

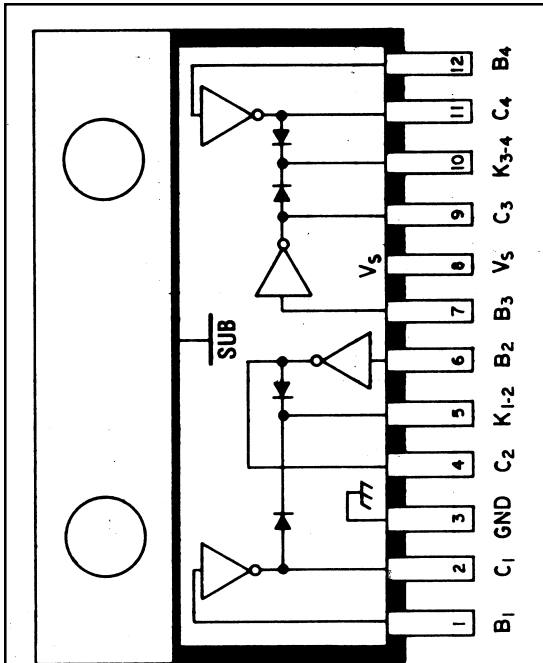
2878 AND 2879

QUAD HIGH-CURRENT DARLINGTON SWITCHES

These quad Darlington arrays are designed to serve as interface between low-level logic and peripheral power devices such as solenoids, motors, incandescent displays, heaters, and similar loads of up to 320 W per channel. Both integrated circuits include transient-suppression diodes that enable use with inductive loads. The input logic is compatible with most TTL, DTL, LSTTL, and 5 V CMOS logic.

Type UDN2878W and UDN2879W 4 A arrays are identical except for output-voltage ratings. The former is rated for operation to 50 V (35 V sustaining), while the latter has a minimum output breakdown rating of 80 V (50 V sustaining). The lower-cost UDN2879W-2 is recommended for applications requiring load currents of 3 A or less. These less expensive devices are identical to the basic parts except for the maximum allowable load-current rating.

For maximum power-handling capability, all drivers are supplied in a 12-pin single in-line power-tab package. The tab needs no insulation. External heat sinks are usually required for proper operation of these devices.



Dwg. No. A-11,974

ABSOLUTE MAXIMUM RATINGS at +25°C Free-Air Temperature for any driver (unless otherwise noted)

Output Voltage, V_{CEX}	
(UDN2878W)	50 V
(UDN2879W & UDN2879W-2) ..	80 V
Output Current, I_C	
(UDN2878W & UDN2879W) ...	5.0 A
(UDN2879W-2)	4.0 A
Input Voltage, V_{IN}	15 V
Input Current, I_{IN}	25 mA
Supply Voltage, V_S	10 V
Total Package Power Dissipation, P_D	See Graph
Operating Ambient Temperature Range, T_A	-20°C to +85°C
Storage Temperature Range, T_S	-55°C to +150°C

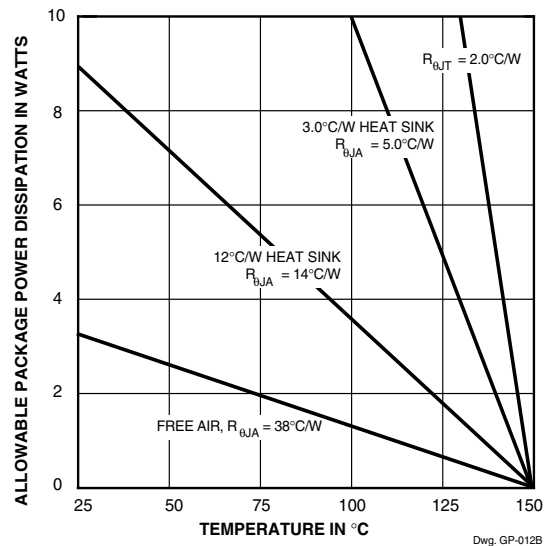
FEATURES

- Output Currents to 4 A
- Output Voltages to 80 V
- Loads to 1280 W
- TTL, DTL, or CMOS Compatible Inputs
- Internal Clamp Diodes
- Plastic Single In-Line Package
- Heat-Sink Tab

