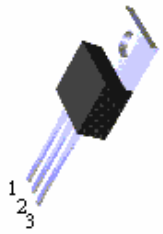
10 Amp Low Dropout Positive Voltage Regulator

The PJ1082 Series of high performance positive voltage regulators are designed for applications requiring low dropout performance at full rated current, Additionally, the PJ1082 Series provide 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 PJ1082 Series are three terminal regulators with fixedand adjustable voltage options available in popular packages.

TO-220



Pin: 1.Adj (com)
2.Out
3.In

FEATURES

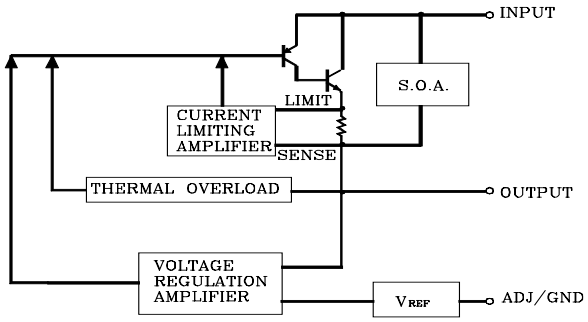
- Low dropout voltage 1.3V max.
- Full current rating over line and temperature
- Fast transient response
- Total output regulation ±2% over line, load and temperature
- Adjust pin current max 120 μA over temperature
- Line regulation typical 0.015%.
- Load regulation typical 0.05%.
- Fixed/adjustable output voltage
- TO-220 package

ORDERING INFORMATION

Device	Operating Temperature (Ambient)	Package
PJ1082CZ PJ1082CZ-2.5 PJ1082CZ-3.3	-20℃ to +85℃	TO-220

NOTE: Contact factory for additional voltage option.

BLOCK DIAGRAM



ABSOLUTE MAXIMIUM RATING

Parameter	Symbol	Maximum	Units
Input Voltage	V_{IN}	7	V
Power Dissipation	P_D	Internally Limited	W
Thermal Resistance Junction to Case	θ_{JC}	1.6	° C /W
Thermal Resistance Junction to Ambient	θ_{JA}	50	
Operating Junction Temperature Range	T_J	0 to +125	° C
Operating Ambient Temperature Range	T_A	-20 to +85	
Storage Temperature Range	T_{STG}	-25 to 150	
Lead Temperature (Soldering) 10 Sec.	T_{LEAD}	260	

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ELECTRICAL CHARACTERISTICS

Unless otherwise specified, Adjust V_{IN} = 2.75V to 7V and Adjust Io = 10mA to 10A

Fixed V_{IN} = 4.75V to 7V and Fixed Io = 10mA to 10A

Parameter	Symbol	Test Conditions			Test Limits			Units
		V_{IN} -V_{OUT}	I_O	T_J(4)	Min	Typ	Max	
Output Voltage(1)	Vo	5V	10mA	25	0.99|Vo|	Vo	1.01|Vo|	V
Fixed Voltage				Over Temp.	0.98|Vo|		1.02|Vo|	
Reference Voltage(1)	V_{REF}	5V	10mA	25	1.238	1.250	1.262	
Adj Voltage				Over Temp.	1.225		1.275	
Line Regulation(1)	$REG_{(LINE)}$		10mA	25		0.015	0.2	%
(Vin-Vout=3V)				Over Temp.		0.035		
Load Regulation(1)	$REG_{(LOAD)}$			25		0.05	0.3	
(Vin-Vout=3V)				Over Temp.		0.2	0.4	
Dropout Voltage	V_D			25		1		V
ΔV_{REF} =1%						1.1	1.3	
Current Limit	Ic_L				9.5	10.5		A
(Vin-Vout =5V)				Over Temp.				
Quiescent Current	I_Q	5V				12	14	mA
Fixed Model								
Temperature Coefficient	Tc					0.005		%/° C
Adjust Pin Current	I_{ADJ}			25		55		µA
				Over Temp.			120	
Adjust Pin Current Change	ΔI_{ADJ}					0.2	5	
Temperature Stability	Ts	5V	500mA	Over Temp.		0.5		%
Minimum Load Current	Io	5V				5	10	mA
Adjust Model								
RMS Output Noise(2)	V_N			25		0.003		%Vo
Ripple Rejection Ratio(3)	R_A	5V	9.5A	Over Temp.	60	72		dB

