

HYBRID VOLTAGE REGULATORS

CJSE009 CJSE010 CJSE011 CJSE012 CJSE013 CJSE014

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FIXED OUTPUT HYBRID VOLTAGE REGULATORS

± 20V

3 AMPERES

FEATURES

POSITIVE, NEGATIVE SUPPLY OPERATION
3A CURRENT RATING
50V LINE VOLTAGE CAPABILITY
LINE AND LOAD REGULATION $\leq \pm 0.5\%$
THREE-TERMINAL SIMPLICITY

APPLICATIONS

- DC MOTOR SUPPLIES
- MEDICAL ELECTRONICS
- INDUSTRIAL CONTROLS
- DISTRIBUTED POWER SYSTEMS
- MILITARY EQUIPMENT, SPACE AND TELECOMMUNICATIONS
- COMPUTERS
- INSTRUMENTATION
- DATA TERMINALS



TO-3 (2 PINS)

MAXIMUM RATINGS

		CJSE009 CJSE012	CJSE010 CJSE013	CJSE011 CJSE014
$ \pm V_{in} $	INPUT VOLTAGE	50 V		
I_{opk}	PEAK LOAD CURRENT	3 A		
T_A	OPERATING TEMPERATURE	-55°C to +150°C		
T_{stg}	STORAGE TEMPERATURE	-55°C to +150°C		
$R_{\theta JC}$	THERMAL RESISTANCE, JUNCTION TO CASE	1.67°C/W		
P_D	POWER DISSIPATION (25°C)	90 W		

20 V REGULATORS	CJSE	009	010	011	012	013	014
Regulation, Line and Load	$T_C = 25^\circ\text{C}$	+20 ± .5%	-20 ± .5%	+20 ± .5%	-20 ± .5%	+20 ± .5%	-25 ± .5%
	$-55^\circ\text{C} \leq T_A \leq +125^\circ\text{C}$	± 3%	± 3%	± 2%	± 2%	± 1%	± 1%

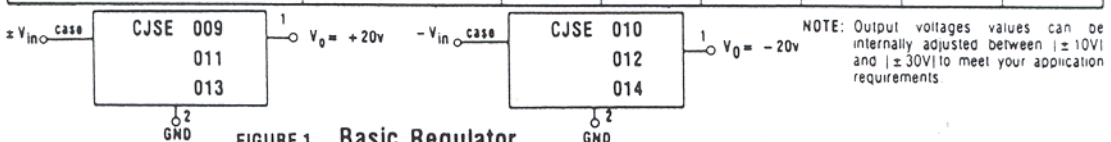


FIGURE 1. Basic Regulator



PRODUCT SPECIFICATION

HYBRID VOLTAGE REGULATORS

CJSE009 CJSE010 CJSE011 CJSE012 CJSE013 CJSE014

ELECTRICAL CHARACTERISTICS ($| \pm V_{in} | = 30 \text{ Vdc}$, $| \pm I_o | = 2\text{A}$, $R_{sc} = .4\Omega$, $T_c = +25^\circ\text{C}$ unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN.	MAX.	UNITS
INPUT VOLTAGE	$ \pm V_{in} $	25	50	V
OUTPUT VOLTAGE RANGE	$ \pm V_o $	19.8	20.2	V
OUTPUT VOLTAGE RANGE ($-55^\circ\text{C} \leq T_A \leq +125^\circ\text{C}$)	$ \pm V_o $			
CJSE009 CJSE010		19.4	20.6	V
CJSE011 CJSE012		19.6	20.4	V
CJSE013 CJSE014		19.8	20.2	V
INPUT-OUTPUT VOLTAGE DIFF.	$ \pm \Delta V $	5.0		V
STANDBY CURRENT	I_{in-I_o}		50	mA
SHORT CIRCUIT CURRENT ($V_o = 0\text{V}$)	I_{sc}		500	mA
RIPPLE ATTENUATION ($ \pm V_{in} = 30\text{V}$, $I_o = 1.0\text{A}$, $f = 120\text{Hz}$)		60		dB
TEMPERATURE COEFFICIENT ($-55^\circ\text{C} \leq T_A \leq +125^\circ\text{C}$)	$\frac{\Delta V_o}{V_o \Delta T}$			%/ $^\circ\text{C}$
CJSE009 CJSE010			± 0.020	%/ $^\circ\text{C}$
CJSE011 CJSE012			± 0.010	%/ $^\circ\text{C}$
CJSE013 CJSE014			± 0.005	%/ $^\circ\text{C}$