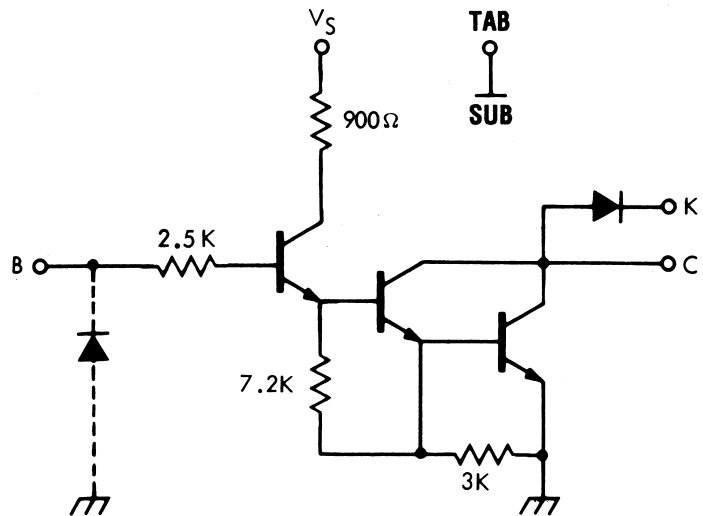
Always order by complete part number:

Part Number	Max. I_C	Max. V_{CEX}	Min. $V_{CE(sus)}$
UDN2878W	5.0 A	50 V	35 V
UDN2879W	5.0 A	80 V	50 V
UDN2879W-2	4.0 A	80 V	50 V

2878 AND 2879 QUAD HIGH-CURRENT DARLINGTON SWITCHES



PARTIAL SCHEMATIC
One of 4 Drivers



Dwg. No. A-12,037

NOTE: Pin 3 must be connected to ground for proper operation.

2878 AND 2879
QUAD HIGH-CURRENT
DARLINGTON SWITCHES

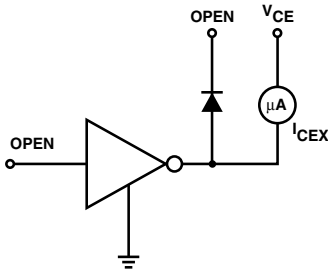
ELECTRICAL CHARACTERISTICS at $V_S = 5.0\text{ V}$, $T_A = +25^\circ\text{C}$ (unless otherwise noted).

Characteristic	Symbol	Test Fig.	Applicable Devices	Test Conditions	Limits		
					Min.	Max.	Units
Output Leakage Current	I_{CEX}	1	UDN2878W	$V_{CE} = 50\text{ V}$	—	100	μA
				$V_{CE} = 50\text{ V}$, $T_A = +70^\circ\text{C}$	—	500	μA
			UDN2879W/W-2	$V_{CE} = 80\text{ V}$	—	100	μA
				$V_{CE} = 80\text{ V}$, $T_A = +70^\circ\text{C}$	—	500	μA
Output Sustaining Voltage	$V_{CE(sus)}$	—	UDN2878W	$I_C = 4\text{ A}$, $L = 10\text{ mH}$	35	—	V
			UDN2879W	$I_C = 4\text{ A}$, $L = 10\text{ mH}$	50	—	V
			UDN2879W-2	$I_C = 3\text{ A}$, $L = 10\text{ mH}$	50	—	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	2	All	$I_C = 500\text{ mA}$, $V_{IN} = 2.75\text{ V}$	—	1.1	V
				$I_C = 1.0\text{ A}$, $V_{IN} = 2.75\text{ V}$	—	1.3	V
				$I_C = 2.0\text{ A}$, $V_{IN} = 2.75\text{ V}$	—	1.5	V
				$I_C = 3.0\text{ A}$, $V_{IN} = 2.75\text{ V}$	—	1.9	V
			UDN2878/79W	$I_C = 4.0\text{ A}$, $V_{IN} = 3.0\text{ V}$	—	2.4	V
Input Current	I_{IN}	3	All	$V_{IN} = 2.75\text{ V}$	—	550	μA
				$V_{IN} = 3.75\text{ V}$	—	1000	μA
Input Voltage	$V_{IN(ON)}$	4	All	$V_{CE} = 2.2\text{ V}$, $I_C = 3.0\text{ A}$	—	2.75	V
			UDN2878/79W	$V_{CE} = 2.2\text{ V}$, $I_C = 4.0\text{ A}$	—	2.75	V
Supply Current per Driver	I_S	7	All	$I_C = 500\text{ mA}$, $V_{IN} = 2.75\text{ V}$	—	6.0	mA
Turn-On Delay	t_{PLH}	—	All	$0.5 E_{in}$ to $0.5 E_{out}$	—	1.0	μs
Turn-Off Delay	t_{PHL}	—	All	$0.5 E_{in}$ to $0.5 E_{out}$, $I_C = 3.0\text{ A}$	—	1.5	μs
Clamp Diode Leakage Current	I_R	5	All	$V_R = 50\text{ V}$	—	50	μA
				$V_R = 50\text{ V}$, $T_A = +70^\circ\text{C}$	—	100	μA
			UDN2879W/W-2	$V_R = 80\text{ V}$	—	50	μA
				$V_R = 80\text{ V}$, $T_A = +70^\circ\text{C}$	—	100	μA
Clamp Diode Forward Voltage	V_F	6	All	$I_F = 3.0\text{ A}$	—	2.5	V
			UDN2878/79W	$I_F = 4.0\text{ A}$	—	3.0	V

