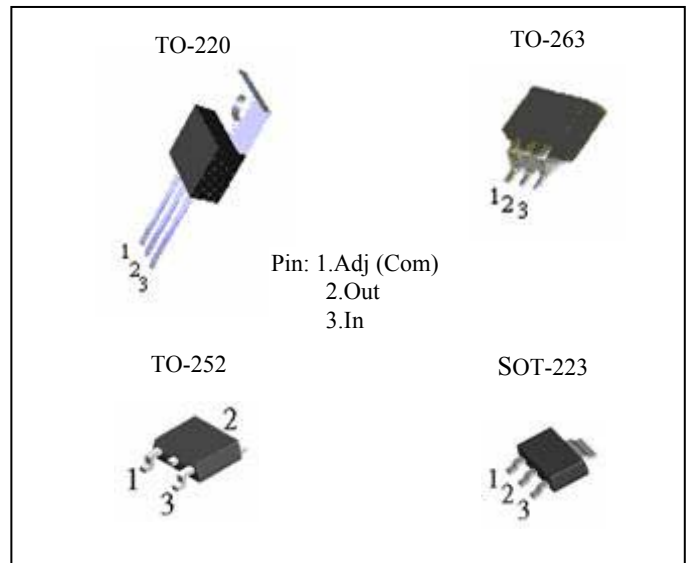


1 Amp Low Dropout Positive Voltage Regulator

The PJ1117 Series are high performance positive voltage regulators designed for use in applications requiring low dropout performance at full rated current. Additionally, the PJ1117 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. The PJ1117 Series are three terminal regulators with fixed and adjustable voltage options available in popular packages.

FEATURES

- Low dropout performance 1.3 V 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
- Output Current in Excess of 1 A
- Line regulation typical 0.015%.
- Load regulation typical 0.05%.
- Fixed/adjustable output voltage
- TO-220, TO-263, TO-252& SOT-223 package

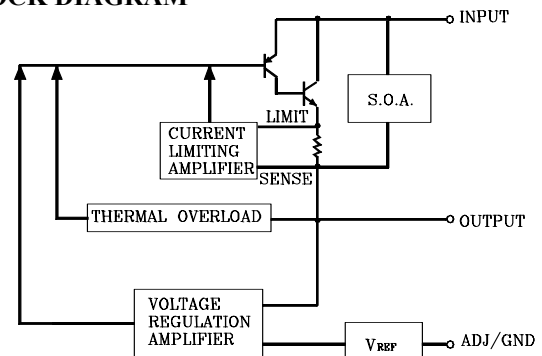


ORDERING INFORMATION

Device	Operating Temperature	Package
PJ1117CZ-xx	-20 to +85°C	TO-220
PJ1117CM-xx		TO-263
PJ1117CW-xx		SOT-223
PJ1117CP-xx		TO-252

Note: xx is output voltage available for Adj/1.5V/1.8V/2.5V/2.85V/3.3V/5.0V
Contact factory for additional voltage option.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM 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}	2.5	°C / W
Thermal Resistance Junction to Ambient	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	

1 Amp Low Dropout Positive Voltage Regulator

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, Adjust $V_{IN} = 2.75V$ to $7V$ and Adjust $I_o = 10mA$ to $1.0A$

Fixed $V_{IN} = 4.75V$ to $7V$ and Fixed $I_o = 10mA$ to $1.0A$

(For Fixed 5.0V Output Version, $V_{IN} = 6.5V$ to $7V$)