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

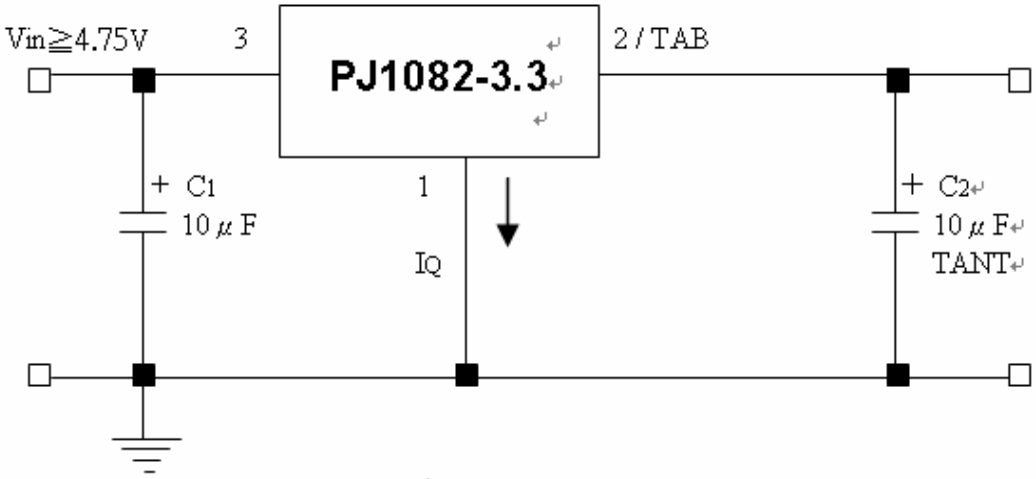
(2)Bandwidth of 10Hz to 10KHz.

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

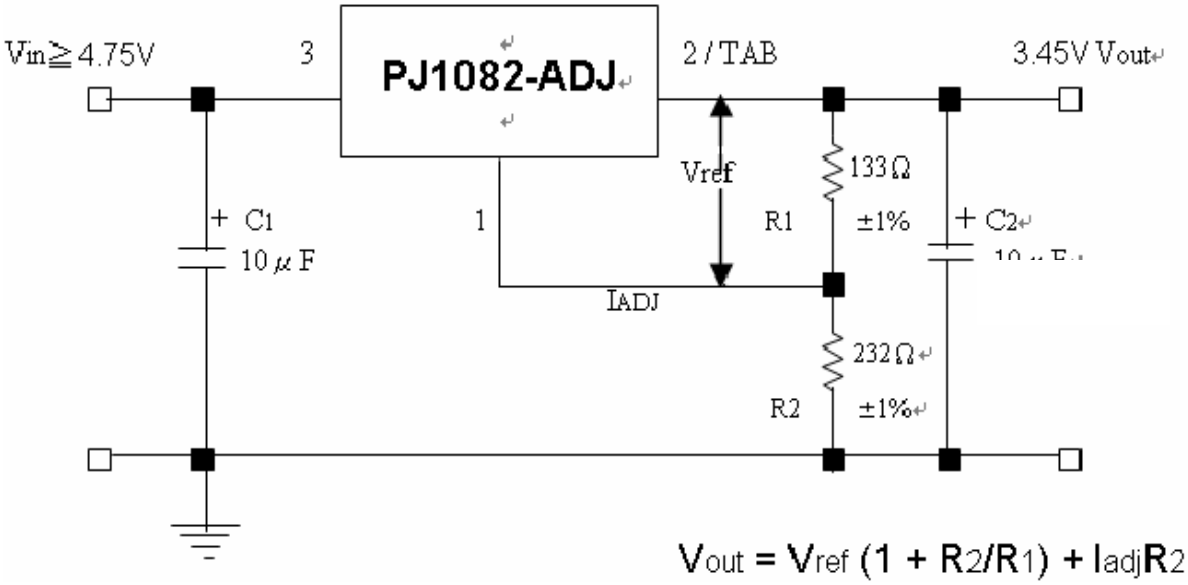
(4)Over Temp.-over specified operating junction temperature range.

