

FEATURES

- Low dropout performance, 1.3V max.
- Full current rating over line and temperature
- Fast transient response
- $\pm 2\%$ Total output regulation over line, load and temperature
- Adjust pin current max 90 μ A over temperature
- Fixed/adjustable output voltage
- Line regulation typically 0.015%
- Load regulation typically 0.05%
- TO-220 package

APPLICATIONS

- 5V - 3.3V conversion applications such as
 - Microprocessors
 - Embedded Controllers
 - 3.3V ASIC supplies

DESCRIPTION

The EZ7071 is a cost-effective single chip positive voltage regulator for mid-range personal computer motherboards using the Pentium® Processor, Cyrix 6x86™, AMD AMD5k86™ or equivalent microprocessors. Designed for low dropout voltage operation over the full load current range (10mA to 7A), the EZ7071 provides good regulation over variations in line, load and temperature. The EZ7071 is an economical and reliable alternative to discrete regulator solutions and is fully characterized over rated operating conditions. The EZ7071 is a three-terminal regulator with fixed and adjustable voltage options available in the TO-220 package.

Pentium is a registered trademark of Intel Corporation.
6x86 is a trademark of Cyrix.
AMD5k86 is a trademark of Advanced Micro Devices.

DEVICE SELECTION GUIDE

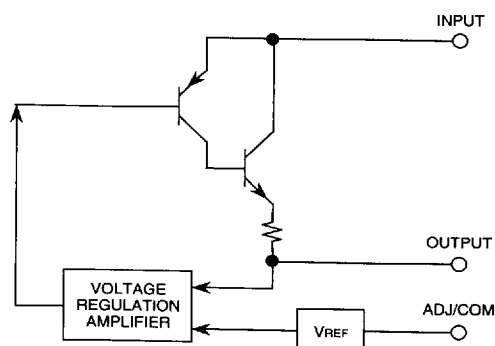
DEVICE	V _{OUT} VOLTS	PACKAGE
EZ7071CT EZ7071CT-3.3	1.30 to 4.0 3.3	TO-220

NOTE: Contact factory for additional voltage options.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Maximum	Units
Input Voltage	V _{IN}	7	V
Output Current	I _{OUT}	7	A
Thermal Resistance Junction to Case TO-220	θ_{JC}	2.5	°C/W
Thermal Resistance Junction to Ambient TO-220	θ_{JA}	50	
Operating Junction Temperature Range	T _J	0 to 125	
Storage Temperature Range	T _{STG}	-65 to 150	°C
Lead Temperature (Soldering) 10 Sec.	T _{LEAD}	260	

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS

Unless otherwise specified, Adj $V_{IN} = 2.75V$ to $7.0V$ and Adj $I_O = 10mA$ to $7.0A$;

Fixed $V_{IN} = 4.75V$ to $7.0V$ and Fixed $I_O = 0mA$ to $7.0A$

PARAMETER	SYMBOL	Test Conditions			Test Limits			UNITS
		V_{IN}	I_O	$T_J^{(4)}$	MIN	TYP	MAX	
Output Voltage ⁽¹⁾ Fixed Voltage	V_O	5V	0mA	25	$0.99 V_O $	V_O	$1.01 V_O $	V
				Over Temp.	$0.98 V_O $		$1.02 V_O $	
Reference Voltage ⁽¹⁾ Adj Voltage	V_{REF}	5V	10mA	25	1.238	1.250	1.262	V
				Over Temp.	1.225		1.275	
Line Regulation ⁽¹⁾	$REG_{(LINE)}$		10mA	25		0.015	0.2	%
				Over Temp.		0.035		
Load Regulation ⁽¹⁾	$REG_{(LOAD)}$	5V		25		0.05	0.3	%
				Over Temp.		0.2	0.4	
Dropout Voltage $\Delta V_{OUT}, \Delta V_{REF} = 1\%$ EZ2084	V_D			25		1		V
				Over Temp.		1.1	1.3	
Quiescent Current Fixed Model	I_Q	5V				10	13	mA
Temperature Coefficient	T_C					0.005		%/°C
Adjust Pin Current	I_{PIN}			25		55		μA
Adjust Pin Current Change	ΔI_{PIN}						90	
Adjust Pin Current Change	ΔI_{PIN}					0.2	5	%
Temperature Stability	T_S	5V	625mA	Over Temp.		0.5		
Minimum Load Current Adj Model	I_O	5V				5	10	mA
RMS Output Noise ⁽²⁾	V_N			25		0.003		% V_O
Ripple Rejection Ratio ⁽³⁾	R_A	5V	7.0A	Over Temp.	60	72		dB

(1) Low duty cycle pulse testing with Kelvin connections required.

(2) Bandwidth of 10Hz to 10kHz.

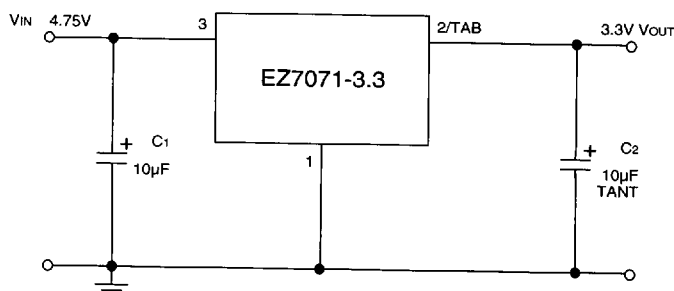
(3) 120Hz input ripple (C_{ADJ} for ADJ) = 25μF.

