

SERIES UDN-6100A AND UDN-6100R
FLUORESCENT DISPLAY DRIVERS

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FLUORESCENT DISPLAY DRIVERS

FEATURES

- Digit or Segment Drivers
- Low Input Current
- Integral Output Pull-Down Resistors
- High Output Breakdown Voltage
- Single or Split Supply Operation

CONSISTING of six or eight NPN Darlington output stages and the associated common-emitter input stages, these drivers are designed to interface between low-level digital logic and vacuum fluorescent displays. All devices are capable of driving the digits and/or segments of these displays and are designed to permit all outputs to be activated simultaneously. Pull-down resistors are incorporated into each output and no external components are required for most fluorescent display applications. The highest voltage parts (suffix A-1) are also used in gas-discharge display applications as anode (digit) drivers.

Twenty-four standard devices are listed, so that a circuit designer may select the optimum device for his application. Input characteristics, number of drivers, package style, and output voltage are tabulated for each device in the Device Type Number Designation chart. With any device, the output load is activated when the input is pulled towards the positive supply (active 'high'). All units operate over the temperature range of -20°C to $+85^{\circ}\text{C}$.

*Always specify complete part number, such as:

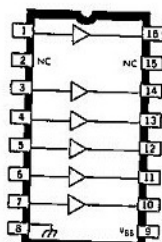
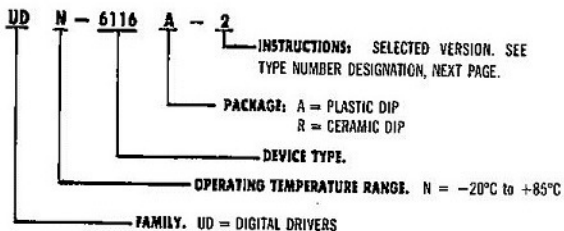


Fig. No. A-1043A

UDN-6116*
UDN-6126*

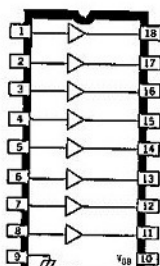


Fig. No. A-1041A

UDN-6118*
UDN-6128*

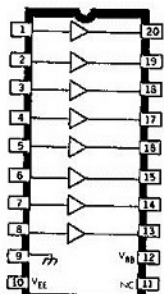


Fig. No. A-1111A

UDN-6138*
UDN-6148*

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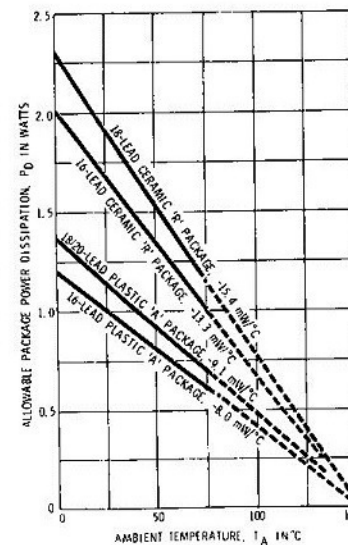
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DEVICE TYPE NUMBER DESIGNATION

Input Compatibility	No. of Drivers	V _{OUT}	No. of Pins	Type Number	
				Plastic DIP	Ceramic DIP
5V TTL CMOS	6	60 V	16	UDN-6116A-2	UDN-6116R-2
		80 V	16	UDN-6116A	UDN-6116R
		110 V	16	UDN-6116A-1	—
	8	60 V	18	UDN-6118A-2	UDN-6118R-2
		80 V	18	UDN-6118A	UDN-6118R
		110 V	18	UDN-6118A-1	—
6-15V CMOS, PMOS	6	± 30 V	20	UDN-6138A-2	—
		± 40 V	20	UDN-6138A	—
		60 V	16	UDN-6126A-2	UDN-6126R-2
	8	80 V	16	UDN-6126A	UDN-6126R
		110 V	16	UDN-6126A-1	—
		60 V	18	UDN-6128A-2	UDN-6128R-2
8	80 V	18	UDN-6128A	UDN-6128R	
	110 V	18	UDN-6128A-1	—	
	± 30 V	20	UDN-6148A-2	—	
± 40 V	20	UDN-6148A	—		

ABSOLUTE MAXIMUM RATINGS at T_A = +25°C
(Voltages are with reference to ground unless otherwise shown)

- Supply Voltage, V_{DD} (all devices, suffix A or R) 85 V
- (UDN-6138/48A or R, ref. V_{EE}) 85 V
- (all devices, suffix A-1) 115 V
- (all devices, suffix A-2 or R-2) 65 V
- (UDN-6138/48A-2 or R-2, ref. V_{EE}) 65 V
- Supply Voltage, V_{EE} (UDN-6138/48 all suffixes) -40 V
- Input Voltage, V_{IN} (all devices) 20 V
- (UDN-6138/48 all suffixes, ref. V_{EE}) 55 V
- Output Current, I_{OUT} -40 mA
- Allowable Package Power Dissipation, P_D See Graph
- Operating Temperature Range, T_A -20°C to +85°C
- Storage Temperature Range, T_S -55°C to +150°C



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ELECTRICAL CHARACTERISTICS (over operating temperature range)