Caution: High-current tests are pulse tests or require heat sinking.

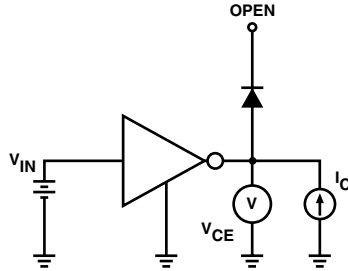
2878 AND 2879 QUAD HIGH-CURRENT DARLINGTON SWITCHES

TEST FIGURES



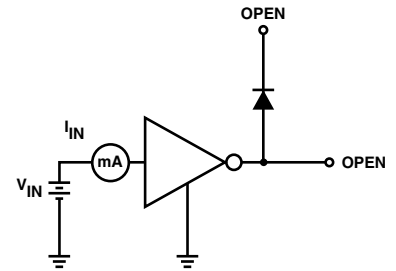
Dwg. No. A-9729A

FIGURE 1



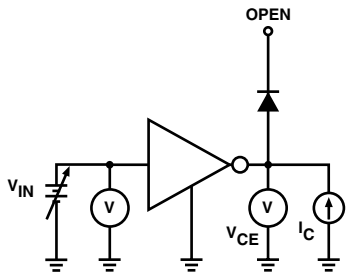
Dwg. No. A-10,350

FIGURE 2



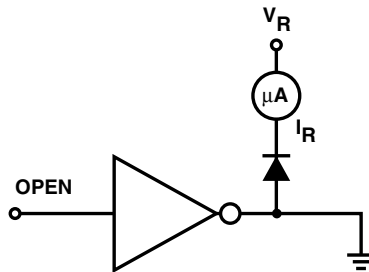
Dwg. No. A-9732

FIGURE 3



