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## LEVEL-SHIFTED VACUUM FLUORESCENT DISPLAY DRIVERS

**DI-512BR\*    DI-513BR    DI-514BR**

(\* Also directly applicable as gas discharge display digit driver. Pin for pin replacement for SPRAGUE UDN6184A)

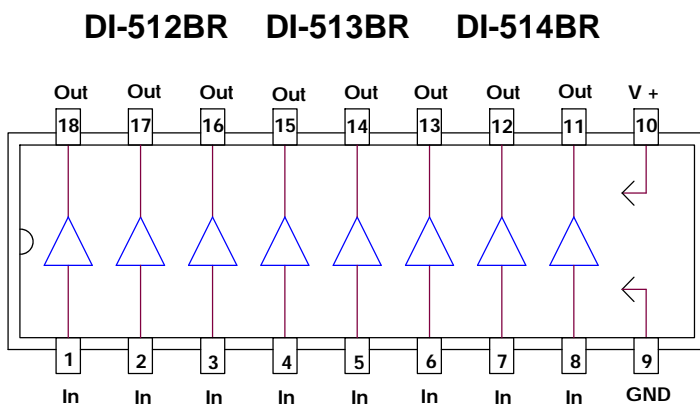
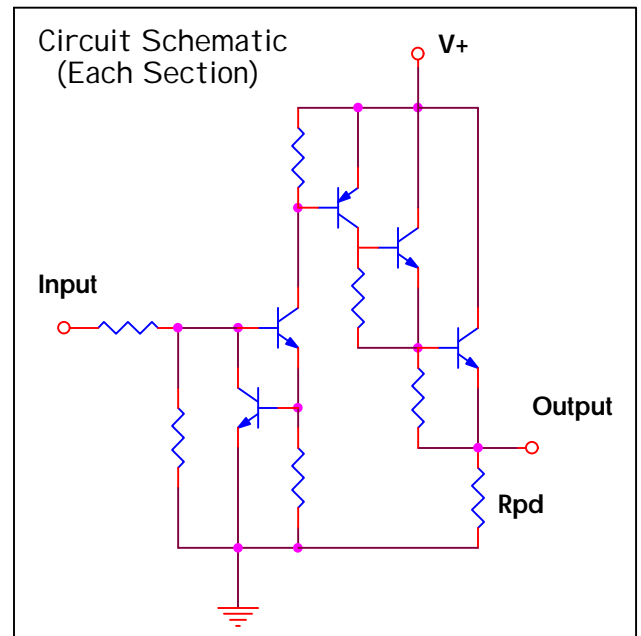
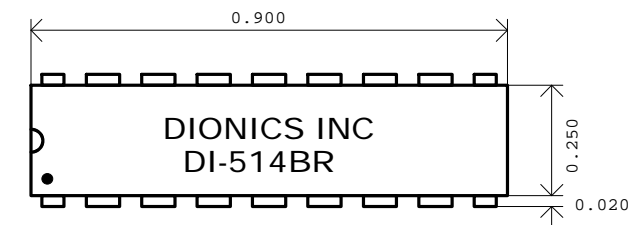
### General Description:

The DIONICS DI-512BR, DI-513BR and DI-514BR circuits are designed for interfacing between MOS or TTL logic circuitry and vacuum fluorescent display panels. Each section of these devices consists of a switched constant current level shifter (capable of 50 Volt, 80 Volt or 110 Volt operation) and a PNP-NPN driver transistor pair. The constant current operation of the level shifter stage results in low power dissipation. Input circuitry is suitable for open drain PMOS, CMOS, open-collector or standard TTL.

### Features:

- ✓ 50V, 80V and 110V Level Shift Capability
- ✓ MOS and TTL Compatibility
- ✓ Segment and Digit Drivers
- ✓ Low Power Dissipation
- ✓ Reliable Silicon Dielectrically IC Process
- ✓ Pin for Pin replacement for SPRAGUE UDN6118A, UDN6128A

### Package Layout:



### Absolute Maximum Ratings ( $T_A = 25\text{ }^\circ\text{C}$ )

Characteristic	Symbol	Note	Limit			Unit
			DI-514BR	DI-513BR	DI-512BR	
Supply Voltage	$V_{CC}$	Measured with respect to GND terminal	50	80	110	V
Input Voltage	$V_I$	Measured with respect to GND terminal	30	30	30	V
Output Voltage	$V_O$	Measured with respect to $V_+$ terminal	50	80	110	V
Output Current	$I_O$		30	30	30	mA
Power Dissipation	$P_D$	Derate at $8\text{mW}/^\circ\text{C}$ , above $25\text{ }^\circ\text{C}$ ambient	800	800	800	mW
Storage Temperature	$T_S$		$-55\text{ }^\circ\text{C}$	$T_o$	$+125\text{ }^\circ\text{C}$	$^\circ\text{C}$
Operating Temperature	$T_O$		$0\text{ }^\circ\text{C}$	$T_o$	$+70\text{ }^\circ\text{C}$	$^\circ\text{C}$

### Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Note	Condition	Typ.	Max.	Unit
Output Saturation Voltage	$V_{OS(ON)}$	Measured with respect to $V_+$ terminal	$I_O = 20\text{mA}$ ; $V_I = 2.4\text{V}$ ; $V_{CC} = 40\text{V}$	3	5	V
Supply Leakage ❖ DI-514BR ❖ DI-513BR ❖ DI-512BR	$I_{CC(OFF)}$	Derate at $8\text{mW}/^\circ\text{C}$ ; above $25\text{ }^\circ\text{C}$ ambient	$V_I = 0.4\text{V}$ ; $V_{CC} = 50\text{V}$	10	15	$\mu\text{A}$
			$V_I = 0.4\text{V}$ ; $V_{CC} = 80\text{V}$	10	15	$\mu\text{A}$
			$V_I = 0.4\text{V}$ ; $V_{CC} = 110\text{V}$	10	15	$\mu\text{A}$
Input Current	$I_{O(ON)}$		$V_I = 2.4\text{V}$	300	400	$\mu\text{A}$
Supply Current	$I_{CC}$	One Input at $2.4\text{V}$ , Other at $0.4\text{V}$	$I_O = 0\text{mA}$ ; $V_I = 0.4\text{V}$ ; $V_{CC} = 50\text{V}$	0.5	1.0	mA
				<b>Min.</b>	<b>Max.</b>	<b>Unit</b>
Pull down Current	$I_{PD}$		$I_O = 0\text{mA}$ ; $V_I = 0.4\text{V}$ ; $V_O = 40\text{V}$	200	500	$\mu\text{A}$
Pull down Resistors	$R_{PD}$			80	200	$\text{k}\Omega$

### Typical Application:

