

Specifications

The Driver16 board accepts 16 TTL level inputs and converts them to high-level outputs suitable for driving relays, lamps, and small stepper and DC motors.

The board can be powered by either +5 volts from the host processor board or by an external supply connected to J2. The drivers are capable of sinking up to 500ma of current and will withstand at least 50 volts in the off state. Overall board current is limited to the current carrying capacity of J2 which is 2.5 amperes with 22-gauge wire.

For additional technical specifications of the driver integrated circuit, refer to the ULN2803 data sheet on the Allegro Semiconductor web site. Page 1 of this data sheet is provided at the end of this manual.

Setup

The Driver16 board can be used with the JK microsystems Logicflex, Flashlite 386Ex, Flashlite 186, and Flashlite V25 processor boards. The following charts describe the mapping of Driver16 connectors and pins to the ports of these boards.

Driver16	Flashlite 186		Logicflex		Flashlite 386Ex	Flashlite V25	
	J9	J11	J6	J5	J2	J5	J3
J3-1	PC.0	PE.0	PA.0	PC.0	PA.0	Input only	Input only
J3-3	PC.1	PE.1	PA.1	PC.1	PA.1	Input only	Input only
J3-4	PC.2	PE.2	PA.2	PC.2	PA.2	Input only	Input only
J3-6	PC.3	PE.3	PA.3	PC.3	PA.3	Input only	Input only
J4-1	PC.4	PE.4	PA.4	PC.4	PA.4	P1.4	Input only
J4-3	PC.5	PE.5	PA.5	PC.5	PA.5	P1.5	Input only
J4-4	PC.6	PE.6	PA.6	PC.6	PA.6	P1.6	Input only
J4-6	PC.7	PE.7	PA.7	PC.7	PA.7	P1.7	Input only
J5-1	PD.0	PF.0	PB.0	PD.0	PB.0	P2.0	P0.0
J5-3	PD.1	PF.1	PB.1	PD.1	PB.1	P2.1	P0.1
J5-4	PD.2	PF.2	PB.2	PD.2	PB.2	P2.2	P0.2
J5-6	PD.3	PF.3	PB.3	PD.3	PB.3	P2.3	P0.3
J6-1	PD.4	PF.4	PB.4	PD.4	PB.4	P2.4	P0.4
J6-3	PD.5	PF.5	PB.5	PD.5	PB.5	P2.5	P0.5
J6-4	PD.6	PF.6	PB.6	PD.6	PB.6	P2.5	P0.6
J6-6	PD.7	PF.7	PB.7	PD.7	PB.7	P2.7	P0.7

Pins 2 and 5 of output connectors J3, J4, J5, and J6 are connected to the driver power source.

Connector J2 can be used to supply external power to the drivers. To use J2, position the shunt at JP1 between pins 2-3. Observe the polarity of J2 (pin 1 positive, pin 2 negative) silk-screened on the board.

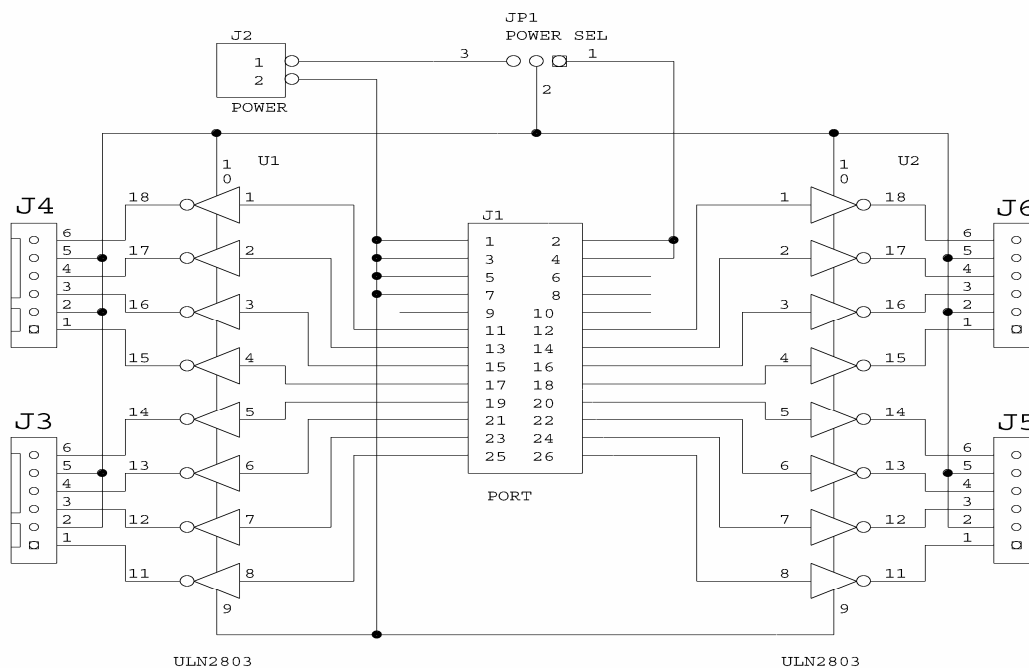
Caution – Do not exceed 500ma total load when powering the Driver16 board from the host board.

