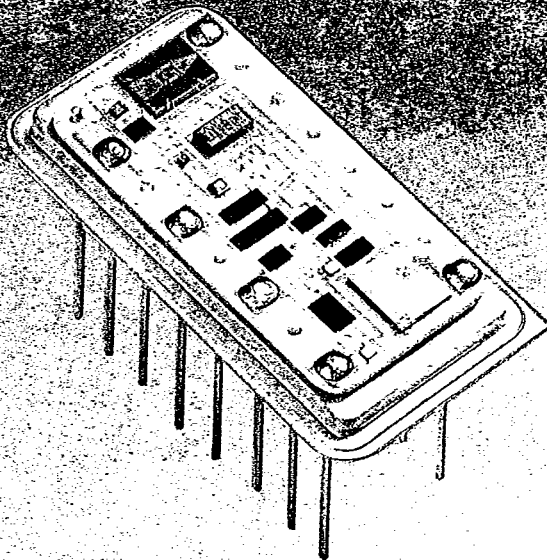


# White Technology, Inc.

A wholly owned subsidiary of Bowmar Instrument Corporation

## HYBRID VOLTAGE REGULATORS SERIES 8000 AND 8001



### FEATURES

- Provides  $\pm 1\%$  Temperature Stability from  $-55^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$
- Dissipates up to 1 Watt at  $+200^{\circ}\text{C}$  in Still Air Without Heatsink
- Withstands Short Circuit Load at Any Temperature Indefinitely
- Has Provisions For External Pass Device to Boost Output Capability
- Withstands Severe Mechanical and Thermal Shock
- Internally Compensated, Does Not Require By-pass Capacitors
- Withstands Momentary Voltage Surges up to 100 Volts

### DESCRIPTION

The 8000 and 8001 Series Hybrid Voltage Regulators are designed to operate over very wide temperature ranges. They can regulate voltages from 5V to 24V with  $\pm 1\%$  stability. Although designed at a fixed voltage, the regulators operation can be enhanced by using external circuitry as illustrated in Figures 5, 6, 7, and Fig. 8 for 50mA operation.

To insure performance results, 100% screening procedures are utilized. The 8000 and 8001 are constructed in rugged 16-pin dual in line packages.

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# HYBRID VOLTAGE REGULATORS—SERIES 8000 & 8001

**WE CAN PROVIDE ANY VOLTAGE BETWEEN 5-24V**

## ABSOLUTE MAXIMUM RATINGS

Input Voltage/Output Voltage: 45 Volts  
 Power Dissipation: 1 Watt @  $T_{CASE} < 240^{\circ}C$   
 Operating Case Temperature:  $-55^{\circ}C$  to  $+240^{\circ}C$   
 Absolute Maximum Input Voltage: 100 Volts

### POSITIVE REGULATORS 8000-XX

MODEL NO.	REGULATED VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT CURRENT AT 200°C $\Delta V = 10V$
8000-5	+5.0V	12V to 55V	50mA
8000-6	+6.0V	13V to 56V	50mA
8000-8	+8.0V	15V to 58V	50mA
8000-12	+12V	19V to 62V	50mA
8000-15	+15V	22V to 65V	50mA
8000-18	+18V	25V to 68V	50mA
8000-24	+24V	31V to 74V	50mA

### NEGATIVE REGULATORS 8001-XX

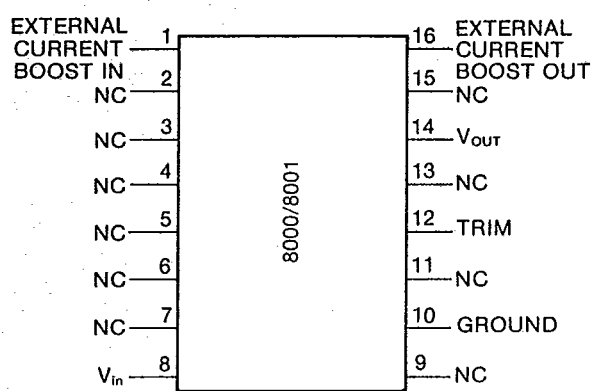
MODEL NO.	REGULATED VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT CURRENT AT 200°C $\Delta V = 10V$
8001-5	-5.0V	12V to 55V	50mA
8001-6	-6.0V	13V to 56V	50mA
8001-8	-8.0V	15V to 58V	50mA
8001-12	-12V	19V to 62V	50mA
8001-15	-15V	22V to 65V	50mA
8001-18	-18V	25V to 68V	50mA
8001-24	-24V	31V to 74V	50mA

### ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$T_A = 25^{\circ}C$ No Load $V_{OUT} - V_{in} = 8.0V$	-1		+1	% of Initial
Output Voltage Temp Coefficient	$P_D = 1$ Watt $T_A = 25^{\circ}C$ to $200^{\circ}C$		$\pm 20$	$\pm 30$	mV
Line Regulation	$T_A = 25^{\circ}C$ to $200^{\circ}C$ $8.0V \leq V_{in} - V_{OUT} < 45V$		$\pm 20$	$\pm 100$	mV
Load Regulation	$T_A = 25^{\circ}C$ to $200^{\circ}C$ $10mA \leq I_{OUT} \leq I_{MAX}$ $P_D \leq 1$ Watt	-1		+1	% of Initial
Quiescent Current	$8.0V \leq V_{in} - V_{OUT} \leq 45V$		9.0	11	mA

# HYBRID VOLTAGE REGULATORS—SERIES 8000 & 8001

## PIN DESCRIPTION



## CASE OUTLINE

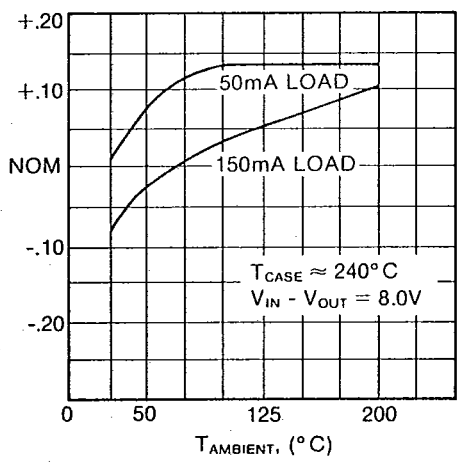
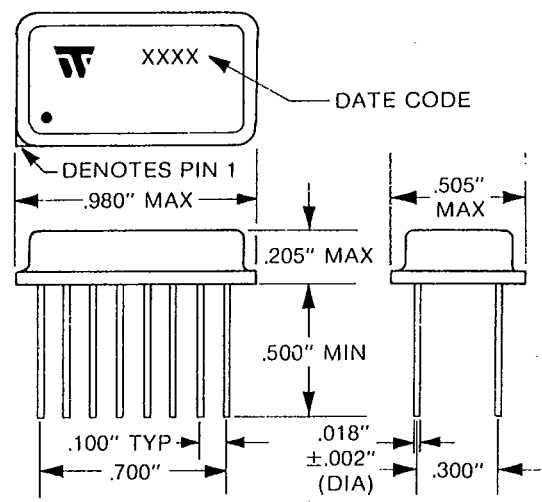


FIGURE 1—Output Voltage

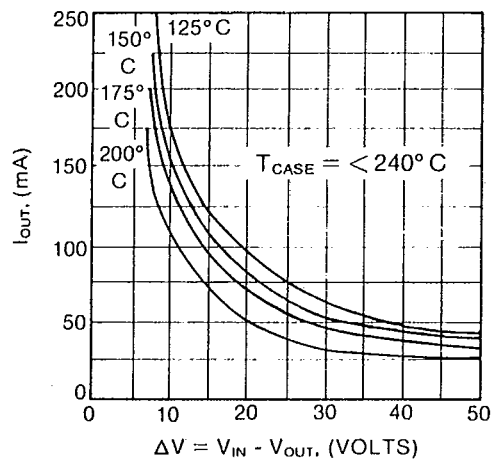


FIGURE 2—Output Current Capability

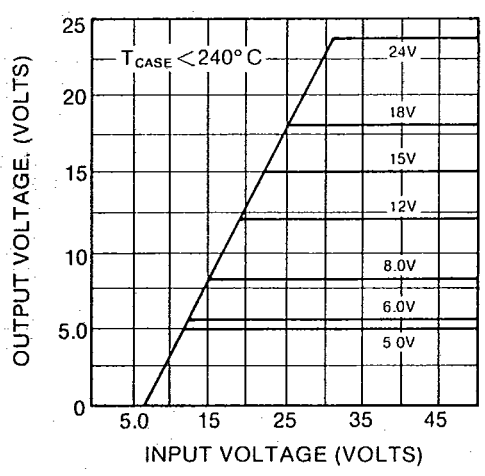


FIGURE 3—Dropout Characteristics

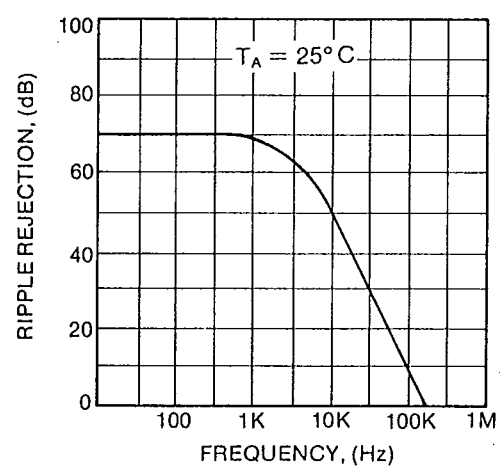


FIGURE 4—Ripple Rejection

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Product Warranty: Complete warranty statement available upon request