Note: All Values Specified At _____

Suffixes	A	R	A-1	A-2	R-2	
$V_{DD} =$	80	80	110	80	50	Volts
$V_{IT} =$	0	0	NA	0	0	Volts

*UDN-6138 and UDN-6143

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Characteristic	Symbol	Applicable Devices		Test Conditions	Limits			Units	
		Basic Part No.	Suffix		Min.	Typ.	Max.		
Output Leakage Current	I_{OUT}	All	All	$V_{IN} = 0.4 V$	—	—	15	μA	
Output OFF Voltage	V_{OUT}	All	All	$V_{IN} = 0.4 V$	—	—	1.0	V	
Output Pull-Down Current	I_{OUT}	All	A or R	Input Open, $V_{OUT} = V_{DD}$	450	650	1100	μA	
			A-1		600	900	1500	μA	
			A-2 or R-2		350	500	775	μA	
Output ON Voltage	V_{OUT}	UDN-6116/18/38	A or R	$V_{IN} = 2.4 V$, $I_{OUT} = -25 mA$	77	78	—	V	
			A-1		107	108	—	V	
			A-2 or R-2		57	58	—	V	
		UDN-6126/28/48	A or R	$V_{IN} = 4.0 V$, $I_{OUT} = -25 mA$	77	78	—	V	
			A-1		107	108	—	V	
			A-2 or R-2		57	58	—	V	
Input ON Current	I_{IN}	UDN-6116/18/38	All	$V_{IN} = 2.4 V$	—	120	225	μA	
			All	$V_{IN} = 5.0 V$	—	375	690	μA	
		UDN-6126/28/48	All	$V_{IN} = 4.0 V$	—	130	250	μA	
			All	$V_{IN} = 15 V$	—	675	1150	μA	
Supply Current	I_{DD}	All	All	All Inputs Open	—	10	100	μA	
			UDN-6116	A or R	All Inputs = 2.4 V	—	5.0	7.5	mA
				A-1	Two Inputs = 2.4 V	—	2.5	4.5	mA
		UDN-6118/38	A-2 or R-2	All Inputs = 2.4 V	—	4.0	6.0	mA	
			A or R	All Inputs = 2.4 V	—	6.0	9.0	mA	
			A-1	Two Inputs = 2.4 V	—	2.5	4.5	mA	
		UDN-6126	A-2 or R-2	All Inputs = 2.4 V	—	5.5	8.0	mA	
			A or R	All Inputs = 4.0 V	—	5.0	7.5	mA	
			A-1	Two Inputs = 4.0 V	—	2.5	4.5	mA	
		UDN-6128/48	A-2 or R-2	All Inputs = 4.0 V	—	4.9	6.0	mA	
			A or R	All Inputs = 4.0 V	—	6.0	9.0	mA	
			A-1	Two Inputs = 4.0 V	—	2.5	4.5	mA	
A-2 or R-2	All Inputs = 4.0 V	—	5.5	8.0	mA				

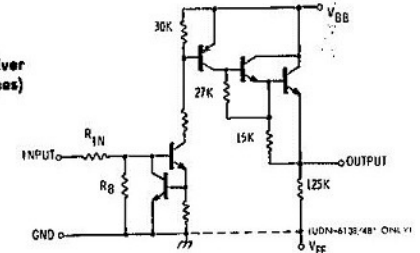
RECOMMENDED OPERATING CONDITIONS

Supply Voltage	V_{DD}	UDN-6116/18/26/28	A or R	5.0	—	70	V
			A-1	5.0	—	100	V
			A-2 or R-2	5.0	—	50	V
	V_{IT}	UDN-6138/48	A	5.0	—	49	V
			A-2	5.0	—	30	V
			A	0	—	-40	V
Input ON Voltage	V_{IN}	UDN-6116/18/38	All	2.4	—	15	V
		UDN-6126/28/48	All	4.0	—	15	V
Output ON Current	I_{OUT}	All	All	—	—	-25	mA

NOTE: Positive (negative) current is defined as going into (coming out of) the specified device pin.

PARTIAL SCHEMATIC

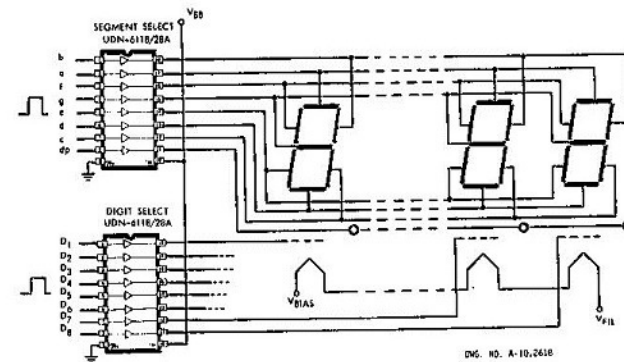
One Driver
(All Types)



DNV. NO. A-10-1922

Type (All Suffixes)	R_{1N}	R_8
UDN-6116/18/38	10 k Ω	30 k Ω
UDN-6126/28/48	20 k Ω	20 k Ω

TYPICAL MULTIPLEXED FLUORESCENT DISPLAY



DNV. NO. A-10-2616