

GD75188

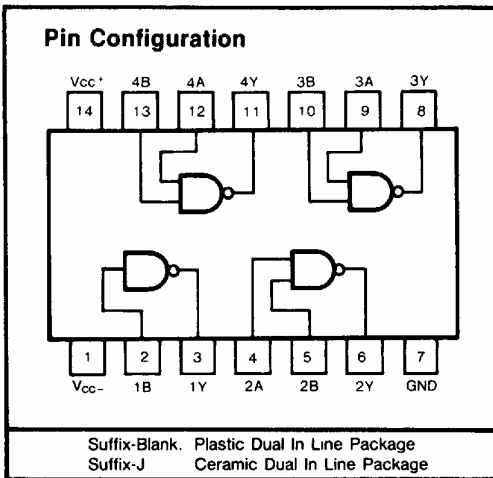
QUADRUPLE LINE DRIVERS

Feature

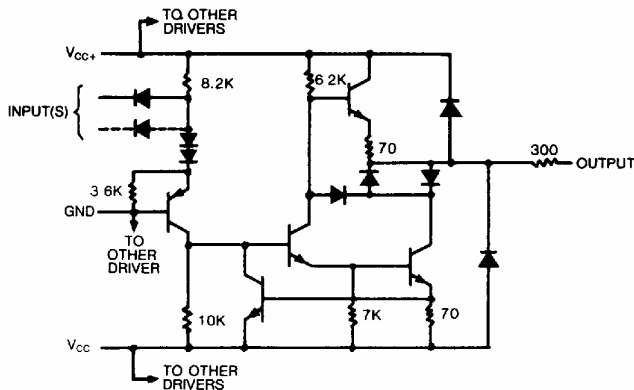
- Meets Specifications of EIA RS-232C
- Designed to be Interchangeable with SN75188
- Current Limited Output ... 10mA Typical
- Power-Off Output Impedance ... 300Ω Min
- Slew Rate Control by Load Capacitor
- Flexible Supply Voltage Range
- Input Compatible with Most TTL and DTL Circuits

Description

The GD75188 is a monolithic quadruple line driver designed to interface data terminal equipment with data communication equipment in conformance with the specifications of EIA standard RS-232C with a diode in series with each supply-voltage terminal as shown under typical applications. The device is characterized for operation from 0°C to 75°C



Schematic (each driver)



Function Table

A	B	Y
H	H	L
L	X	H
X	L	H

Absolute Maximum Ratings

- | | | |
|--|-----------|------------|
| • Supply voltage | V_{CC+} | 15V |
| • Supply voltage | V_{CC-} | -15V |
| • Input voltage range | V_I | -15V~+7V |
| • Output voltage range | V_O | -15V~+15V |
| • Continuous total dissipation at (or below) 25°C | P_T | 1W |
| • Operating free-air temperature range | T_A | 0~+75°C |
| • Storage temperature range | T_{STG} | -65~+175°C |
| • Lead temperature 1/16 inch from case for 60 seconds, P Package | | 300°C |
| seconds, J Package | | 260°C |

Electrical Characteristics over recommended operating free-air temperature range (unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT	
V _{ih}	High-level input voltage			1	9		V	
V _{il}	Low-level input voltage					0.8	V	
V _{oh}	High-level output voltage	V _{ih} =0.8V R _L =3kΩ	V _{cc} + =9V, V _{cc} - = -9V	6	7		V	
			V _{cc} + =13.2V V _{cc} - = -13.2V	9	10.5			
V _{ol}	Low-level output voltage	V _{ih} =1.9V R _L =3kΩ	V _{cc} + =9V V _{cc} - = -9V		-7	-6	V	
			V _{cc} + =13.2V V _{cc} - = -13.2V	-10	5	-9		
I _{ih}	High-level input current	V _i =5V				10	μA	
I _{il}	Low-level input current	V _i =0			-1	-1.6	mA	
I _{os(H)}	Short-circuit output current at high level■	V _i =0.8V	V _o =0	-6	-10	-12	mA	
I _{os(L)}	Short-circuit output current at low level■	V _i =1.9V	V _o =0	6	10	12	mA	
r _o	Output resistance, power off	V _{cc} + =0 V _o = -2V to 2V	V _{cc} - =0	300			Ω	
I _{cc+}	Supply current from V _{cc} +	V _{cc} + =9V, No load	All inputs at 1.9V	15	20		mA	
			All inputs at 0.8V	4.5	6			
			V _{cc} + =12V No load	All inputs at 1.9V	19	25		
			All inputs at 0.8V	5.5	7			
			V _{cc} + =15V, No load, T _A =25°C	All inputs at 1.9V		34		
I _{cc-}	Supply current from V _{cc} -	V _{cc} - = -9V, No load	All inputs at 1.9V	-13	-17		mA	
			All inputs at 0.8V		-0.015			
		V _{cc} - = -12V, No load	All inputs at 1.9V	-18	-23			
			All inputs at 0.8V		-0.015			
		V _{cc} - = -15V, No load, T _A =25°C	All inputs at 1.9V		-34			
			All inputs at 0.8V		-2.5			
P _D	Total power dissipation	V _{cc} + =9V, No load	V _{cc} - = -9V			333	mW	
		V _{cc} + =12V, No load	V _{cc} - = -12V			576		