Parameter	Symbol	Test Conditions			Test Limits			Units	
		$V_{IN} - V_{OUT}$	I_o	$T_J^{(4)}$	Min	Typ	Max		
Output Voltage ⁽¹⁾	V_o	5V	10mA	25	0.99 V _o	V_o	1.01 V _o	V	
Fixed Voltage			1A	Over Temp.	0.98 V _o		1.02 V _o		
Reference Voltage ⁽¹⁾	V_{REF}	5V	10mA	25	1.238	1.250	1.262		
Adj Voltage			1A	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			0.1	0.3	
				Over Temp.			0.2		0.5
Dropout Voltage	V_D			25			1	V	
$\Delta V_{REF} = 1\%$				Over Temp.			1.1		1.3
Current Limit _x	I_{cL}				1.0		1.1	A	
Quiescent Current Fixed Model	I_Q	5V					12	14	mA
Temperature Coefficient	T_c						0.005		%/°C
Adjust Pin Current	I_{ADJ}			25			55		μA
Adjust Pin Current Change	ΔI_{ADJ}							120	
Temperature Stability	T_s	5V		Over Temp.			0.2	5	
Minimum Load Current Adjust Model	I_o	5V					0.5		%
RMS Output Noise ⁽²⁾	V_N			25			5	14	mA
Ripple Rejection Ratio ⁽³⁾	R_A	5V		Over Temp.	60		0.003		%V _o
							72		dB

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

(2)Bandwidth of 10Hz to 10KHz.

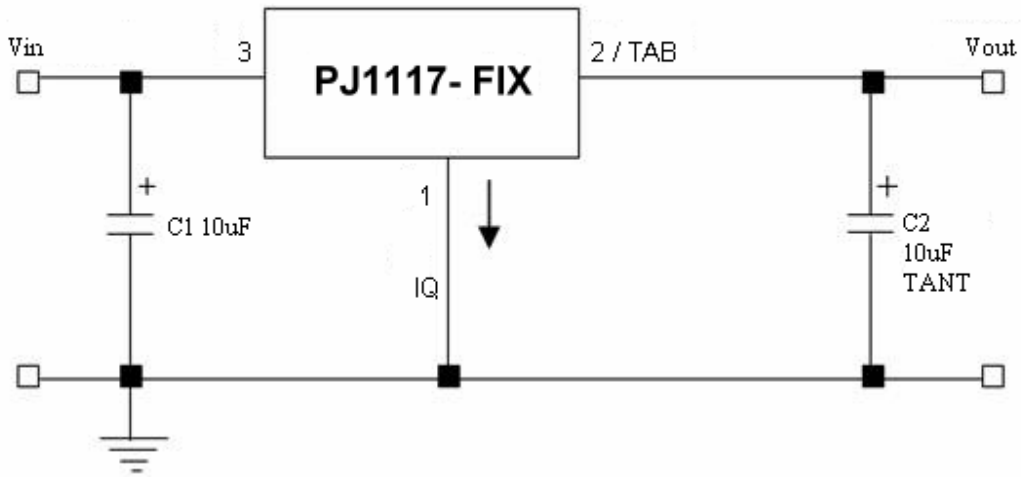
(3)120Hz input ripple (C_{ADJ} for ADJ)=25 μF .

