

FEATURES

- Low dropout performance
1.2V max. for EZ1587A
1.3V max. for EZ1587
- 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 0.005%
- Load regulation typically 0.05%
- TO-220 or TO-263 packages

APPLICATIONS

- Pentium Processor™ supplies
- PowerPC™ supplies
- Other 2.5V to 3.6V microprocessor supplies
- Low voltage logic supplies
- Battery-powered circuitry
- Post regulator for switching supply

DESCRIPTION

The EZ1587 Series are high performance positive voltage regulators designed for use in applications requiring low dropout performance at full rated current. Additionally, the EZ1587 Series provides excellent regulation over variations due to changes in line, load and temperature. Outstanding features include low dropout performance at rated current, fast transient response, internal current limiting and thermal shutdown protection of the output device. The EZ1587 Series are three terminal regulators with fixed and adjustable voltage options available in popular packages.

DEVICE SELECTION GUIDE

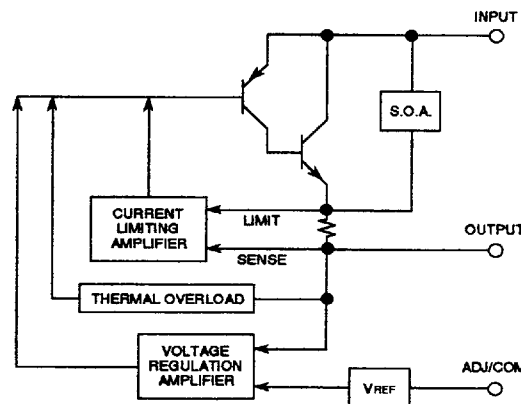
DEVICE	V _{OUT} VOLTS	PACKAGE
EZ1587ACT EZ1587CT EZ1587CT-1.5 EZ1587CT-2.5 EZ1587CT-3.3 EZ1587CT-3.45	1.3 to 4.0 1.3 to 4.0 1.5 2.5 3.3 3.45	TO-220
EZ1587ACM EZ1587CM EZ1587CM-1.5 EZ1587CM-2.5 EZ1587CM-3.3 EZ1587CM-3.45	1.3 to 4.0 1.3 to 4.0 1.5 2.5 3.3 3.45	TO-263

NOTE: Contact factory for additional voltage options.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Maximum	Units
Input Voltage	V _{IN}	7	V
Power Dissipation	P _D	Internally Limited	W
Thermal Resistance Junction to Case TO-220 TO-263	θ_{JC}	3 3	°C/W
Thermal Resistance Junction to Ambient TO-220 TO-263	θ_{JA}	50 60	
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



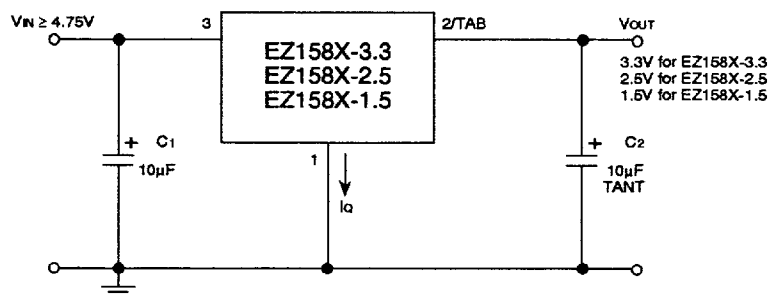
ELECTRICAL CHARACTERISTICS

Unless otherwise specified, Adj $V_{IN} = 2.75V$ to $7.0V$ and Adj $I_O = 10mA$ to $3.0A$;
Fixed $V_{IN} = 4.75V$ to $7.0V$ and Fixed $I_O = 0mA$ to $3.0A$

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	10mA	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⁾ Fixed Model	$REG_{(LINE)}$		0mA	25		0.005	0.2	%
Adj Model			10mA	Over Temp.		0.035		
Load Regulation ⁽¹⁾	$REG_{(LOAD)}$	5V		25		0.05	0.3	
				Over Temp.		0.2	0.4	
Dropout Voltage $\Delta V_{OUT}, \Delta V_{REF} = 1\%$ EZ1587 EZ1587A	V_D			25		1		V
				Over Temp.		1.1	1.3	
						1.0	1.2	
Current Limit	I_{CL}				3.1	4.5		A
Quiescent Current Fixed Model	I_Q	5V				10	13	mA
Temperature Coefficient	T_C					0.004	0.02	%/°C
Adjust Pin Current	I_{ADJ}			25		55		μA
Adjust Pin Current Change	ΔI_{ADJ}			Over Temp.		0.2	5	
Temperature Stability	T_S	5V	0.5A	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	3.0A	Over Temp.	60	72		dB

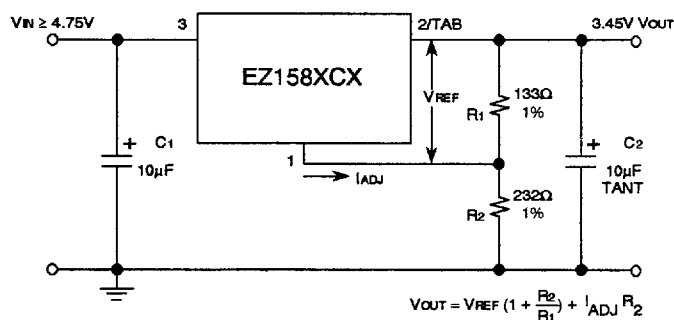
- (1) Low duty cycle pulse testing with Kelvin connections required.
 (2) Bandwidth of 10Hz to 10kHz.
 (3) 120Hz input ripple (C_{ADJ} for ADJ) = 25 μF .
 (4) Over Temp. = over specified operating junction temperature range.