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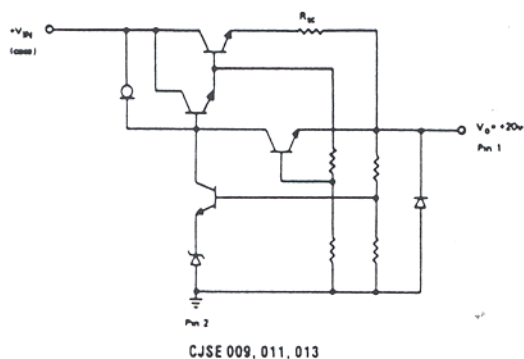


FIGURE 2

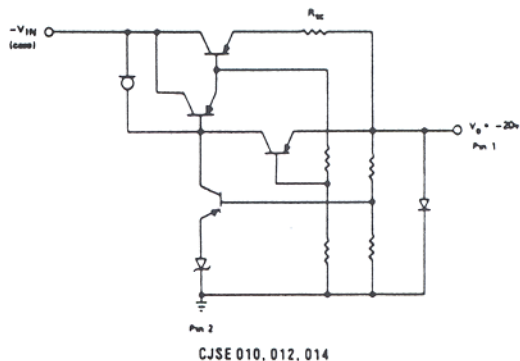


FIGURE 3

POWER DERATING

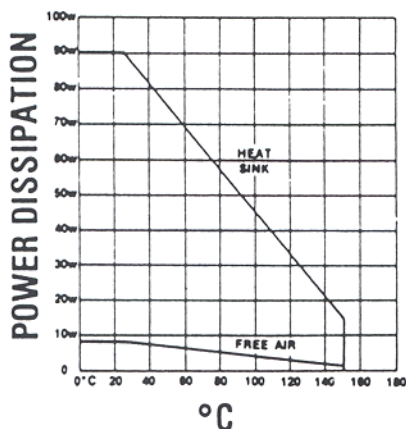


FIGURE 4

D.C. SAFE OPERATING AREA FOR PASS TRANSISTORS

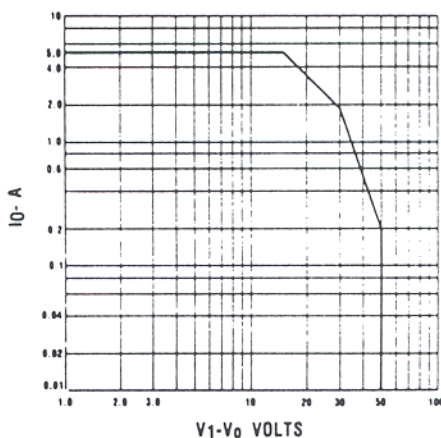


FIGURE 5

NOTES:

1. Regulators incorporate a FET constant current source, which provides current mode regulation. A minimum input-output voltage differential of 5 volts is recommended to bias the FET into its constant current region. At lower voltages the FET becomes resistive, and regulation reverts to the basic mode.
2. Foldback current limiting is accomplished in the regulators as shown in Fig. 6.
3. Output current and power capability may be increased by driving one or more external power transistors. Maintain safe operating conditions for both regulator and the external transistor.

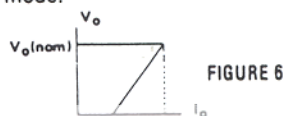


FIGURE 6