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

1 Amp Low Dropout Positive Voltage Regulator

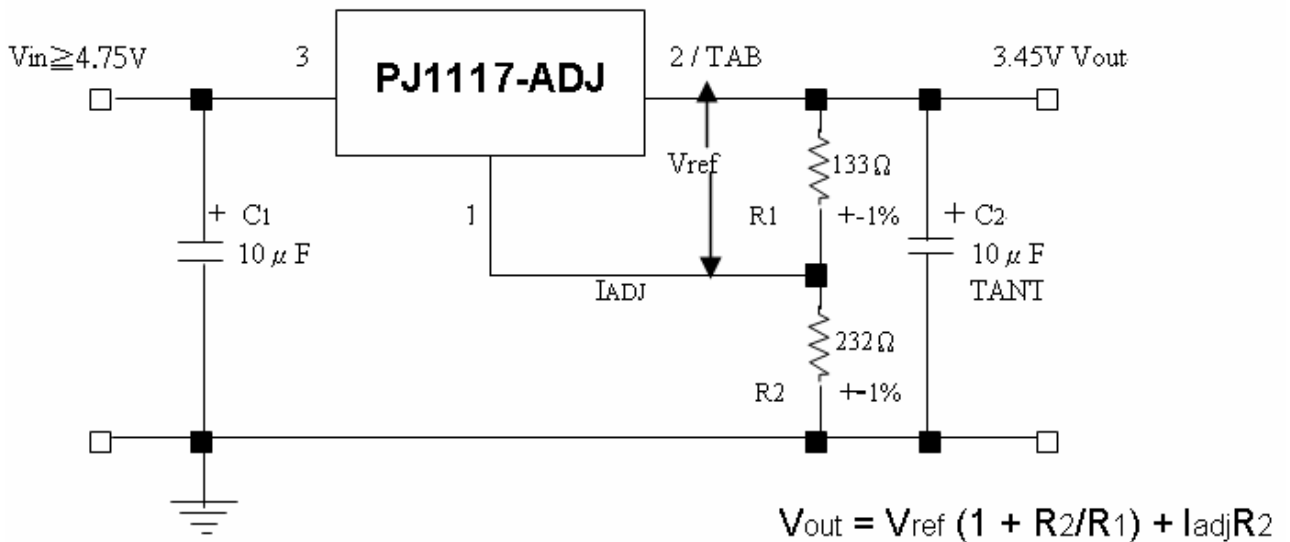
ELECTRICAL CHARACTERISTICS

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

1 Amp Low Dropout Positive Voltage Regulator

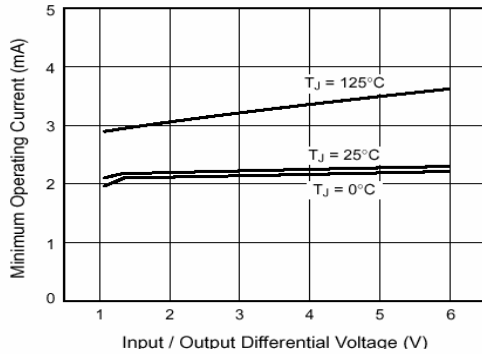


Fig. 1 – Minimum Load Current (Adjustable Version)