Typical Application Circuit

FIXED VOLTAGE REGULATOR (1)(2)

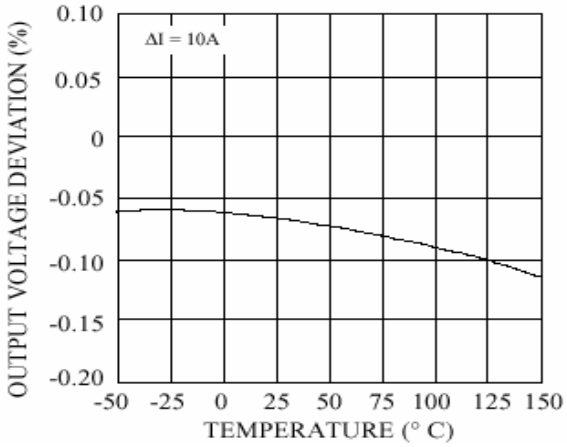


ADJUSTABLE VOLTAGE REGULATOR (1)(2)

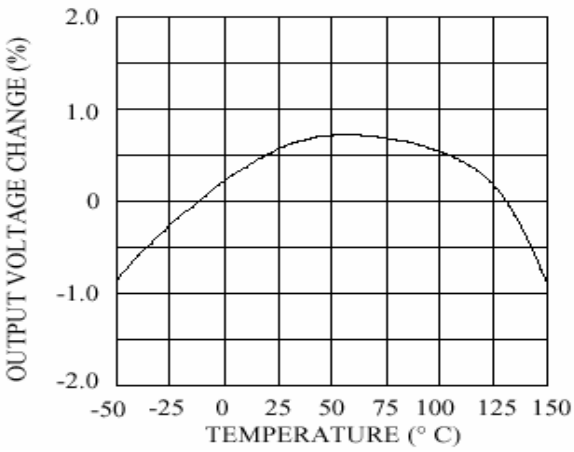


(3) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
(4) C2 REQUIRED FOR STABILITY

