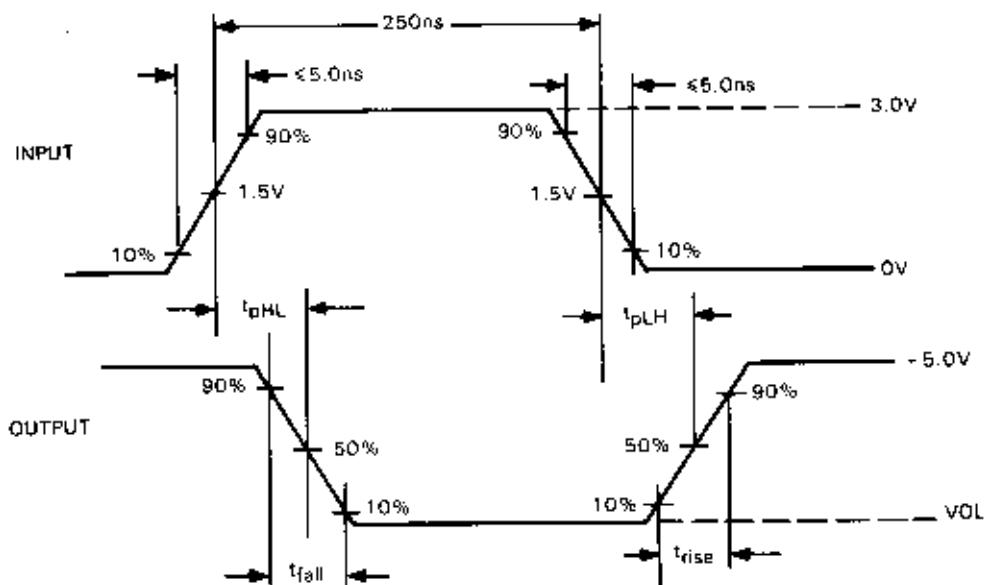
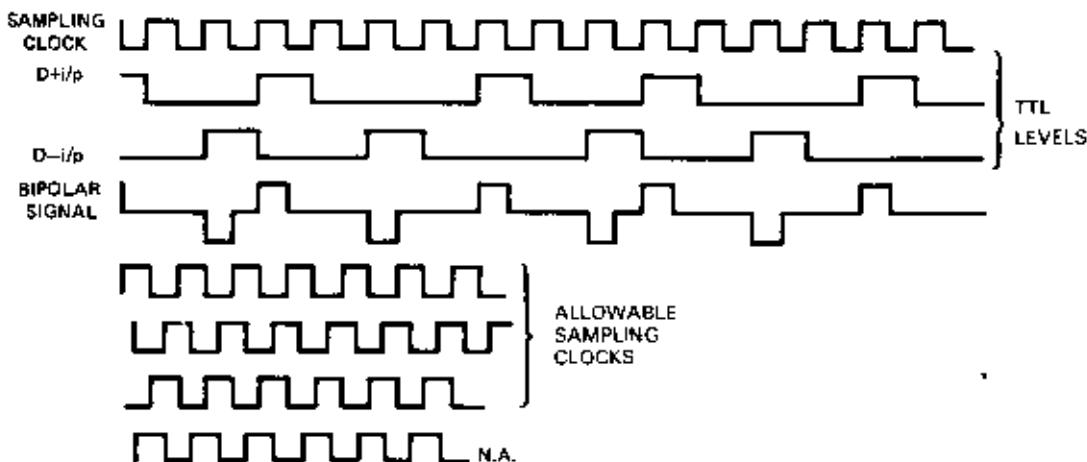
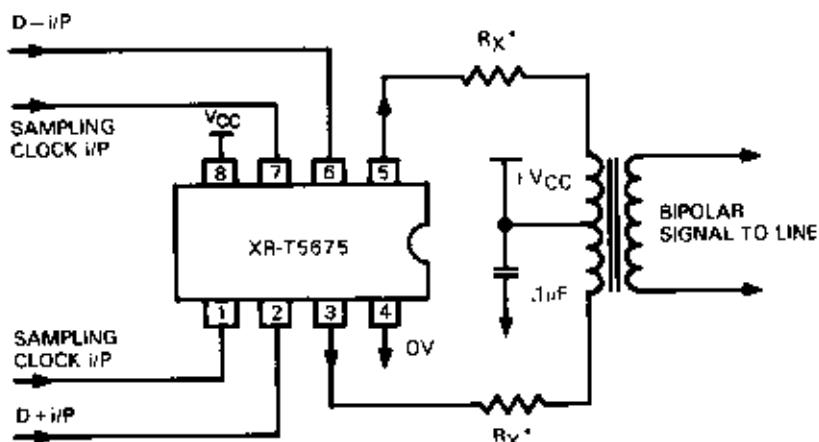


Figure 2. AC Test Circuit and Switching Waveforms



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\* Rx is intended for matching line impedance, but its final value may be determined by the output signal amplitude required.



In the case where D+ and D- are half width signals, Pin 1 and Pin 7 should be tied together and returned to +5.0V via a 1K resistor

Figure 3. XR-T5675 PCM Line Driver Application Circuit