

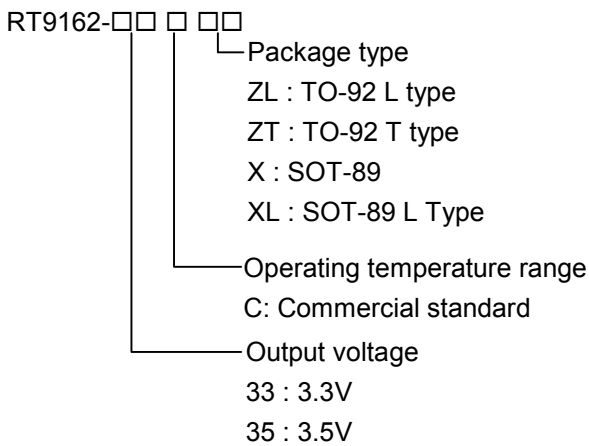
# 300mA Low Dropout Positive Voltage Regulator

## General Description

The RT9162 is a positive low dropout regulator designed for applications requiring low dropout performance at full rated current. The device is available in fixed output voltages of 3.3V and 3.5V. The RT9162 provides excellent regulation over line, load, and temperature variations.

The other features include low dropout performance at a maximum of 1.3V at 300mA, fast transient response, internal current limiting, and thermal shutdown protection of the output devices. The RT9162 is a three-terminal regulator compatible with industrial 78XX series and available in surface mount SOT-89 packages.

## Ordering Information



## Marking Information

Part Number	Marking
RT9162-33CZT	RTA4
RT9162-33CZL	RTA2
RT9162-33CX	A0
RT9162-33CXL	CH
RT9162-35CZT	RTA5
RT9162-35CX	RTA3
RT9162-35CX	A1
RT9162-35CXL	CJ

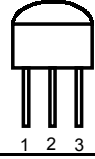
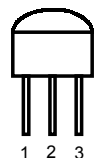
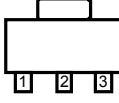
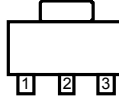
## Features

- Low Dropout, Maximum 1.3V at 300mA
- Fast Transient Response
- ±2% Total Output Regulation
- 0.4% Line Regulation
- 0.4% Load Regulation
- SOT-89 and TO-92 Packages

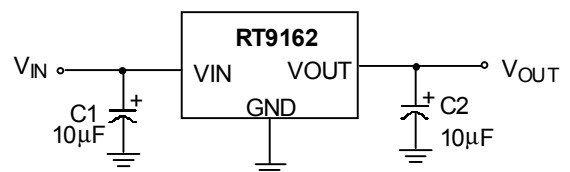
## Applications

- 5V to 3.3V Linear Regulator
- Low Voltage Microcontroller, DSF, ... etc. Power Supply
- Linear Regulator for LAN Card and CD-ROM

## Pin Configurations

Part Number	Pin Configurations
RT9162-33CZL RT9162-35CZL (Plastic TO-92)	 <p>TOP VIEW 1. VIN 2. GND 3. VOUT</p>
RT9162-33CZT RT9162-35CZT (Plastic TO-92)	 <p>TOP VIEW 1. GND 2. VIN 3. VOUT</p>
RT9162-33CX RT9162-35CX (Plastic SOT-89)	 <p>TOP VIEW 1. VOUT 2. GND (TAB) 3. VIN</p>
RT9162-33CXL RT9162-35CXL (Plastic SOT-89)	 <p>TOP VIEW 1. GND (TAB) 2. VIN 3. VOUT</p>

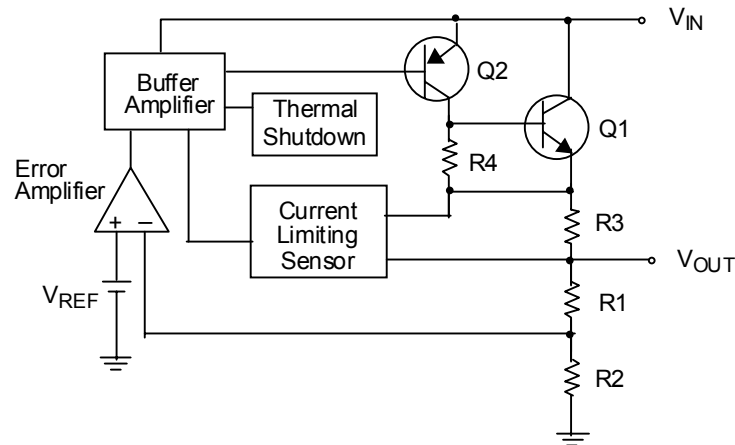
## Typical Application Circuit



## Pin Description

Pin Name	Pin Function
VOUT	Output Voltage
GND	Ground
VIN	Power Input

## Function Block Diagram



## Absolute Maximum Ratings

- Input Voltage ..... 15V
- Power Dissipation,  $P_D$  @  $T_A = 25^\circ\text{C}$ 
  - TO-92 ..... 0.6W
  - SOT-89 ..... 0.5W
- Package Thermal Resistance
  - TO-92,  $\theta_{JC}$  .....  $160^\circ\text{C/W}$
  - SOT-89,  $\theta_{JC}$  .....  $100^\circ\text{C/W}$
  - SOT-89,  $\theta_{JA}$  .....  $300^\circ\text{C/W}$
- Operating Junction Temperature Range .....  $-40^\circ\text{C}$  to  $125^\circ\text{C}$
- Storage Temperature Range .....  $-65^\circ\text{C}$  to  $150^\circ\text{C}$