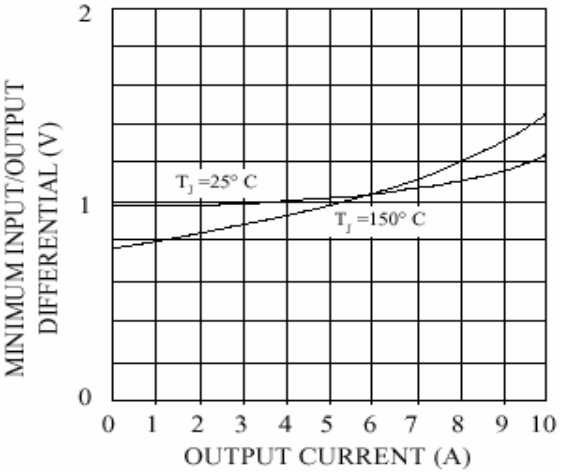
Load Regulation



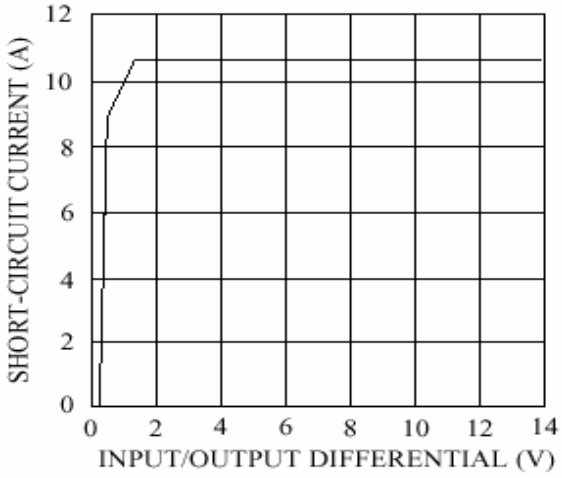
Temperature Stability



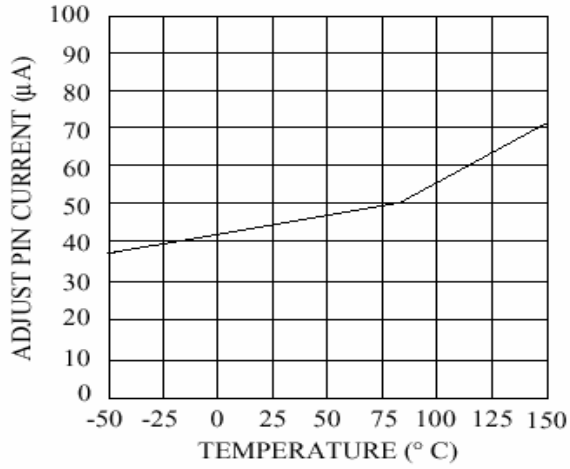
Dropout Voltage



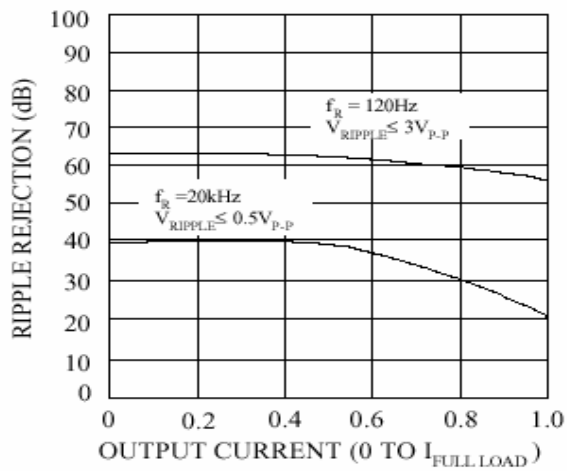
Short-Circuit Current



Adjust Pin Current
(Adjustable only)



Ripple Rejection vs. Current



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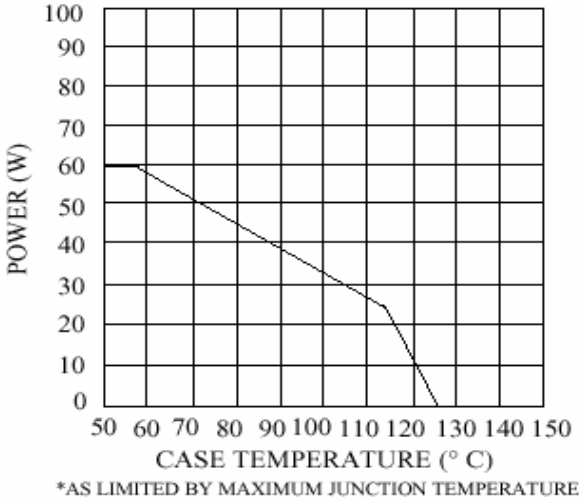
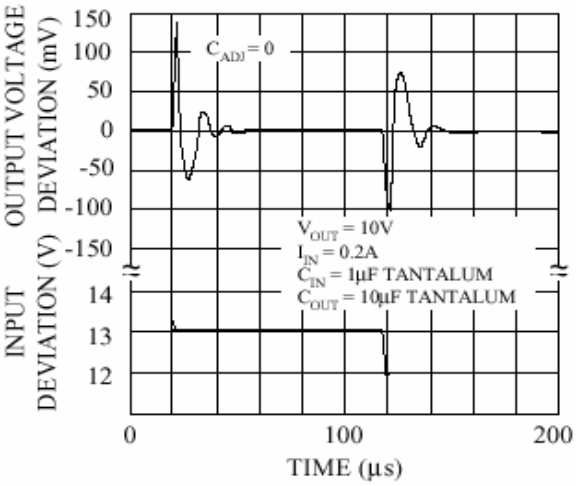
Maximum Power Dissipation*