Accessories

The following accessories are available for the Driver16 board:

Description	JK microsystems	Digikey	Molex	AMP
Conn Shell, J1	28-0031	A3041-ND	None	2-87456-2
Conn Pins, J1	28-0033	A3000-ND	None	87667-3
Conn Shell, J2	28-0082	WM2000-ND	22-01-3027	None
Conn Shell, J3 – J6	28-0085	WM2004-ND	22-01-3067	None
Conn Pins J2 – J6	28-0013	WM2200-ND	08-50-0114	None
Cable, 26 Cond 1”	86-0029	None	None	None
Cable, 26 Cond 6”	86-0030	M3AA2606J-ND	none	None

Schematic Diagram



Rev	Date	Author	Changes
D	10 JUL 06	JDS	CHANGED PAGE 1, PINS 2 & 5 DESCRIPTION TO POWER INSTEAD OF GROUND
C	13 APR 04	EW	FIX SCHEMATIC (LOST REV A CHANGES); ADD REV LOG
B	09 APR 04	EW	ADD Flashlite186 CONNECTION INFORMATION
A	19 FEB 04	JDS	FIX SCHEMATIC and PINOUT TABLE(J3/J4 and J5/J6 SWAPPED); FIX GND PIN INFO
1	20 MAY 01	JDS	First Issue

2803 THRU 2824

Data Sheet
29304.3E

HIGH-VOLTAGE, HIGH-CURRENT DARLINGTON ARRAYS

Featuring continuous load current ratings to 500 mA for each of the drivers, the Series ULN28xxA/LW and ULQ28xxA/LW high-voltage, high-current Darlington arrays are ideally suited for interfacing between low-level logic circuitry and multiple peripheral power loads. Typical power loads totaling over 260 W (350 mA x 8, 95 V) can be controlled at an appropriate duty cycle depending on ambient temperature and number of drivers turned on simultaneously. Typical loads include relays, solenoids, stepping motors, magnetic print ham- mers, multiplexed LED and incandescent displays, and heaters. All devices feature open-collector outputs with integral clamp diodes.

The ULx2803A, ULx2803LW, ULx2823A, and ULN2823LW have series input resistors selected for operation directly with 5 V TTL or CMOS. These devices will handle numerous interface needs — particularly those beyond the capabilities of standard logic buffers.

The ULx2804A, ULx2804LW, ULx2824A, and ULN2824LW have series input resistors for operation directly from 6 V to 15 V CMOS or PMOS logic outputs.

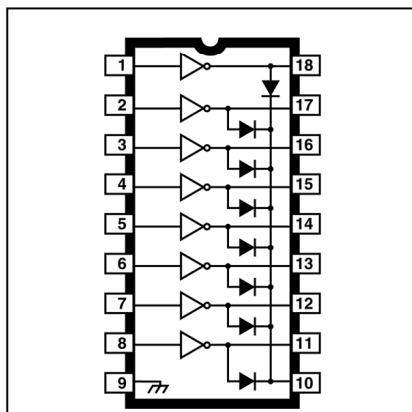
The ULx2803A/LW and ULx2804A/LW are the standard Darlington arrays. The outputs are capable of sinking 500 mA and will withstand at least 50 V in the off state. Outputs may be paralleled for higher load current capability. The ULx2823A/LW and ULx2824A/LW will withstand 95 V in the off state.

These Darlington arrays are furnished in 18-pin dual in-line plastic packages (suffix 'A') or 18-lead small-outline plastic packages (suffix 'LW'). All devices are pinned with outputs opposite inputs to facilitate ease of circuit board layout. Prefix 'ULN' devices are rated for operation over the temperature range of -20°C to +85°C; prefix 'ULQ' devices are rated for operation to -40°C.

FEATURES

- TTL, DTL, PMOS, or CMOS Compatible Inputs
- Output Current to 500 mA
- Output Voltage to 95 V
- Transient-Protected Outputs
- Dual In-Line Package or Wide-Body Small-Outline Package

x = Character to identify specific device. Characteristic shown applies to family of devices with remaining digits as shown. See matrix on next page.



Note that the ULx28xxA series (dual in-line package) and ULx28xxLW series (small-outline IC package) are electrically identical and share a common terminal number assignment.

ABSOLUTE MAXIMUM RATINGS

Output Voltage, V_{CE}	
(x2803x and x2804x)	50 V
(x2823x and x2824x)	95 V
Input Voltage, V_{IN}	30 V
Continuous Output Current, I_C	500 mA
Continuous Input Current, I_{IN}	25 mA
Power Dissipation, P_D	
(one Darlington pair)	1.0 W
(total package)	See Graph
Operating Temperature Range, T_A	
Prefix 'ULN'	-20°C to +85°C
Prefix 'ULQ'	-40°C to +85°C
Storage Temperature Range,	
T_S	-55°C to +150°C