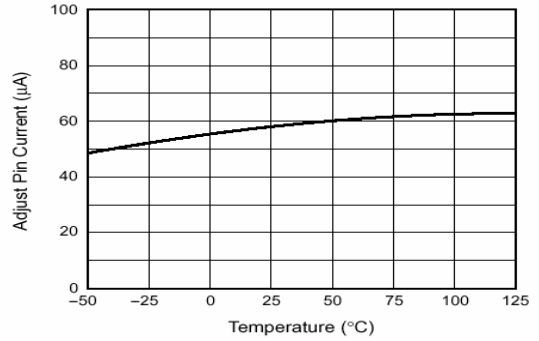


Fig. 2 – Adjust Pin Current

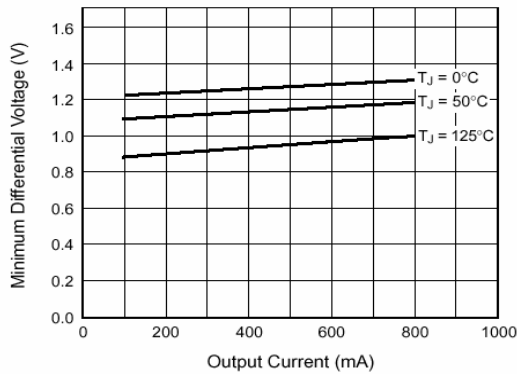


Fig. 3 – Dropout Voltage

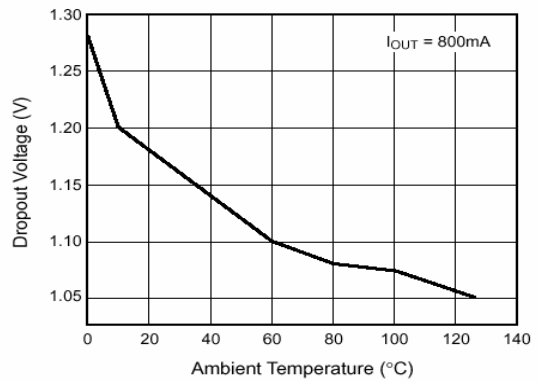


Fig. 4 – Dropout Voltage v.s. Ambient Temperature

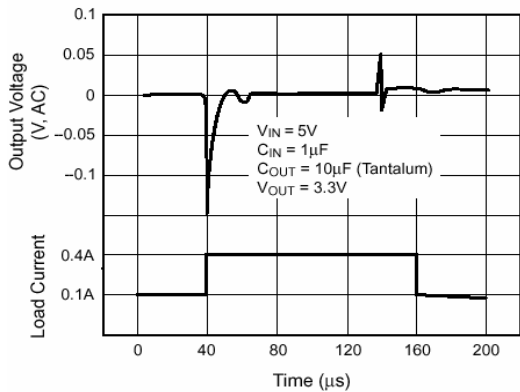


Fig. 5 – Load Transient Response

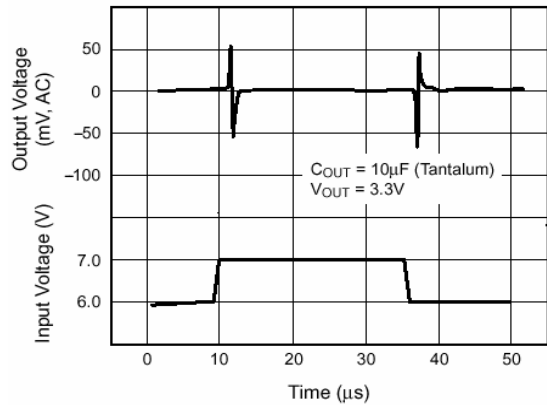


Fig. 6 – Line Transient Response

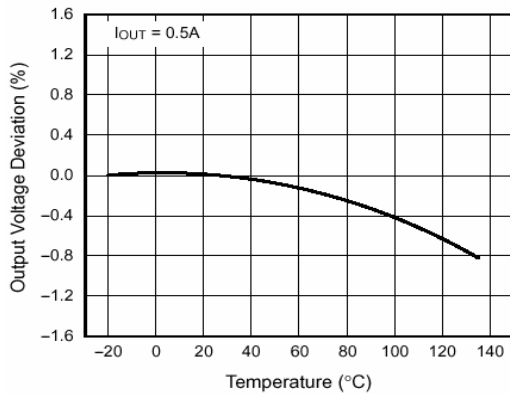


Fig. 7 – Temperature Stability

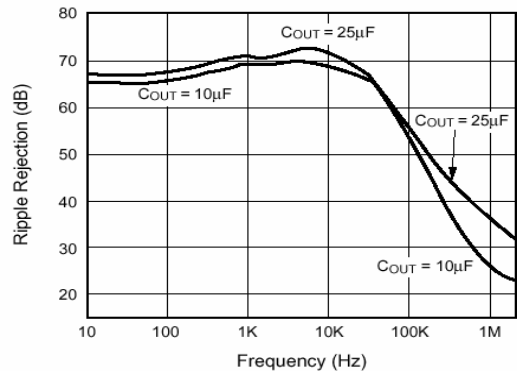
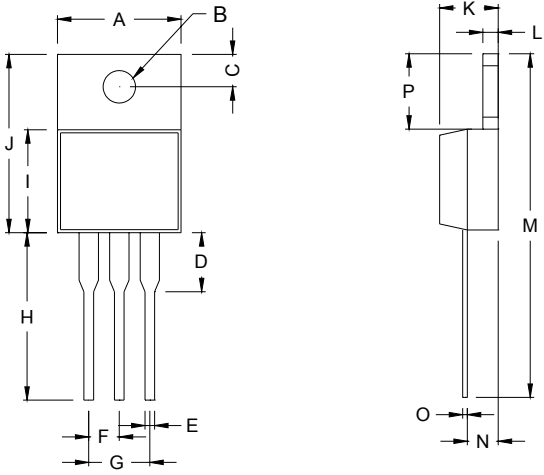


Fig. 8 – Ripple Rejection (with C_{adj} 25µF)

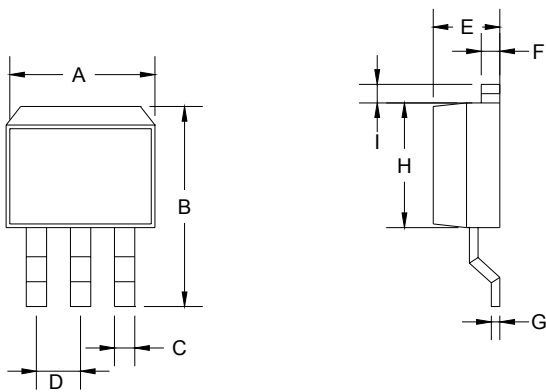
1 Amp Low Dropout Positive Voltage Regulator