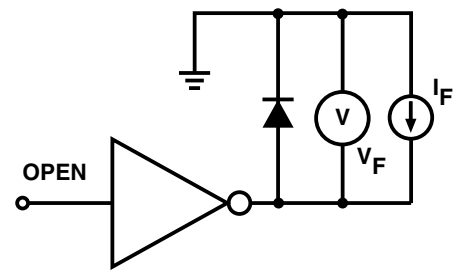
Dwg. No. A-9734A

FIGURE 4



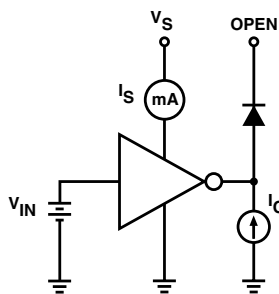
Dwg. No. A-9735A

FIGURE 5



Dwg. No. A-9736

FIGURE 6



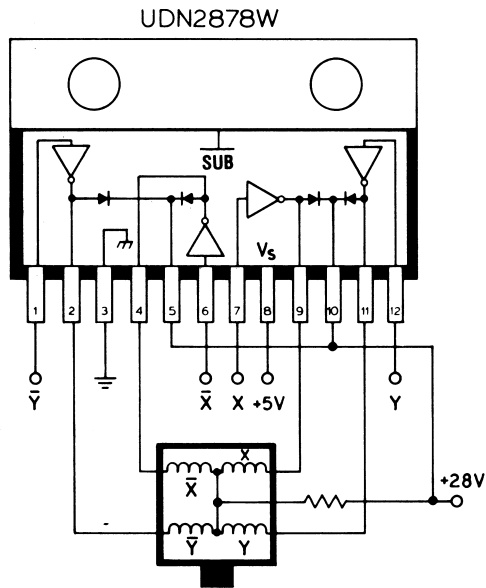
Dwg. No. A-10,351

FIGURE 7

2878 AND 2879 QUAD HIGH-CURRENT DARLINGTON SWITCHES

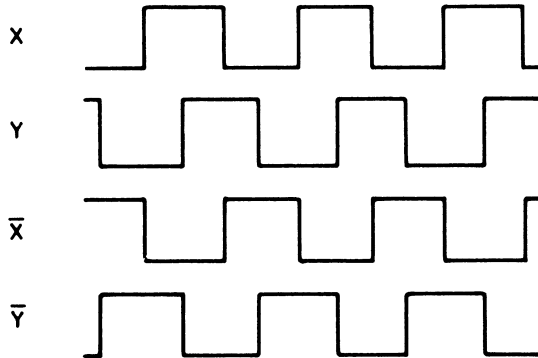
TYPICAL APPLICATIONS

INPUT WAVEFORMS



Dwg. No. A-11,975

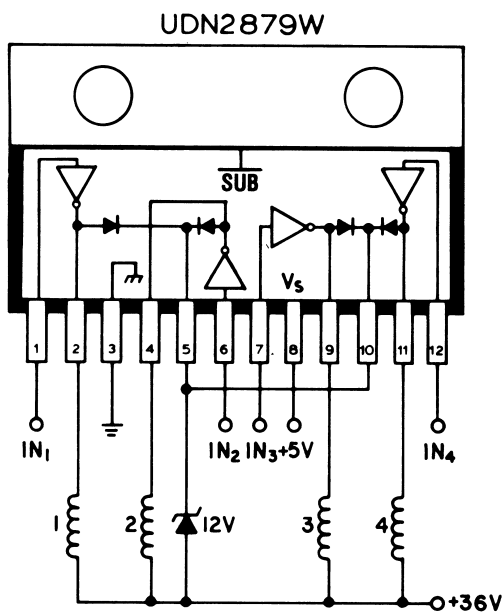
STEPPER-MOTOR DRIVER



Dwg. No. A-11,795

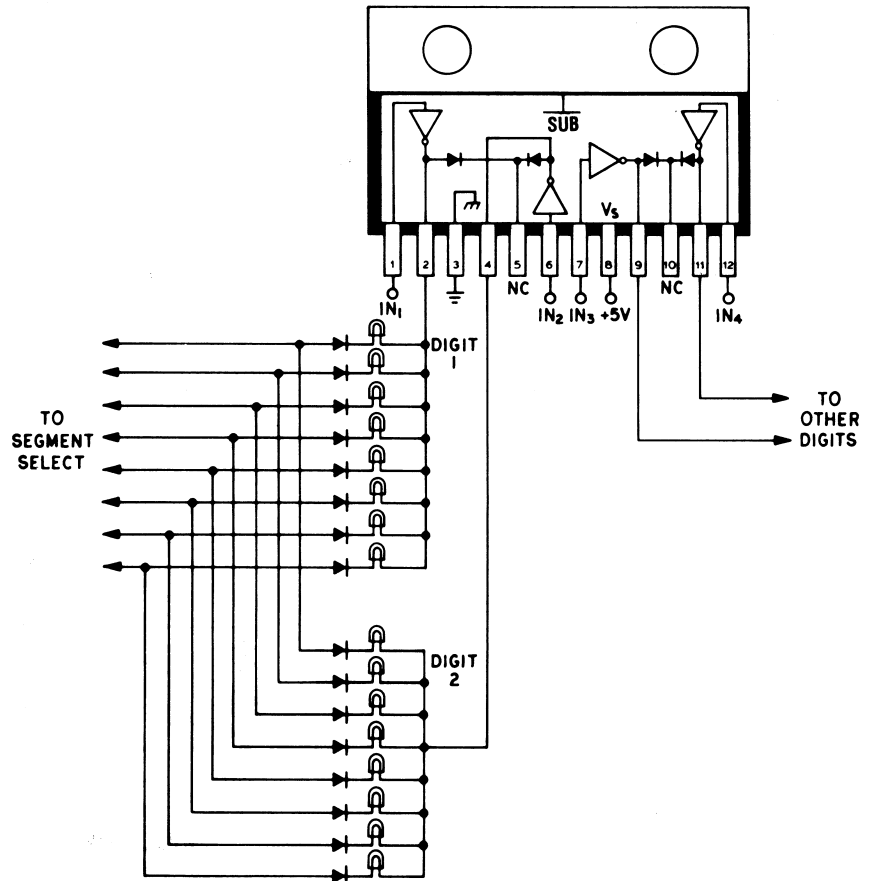
DIGIT DRIVER FOR MULTIPLEXED INCANDESCENT LAMP DISPLAY

PRINT-HAMMER DRIVER



Dwg. No. A-11,976

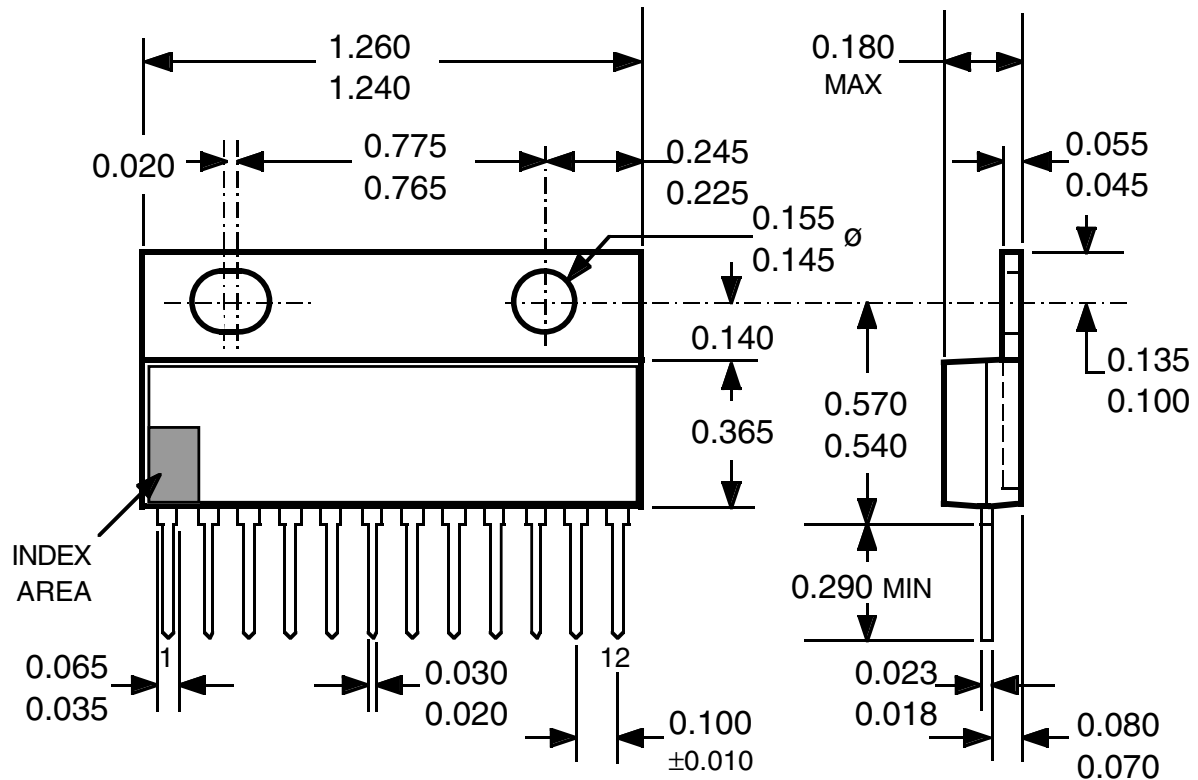
UDN2879W



Dwg. No. B-1512

2878 AND 2879
QUAD HIGH-CURRENT
DARLINGTON SWITCHES

Dimensions in Inches
 (controlling dimensions)