## Electrical Characteristics

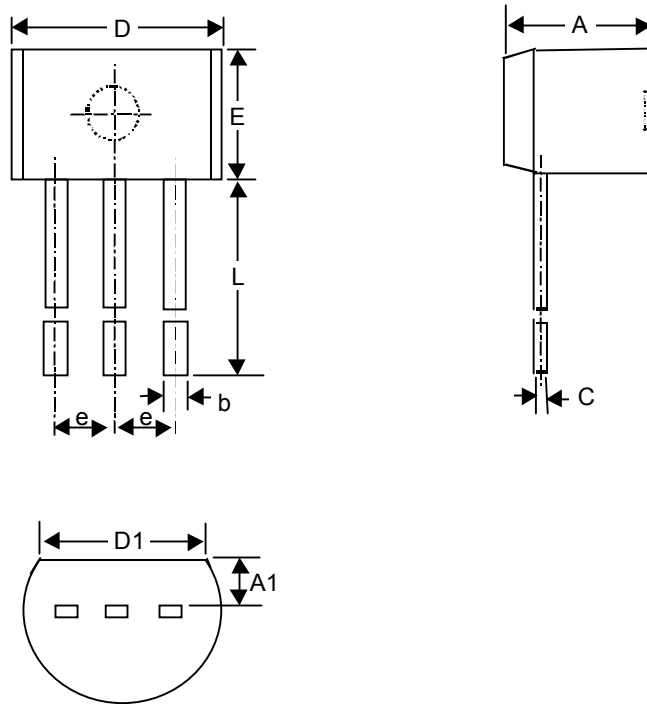
( $V_{IN} = 5.0\text{V}$ ,  $T_A = 25^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units	
Output Voltage <sup>(1)</sup>	RT9162-33	$V_{OUT}$		3.235	3.300	3.365	V
	RT9162-35			3.430	3.500	3.570	
Line Regulation <sup>(1)</sup>	$\Delta V_{LINE}$	$V_{IN} = 5\text{V} - 15\text{V}$	--	0.1	0.4	%	
Load Regulation <sup>(1)</sup>	$\Delta V_{LOAD}$	$I_L = 0 - 300\text{mA}$	--	0.2	0.4	%	
Dropout Voltage <sup>(2)</sup>	$V_{DROP}$	$\Delta V_{OUT} = 1\%$	--	1.2	1.3	V	
Current Limit	$I_{LIMIT}$		400	--	--	mA	
Quiescent Current	$I_Q$		--	4.5	8	mA	
Temperature Coefficient	$T_C$		--	0.005	--	%/ $^\circ\text{C}$	
Temperature Stability	$T_S$		--	0.5	--	%	
RMS Output Noise <sup>(3)</sup>			--	0.003	--	%/ $V_{OUT}$	

Notes:

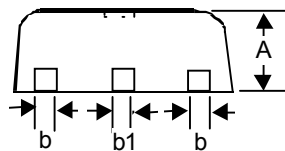
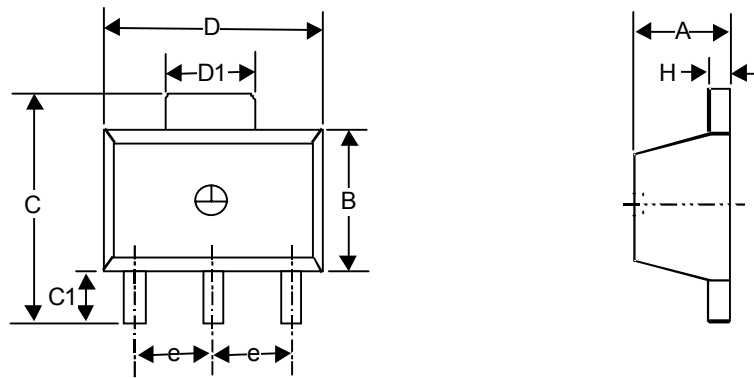
- (1) Low duty cycle pulse testing with Kelvin connections required.
- (2) Dropout voltage is defined as the input to output differential at which the output voltage drops 1% below the value measured with a 2V differential.
- (3) Bandwidth of 10 Hz to 10 kHz.

## Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.175	4.191	0.125	0.165
A1	1.143	1.372	0.045	0.054
b	0.406	0.533	0.016	0.021
C	0.406	0.533	0.016	0.021
D	4.445	5.207	0.175	0.205
D1	3.429	--	0.135	--
E	4.318	5.334	0.170	0.210
e	1.143	1.397	0.045	0.055
L	12.700	--	0.500	--

**3-Lead TO-92 Package**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.397	1.600	0.055	0.063
b	0.356	0.483	0.014	0.019
B	2.388	2.591	0.094	0.102
b1	0.406	0.533	0.016	0.021
C	--	4.242	--	0.167
C1	0.787	1.194	0.031	0.047
D	4.394	4.597	0.173	0.181
D1	1.397	1.753	0.055	0.069
e	1.448	1.549	0.057	0.061
H	0.355	0.432	0.014	0.017

**3-Lead SOT-89 Surface Mount**

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