# HYBRID VOLTAGE REGULATORS—SERIES 8000 & 8001

## EXTERNAL CURRENT & VOLTAGE LIMIT ADJUSTMENT

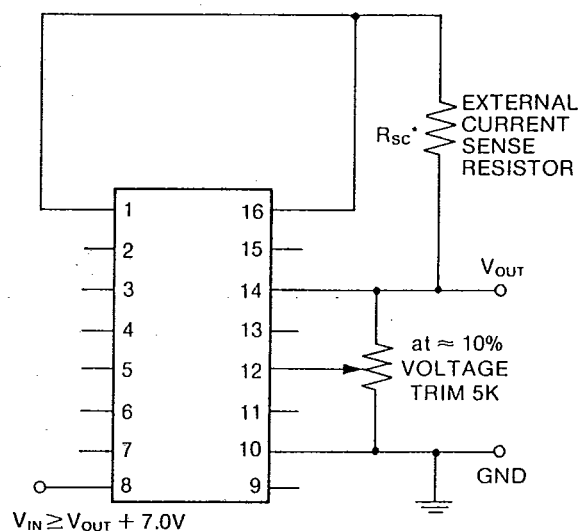


FIGURE 5

## VMOS FET BOOSTER

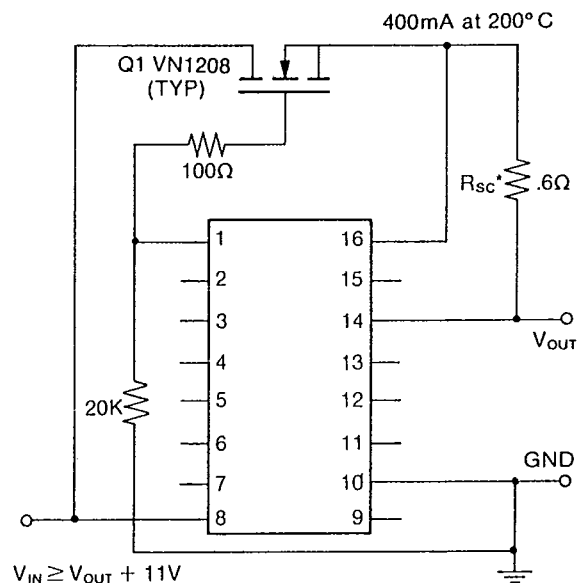


FIGURE 6

## NPN BOOSTER

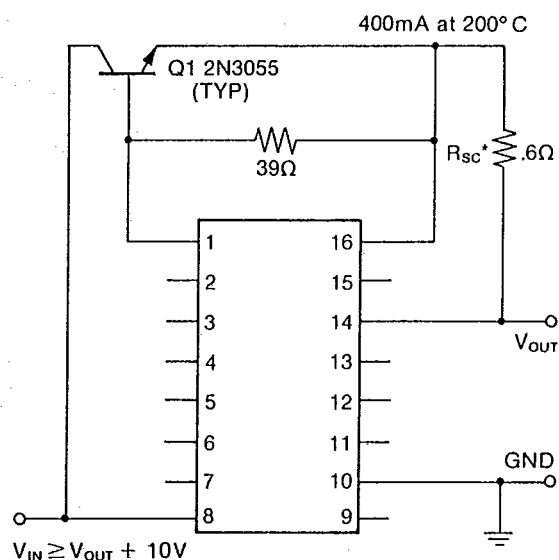


FIGURE 7

## MINIMUM CONFIGURATION 50mA OPERATION

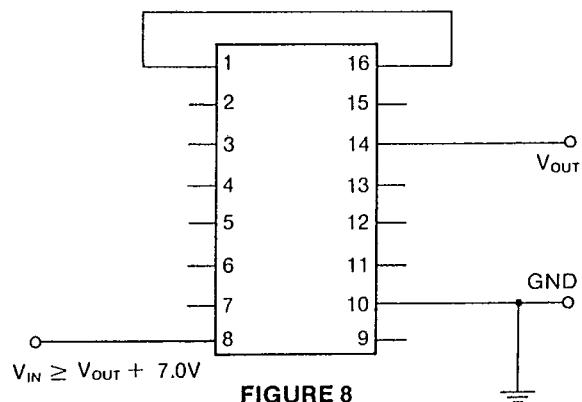


FIGURE 8

I = OUTPUT CURRENT

T = TEMPERATURE OF OPERATION

$$* R_{sc} = \frac{3.5 \times \left\{ \frac{(.672) - [(T-25) \times (.0023)]}{I} \right\}}{3.5 - \left\{ \frac{(.672) - [(T-25) \times (.0023)]}{I} \right\}}$$

FIGURE 9

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