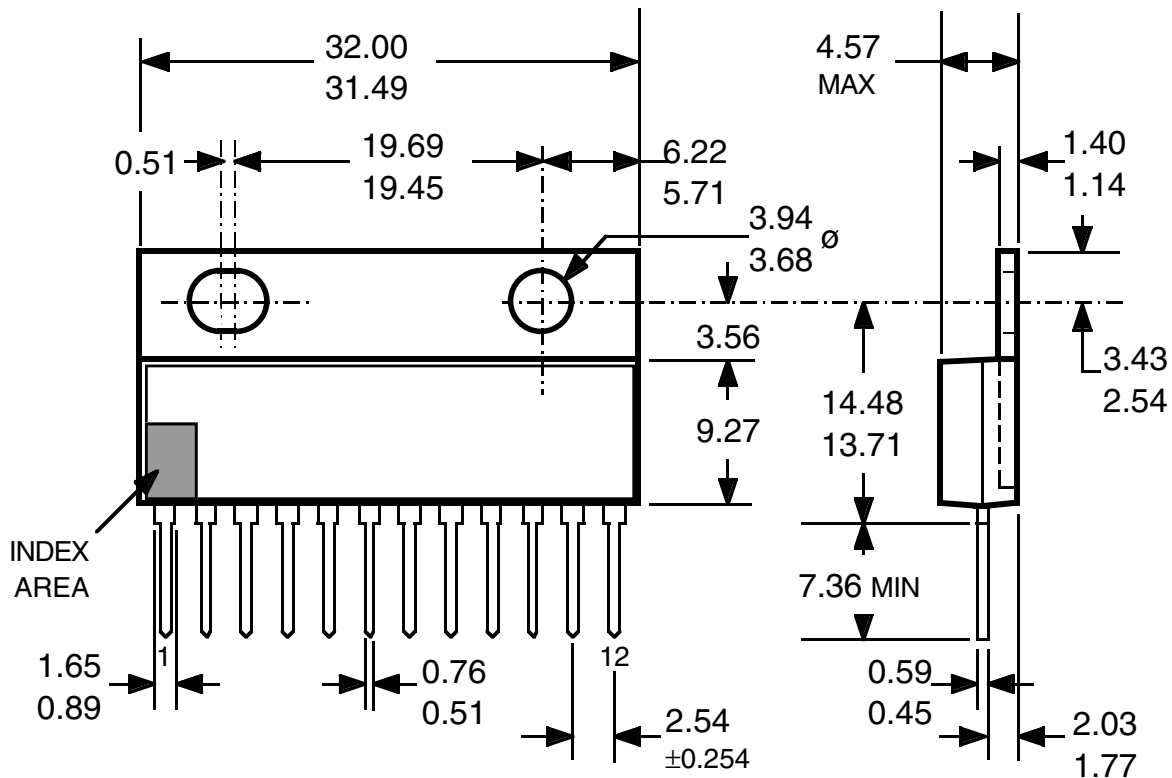


Dwg. MP-007 in

- NOTES:
1. Lead thickness is measured at seating plane or below.
 2. Lead spacing tolerance is non-cumulative.
 3. Exact body and lead configuration at vendor's option within limits shown.
 4. Lead gauge plane is 0.030" below seating plane.
 5. Supplied in standard sticks/tubes of 15 devices.

2878 AND 2879 QUAD HIGH-CURRENT DARLINGTON SWITCHES

Dimensions in Millimeters (for reference only)



Dwg. MP-007 mm

- NOTES:
1. Lead thickness is measured at seating plane or below.
 2. Lead spacing tolerance is non-cumulative.
 3. Exact body and lead configuration at vendor's option within limits shown.
 4. Lead gauge plane is 0.762 mm below seating plane.
 5. Supplied in standard sticks/tubes of 15 devices.