TO-220 Unit : mm



DIM	TO-220 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	3.240	4.440	0.128	0.175
C	2.440	2.940	0.096	0.116
D	-	6.350	-	0.250
E	0.381	1.106	0.015	0.040
F	2.345	2.715	0.092	0.058
G	4.690	5.430	0.092	0.107
H	12.700	14.732	0.500	0.581
I	8.382	9.017	0.330	0.355
J	14.224	16.510	0.560	0.650
K	3.556	4.826	0.140	0.190
L	0.508	1.397	0.020	0.055
M	27.700	29.620	1.060	1.230
N	2.032	2.921	0.080	0.115
O	0.255	0.610	0.010	0.024
P	5.842	6.858	0.230	0.270

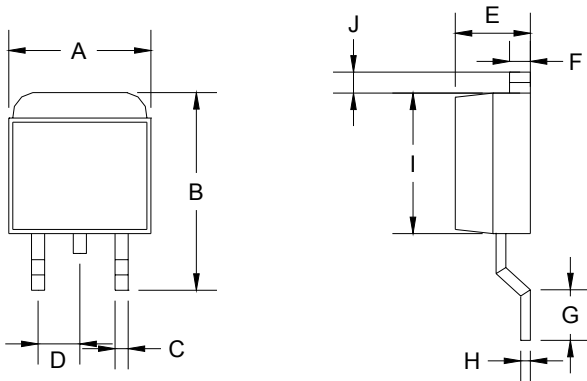
TO-263 Unit : mm



DIM	TO-263 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	14.605	15.875	0.575	0.625
C	0.508	0.991	0.020	0.039
D	2.420	2.660	0.095	0.105
E	4.064	4.830	0.160	0.190
F	1.118	1.400	0.045	0.055
G	0.450	0.730	0.018	0.029
H	8.280	8.800	0.325	0.346
I	1.140	1.400	0.044	0.055
J	1.480	1.520	0.058	0.060

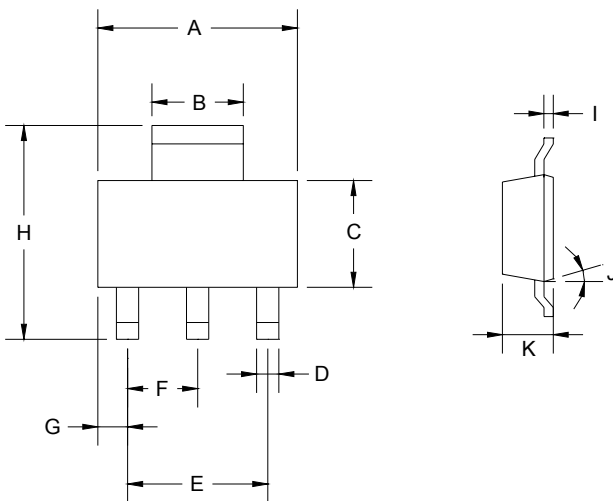
1 Amp Low Dropout Positive Voltage Regulator

TO-252 Unit : mm



TO-252 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.570	6.840	0.259	0.269
B	9.250	10.400	0.364	0.409
C	0.550	0.700	0.022	0.028
D	2.560	2.670	0.101	0.105
E	2.300	2.390	0.090	0.094
F	0.490	0.570	0.019	0.022
G	1.460	1.580	0.057	0.062
H	0.520	0.570	0.020	0.022
I	5.340	5.550	0.210	0.219
J	1.460	1.640	0.057	0.065

SOT-223 Unit : mm



SOT-223 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.350	6.850	0.250	0.270
B	2.900	3.100	0.114	0.122
C	3.450	3.750	0.136	0.148
D	0.595	0.635	0.023	0.025
E	4.550	4.650	0.179	0.183
F	2.250	2.350	0.088	0.093
G	0.835	1.035	0.032	0.041
H	6.700	7.300	0.263	0.287
I	0.250	0.355	0.010	0.014
J	10°	16°	10°	16°
K	1.550	1.800	0.061	0.071