□ All typical values are at T_A=25°C

■ Not more than one output should be shorted at a time

NOTE: The algebraic convention where the more positive (less negative) limit is designated as maximum is used in this data sheet for logic voltage levels only, e.g., if -6V is a maximum, the typical value is a more negative voltage.

Switching Characteristics, V_{cc} + = 9V, V_{cc} - = -9V, T_A = 25°C

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
t _{PLH}	Propagation delay time, low-to-high-level output	R _L = 3kΩ, See Figure 1 C _L = 15pF		220	350	ns
t _{PHL}	Propagation delay time, high-to-low-level output			100	175	ns
t _{TLH}	Transition time, low-to-high-level output‡			55	100	ns
t _{THL}	Transition time, high-to-low-level output‡	R _L = 3kΩ to 7kΩ, See Figure 1		45	75	ns
t _{TLH}	Transition time, low-to-high-level outputs§			2.5		μs
t _{THL}	Transition time, high-to-low-level outputs§			3.0		μs

‡ Measured between 10% and 90% points of output waveform

§ Measured between +3V and -3V points on the output waveform (EIA RS-232C conditions)

Parameter Measurement Information

NOTE A The pulse generator has the following characteristics, $t_w=0.5\mu s$, PRR=1 MHz, $Z_0=50\Omega$
 B C_i includes probe and μg capacitance

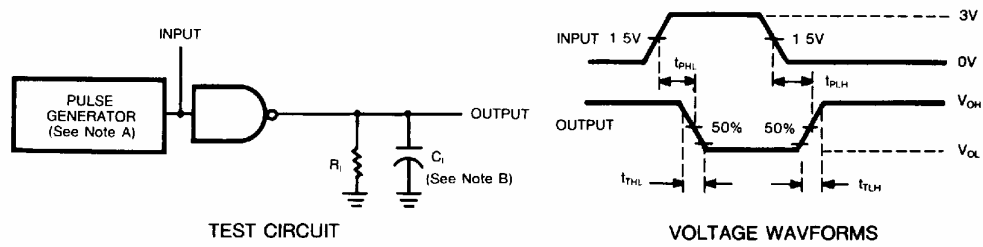


Figure 1. Propagation and Transition Times

Thermal Information

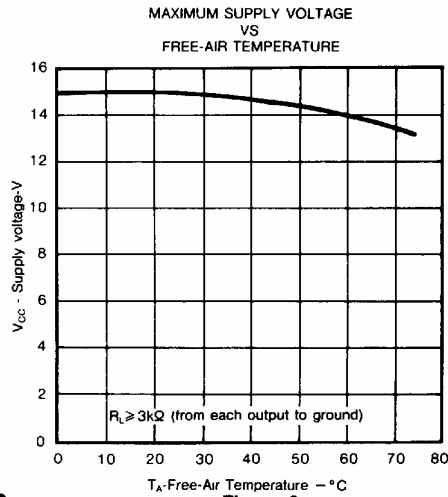


Figure 2.

Typical Application Data

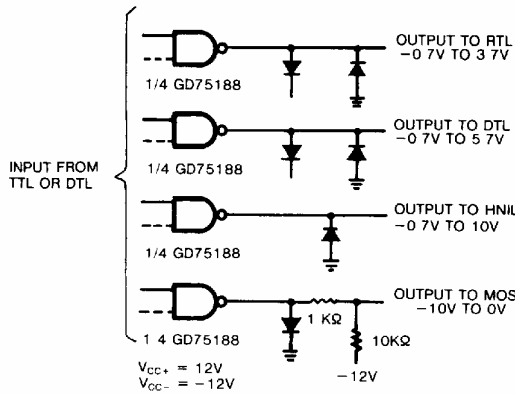


Figure 3 - Logic Translator Applications

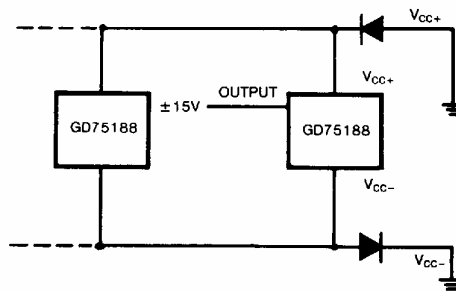


Figure 4 - Power Supply Protection to Meet Power-Off Fault Conditions of Eia Standard RS-232C