(4) Over Temp. = over specified operating junction temperature range.

Advanced Data

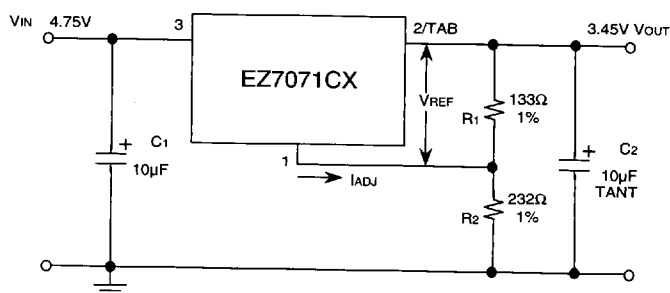
TYPICAL APPLICATIONS

FIXED VOLTAGE REGULATOR ⁽¹⁾⁽²⁾



- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(2) C2 REQUIRED FOR STABILITY

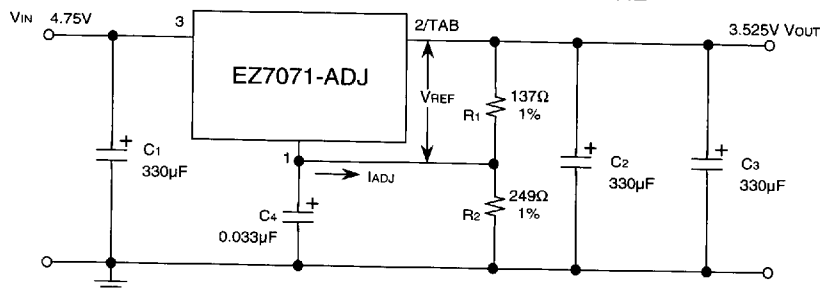
ADJUSTABLE VOLTAGE REGULATOR ⁽¹⁾⁽²⁾



$$V_{OUT} = V_{REF} \left(1 + \frac{R_2}{R_1}\right) + I_{ADJ} R_2$$

- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(2) C2 REQUIRED FOR STABILITY

RECOMMENDED CIRCUIT FOR THE INTEL PENTIUM® PROCESSOR - P54C-VRE



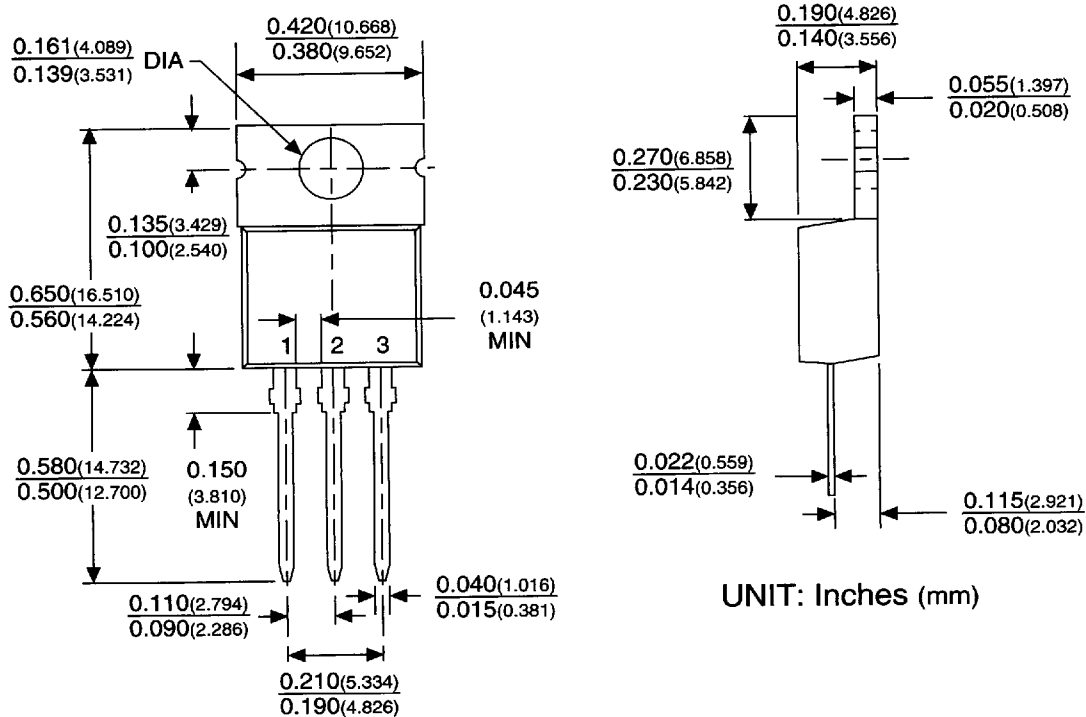
- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(2) C2 AND C3 REQUIRED FOR STABILITY
(3) C1 = C2 = C3 = 330µF, 200mΩ ESR (e.g., Panasonic HFQ)

$$V_{OUT} = V_{REF} \left(1 + \frac{R_2}{R_1}\right) + I_{ADJ} R_2$$

Advanced Data

DEVICE OUTLINE

TO-220



EZ7071

PIN	FUNCTION
1	ADJ/GND
2	OUTPUT
3	INPUT
TAB IS OUTPUT	