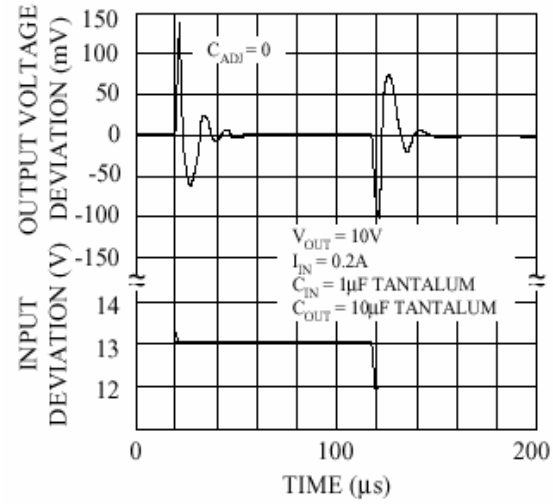


*AS LIMITED BY MAXIMUM JUNCTION TEMPERATURE

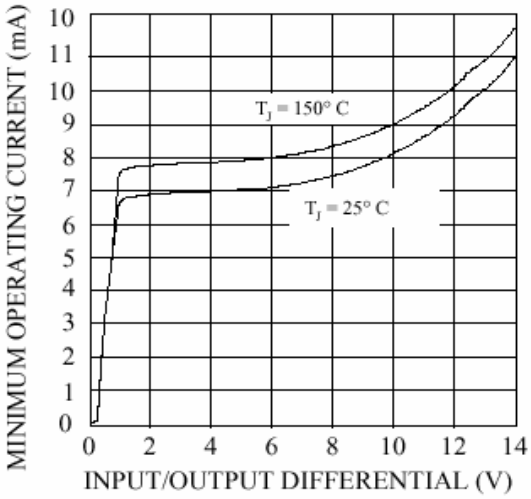
Line Transient Response



Line Transient Response



Minimum Operating Current
(Adjustable only)



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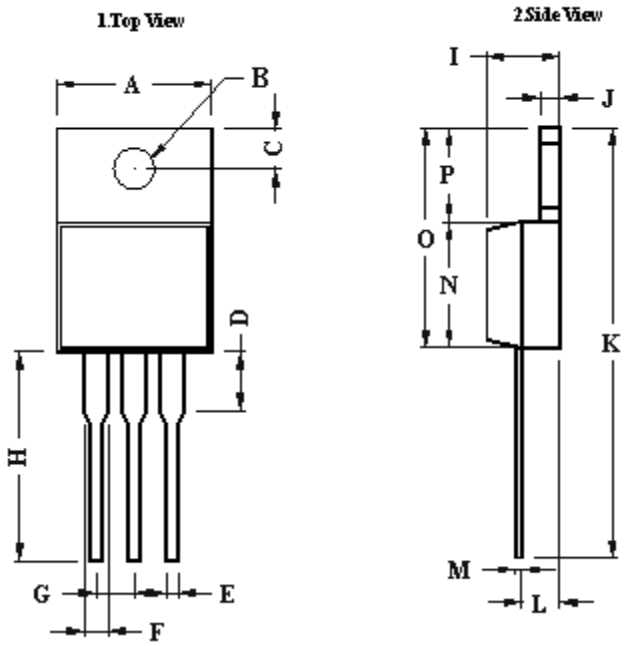
TO-220 Mechanical drawing

TO-220 Unit:mm



TO-220 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.00	10.50	0.394	0.413
B	3.24	4.44	0.128	0.175
C	2.44	2.94	0.096	0.116
D	3.565	4.315	0.140	0.170
E	0.68	0.92	0.027	0.036
F	1.115	1.485	0.044	0.058
G	2.345	2.715	0.092	0.107
H	13.49	14.31	0.531	0.563
I	4.475	5.225	0.176	0.206
J	1.15	1.39	0.045	0.055
K	27.78	29.62	1.094	1.166
L	2.175	2.925	0.086	0.115
M	0.297	0.477	0.012	0.019
N	8.28	8.80	0.326	0.346
O	14.29	15.31	0.563	0.603
P	6.01	6.51	0.237	0.256