FIXED VOLTAGE REGULATOR ⁽¹⁾⁽²⁾



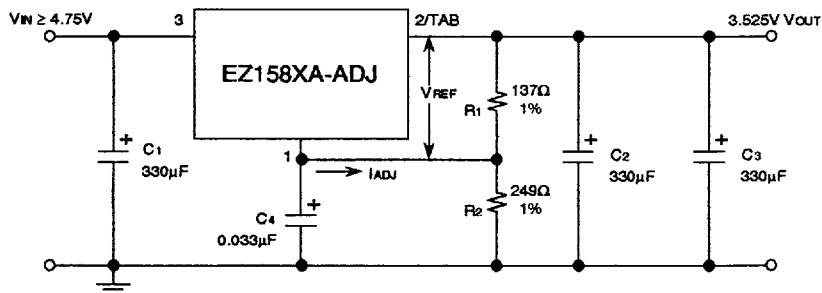
- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(2) C2 REQUIRED FOR STABILITY

ADJUSTABLE VOLTAGE REGULATOR ⁽¹⁾⁽²⁾



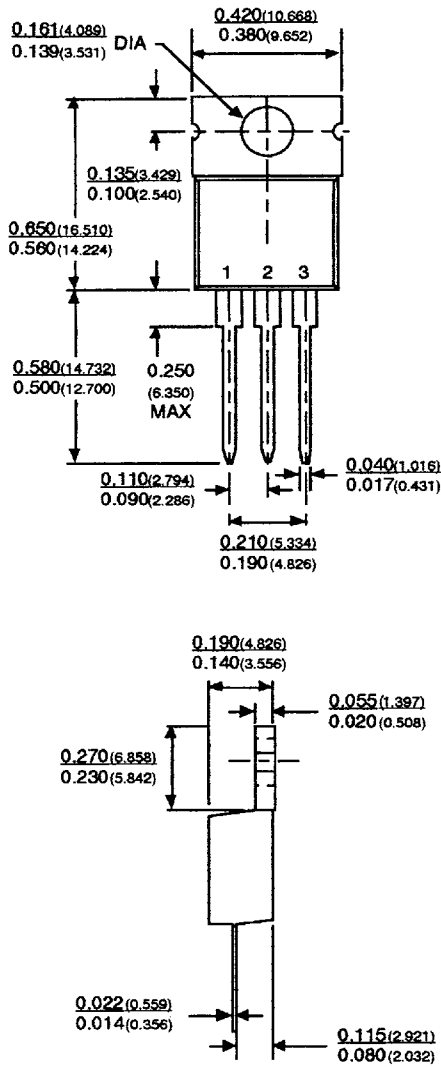
- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(2) C2 REQUIRED FOR STABILITY

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



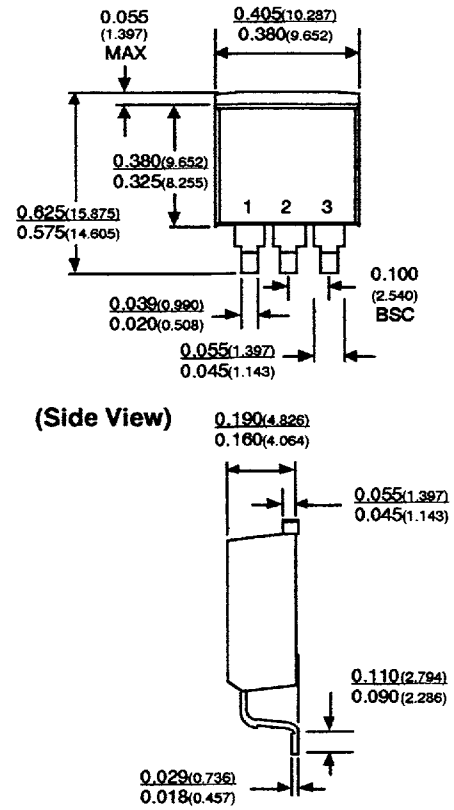
- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(2) C2 AND C3 REQUIRED FOR STABILITY
(3) C1 = C2 = C3 = 330µF, 200mΩ ESR (e.g., Panasonic HFQ)
- $$V_{OUT} = V_{REF} \left(1 + \frac{R_2}{R_1}\right) + I_{ADJ} R_2$$

TO-220



UNIT: Inches (mm)

TO-263



(Side View)

UNIT: Inches (mm)

ADJUSTABLE

PIN	FUNCTION
1	ADJUST
2	OUTPUT
3	INPUT

FIXED

PIN	FUNCTION
1	GROUND
2	OUTPUT
3	INPUT