The products described here are manufactured under one or more U.S. patents or U.S. patents pending.

Allegro MicroSystems, Inc. reserves the right to make, from time to time, such departures from the detail specifications as may be required to permit improvements in the performance, reliability, or manufacturability of its products. Before placing an order, the user is cautioned to verify that the information being relied upon is current.

Allegro products are not authorized for use as critical components in life-support devices or systems without express written approval.

The information included herein is believed to be accurate and reliable. However, Allegro MicroSystems, Inc. assumes no responsibility for its use; nor for any infringement of patents or other rights of third parties which may result from its use.

2878 AND 2879 QUAD HIGH-CURRENT DARLINGTON SWITCHES

POWER SINK DRIVERS

IN ORDER OF 1) OUTPUT CURRENT, 2) OUTPUT VOLTAGE, 3) NUMBER OF DRIVERS

Output Ratings *			Features					Part Number [†]	
mA	V	#	Serial Input	Latched Drivers	Diode Clamp	Outputs	Internal Protection		
75	17	8	X	X	–	constant current	–	6275	
	17	16	X	X	–	constant current	–	6276	
100	20	8	–	–	–	saturated	–	2595	
	30	32	X	X	–	–	–	5833	
	40	32	X	X	–	saturated	–	5832	
	50	8	–	addressable decoder/driver		–	DMOS	–	6B259
	50	8	–	X	–	DMOS	–	6B273	
	50	8	X	X	–	DMOS	–	6B595	
250	50	8	addressable decoder/driver			DMOS	–	6259	
	50	8	–	X	–	DMOS	–	6273	
	50	8	X	X	–	DMOS	–	6595	
	135	7	–	–	X	–	–	7003	
300	45	1	–	Hall sensor/driver		X	–	X	5140
	50	8	–	–	X	saturated	–	2596	
	60	4	–	–	X	saturated	X	2557	
350	50	4	–	X	X	–	–	–	5800
	50	7	–	–	X	–	–	–	2003
	50	7	–	–	X	–	–	–	2004
	50	8	–	–	X	–	–	–	2803
	50	8	–	–	X	–	–	–	2804
	50	8	–	X	X	–	–	–	5801
	50	8	X	X	–	–	–	–	5821
	50	8	X	X	X	–	–	–	5841
	50	8	addressable decoder/driver			–	DMOS	–	6A259
	50	8	X	X	–	–	DMOS	–	6A595
	80	8	X	X	–	–	–	–	5822
	80	8	X	X	X	–	–	–	5842
	95	7	–	–	X	–	–	–	2023
	95	7	–	–	X	–	–	–	2024
	95	8	–	–	X	–	–	–	2823
95	8	–	–	X	–	–	–	2824	
450	30	28	dual 4- to 14-line decoder/driver			–	–	–	6817
600	60	4	–	–	–	saturated	X	2547	
	60	4	–	–	X	saturated	X	2549 and 2559	
700	60	4	–	–	X	saturated	X	2543	
750	50	8	–	–	X	saturated	–	2597	
900	14	2	–	Hall sensor/driver		X	saturated	X	3625
	26	2	–	Hall sensor/driver		X	saturated	X	3626
1000	46	4	stepper motor controller/driver			MOS	–	–	7024 and 7029
1200	46	4	microstepping controller/driver			MOS	–	–	7042
1250	50	4	stepper motor translator/driver			–	X	–	5804
	50	4	–	–	X	–	–	–	2064 and 2068
1500	80	4	–	–	X	–	–	–	2065 and 2069
1800	50	4	–	–	X	–	–	–	2544
	50	4	–	–	X	–	–	–	2540
3000	46	4	stepper motor controller/driver			MOS	–	–	7026
	46	4	microstepping controller/driver			MOS	–	–	7044
4000	50	4	–	–	X	–	–	–	2878
	80	4	–	–	X	–	–	–	2879

* Current is maximum specified test condition, voltage is maximum rating. See specification for sustaining voltage limits or over-current protection voltage limits.

† Complete part number includes additional characters to indicate operating temperature range and package style.



115 Northeast Cutoff, Box 15036
Worcester, Massachusetts 01615-0036 (508) 853-5000