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 ± 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

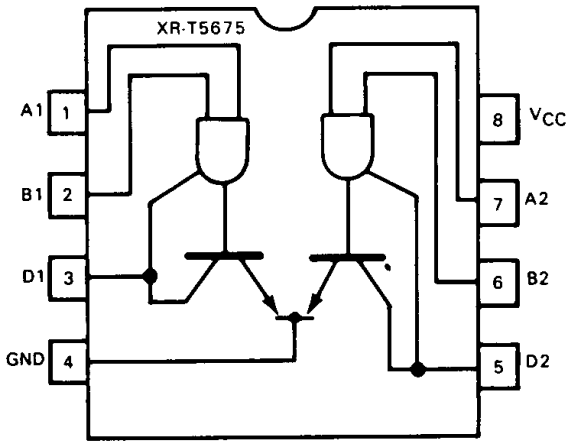
APPLICATIONS

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.

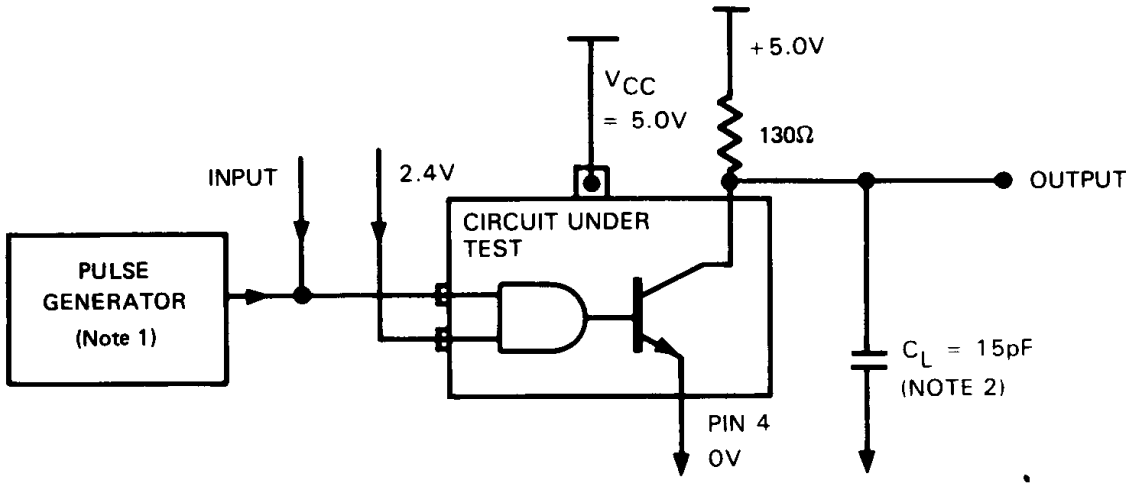
A	B	OUTPUT (D)
L	L	H (OFF)
L	H	H (OFF)
H	L	H (OFF)
H	H	L (ON)

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

ELECTRICAL CHARACTERISTICS

Test Conditions: V_{CC} = 5.0V, T_A = 0°C to +70°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} = 50mA, V_{OL} = 0.95V
V_{IL}	Low Level Input Voltage	1,2,6,7			0.8	V	
I_{IH}	High Level Input Current	1,2,6,7			40	µA	V_{IH} = 2.7V, Pins 3 & 5 Open
I_{IL}	Low Level Input Current	1,2,6,7			−1.2	mA	V_{IL} = 0.4V, Pins 3 & 5 Open
V_{OL}	Low Level Output Voltage	3,5	0.6		0.95	V	V_{IH} = 2.2V, I_{OL} = 50mA
I_{OL}	Low Level Output Current	3,5			50	mA	V_{IH} = 2.2V, V_{OL} = 0.95V
I_{OH}	High Level Leakage Current	3,5			100	µA	Pins 3 & 5, Pull-up to +20V
I_{ccH}	Supply Current Output High	8			3.0	mA	Pins 3 & 5 Open
I_{ccL}	Supply Current Output Low	8		14.0	18.0	mA	Pins 3 & 5 Open
SWITCHING CHARACTERISTICS, V_{CC} = 5.0V ± 5%, T_A = +25°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



Note 1. Pulse Generator Frequency = 2.0MHz, Z_{OUT} = 50Ω.
Note 2. C_L Included — Probe and Jig Capacitance

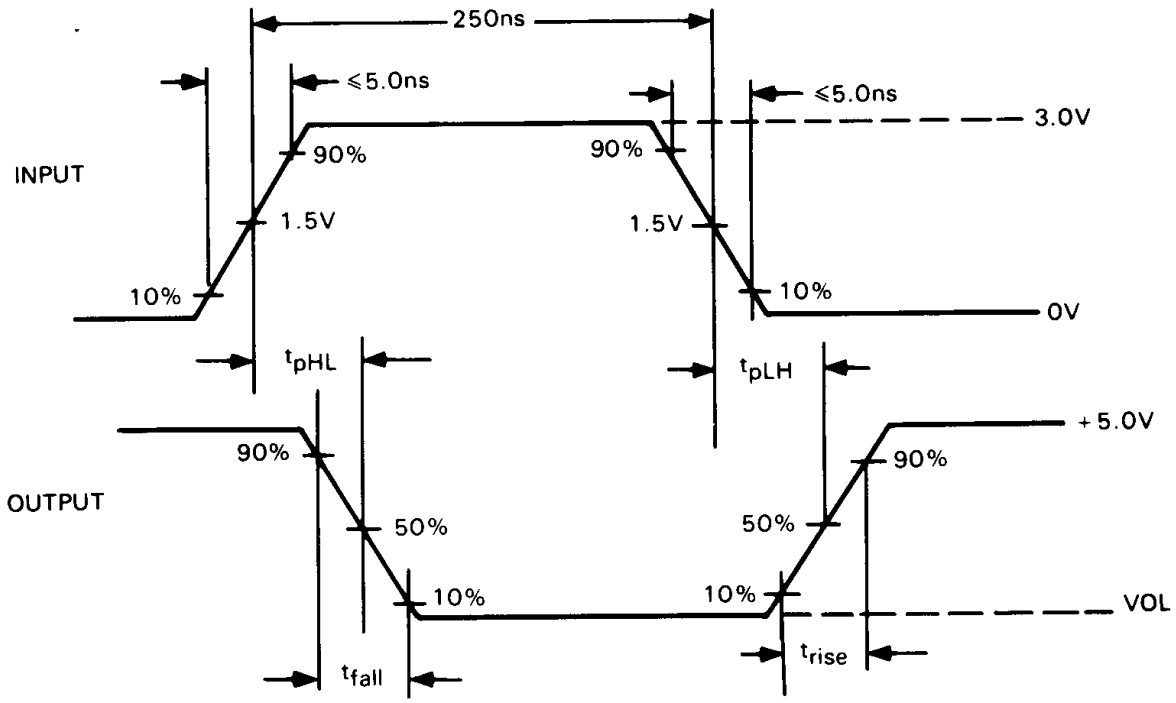
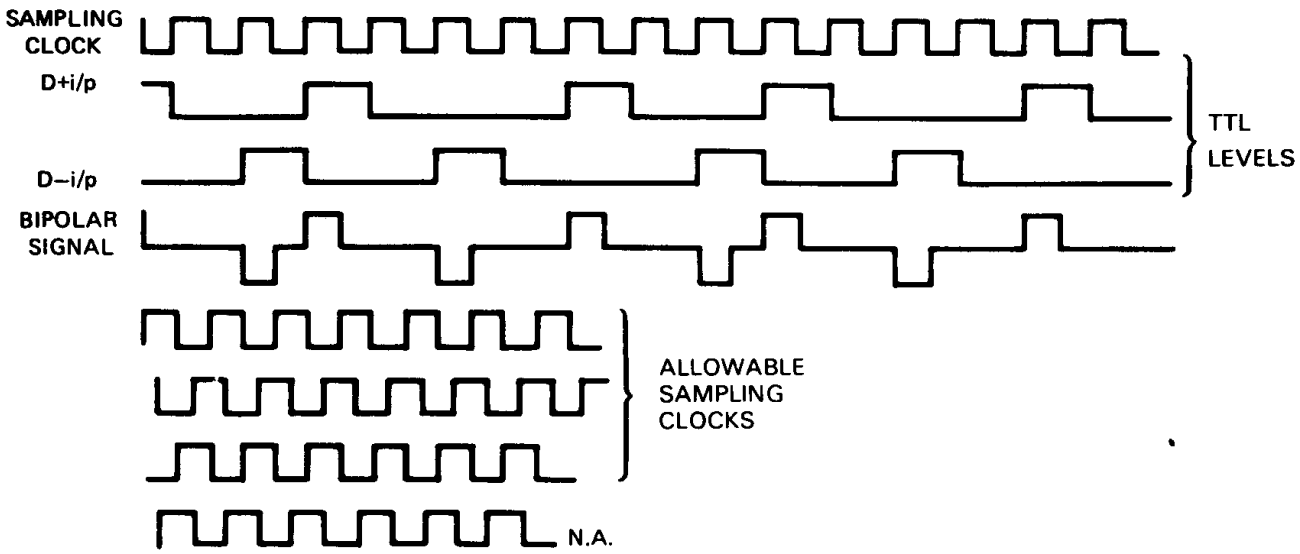
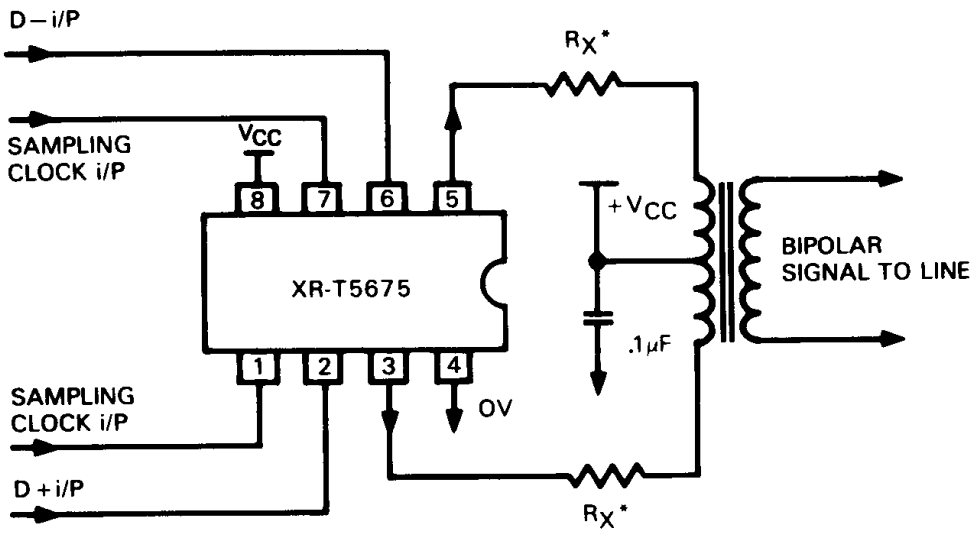


Figure 2. AC Test Circuit and Switching Waveforms



* R_X 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