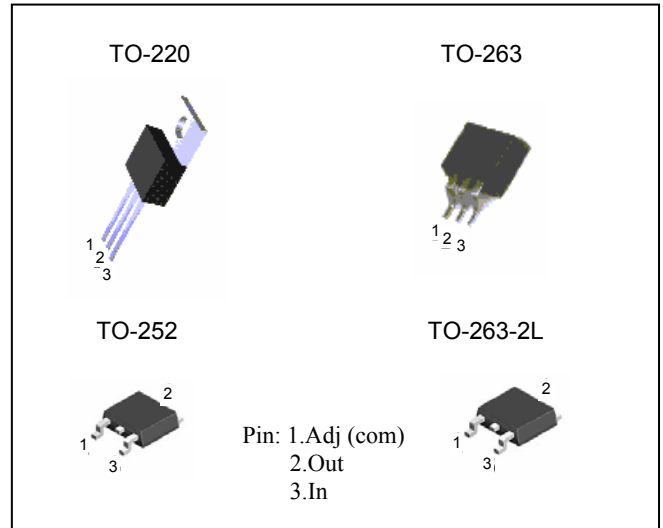


5 Amp Low Dropout Positive Voltage Regulator

The PJ1084 Series are high performance positive voltage regulators are designed for use in applications requiring low dropout performance at full rated current, Additionally, the PJ1084 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 PJ1084 Series are three terminal regulators with fixed and adjustable voltage options available in popular packages.



FEATURES

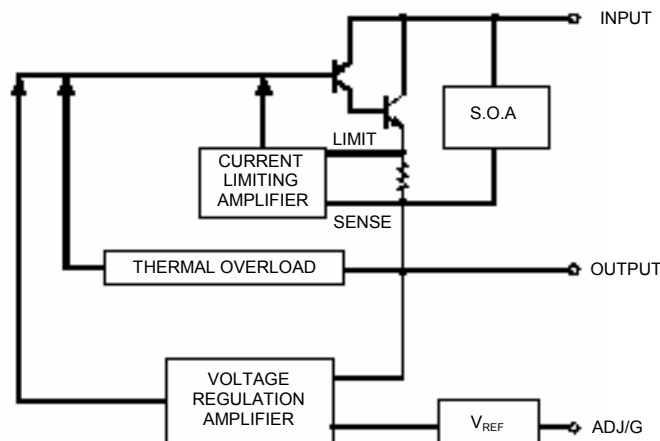
- Low dropout performance 1.3V max.
- Full current rating over line and temperature
- Fast transient response
- Total output regulation $\pm 2\%$ over line, load and temperature
- Adjust pin current max $120 \mu A$ over temperature
- Line regulation typical 0.015%.
- Load regulation typical 0.05%.
- Fixed/adjustable output voltage
- TO-220 & TO-263 & TO-263-2L & TO-252 package

ORDERING INFORMATION

Device	Operating Temperature (Ambient)	Package
PJ1084CZ PJ1084CZ-2.5 PJ1084CZ-3.3	-20°C to +85°C	TO-220
PJ1084CM PJ1084CM-2.5 PJ1084CM-3.3		TO-263
PJ1084CF PJ1084CF-2.5 PJ1084CF-3.3		TO-263-2L
PJ1084CP PJ1084CP-2.5 PJ1084CP-3.3		TO-252

NOTE: Contact factory for additional voltage option.

BLOCK



5 Amp Low Dropout Positive Voltage Regulator

ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Maximum	Units
Input Voltage	V_{IN}	12	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	°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	

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, Adjust $V_{IN} = 2.75V$ to $12V$ and Adjust $I_o = 10mA$ to $5.0A$

Fixed $V_{IN} = 4.75V$ to $12V$ and Fixed $I_o = 10mA$ to $5.0A$

Parameter	Symbol	Test Conditions			Test Limits			Units
		$V_{IN} - V_{OUT}$	I_o	$T_J^{(4)}$	Min	Typ	Max	
Output Voltage ⁽¹⁾ Fixed Voltage	V_o	5V	10mA	25	0.99 Vol	V_o	1.01 Vol	V
				Over Temp.	0.98 Vol		1.02 Vol	
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⁾ ($V_{in} - V_{out} = 3V$)	$REG_{(LINE)}$		10mA	25		0.015	0.2	%
				Over Temp.		0.035		
Load Regulation ⁽¹⁾ ($V_{in} - V_{out} = 3V$)	$REG_{(LOAD)}$			25		0.05	0.3	%
				Over Temp.		0.2	0.4	
Dropout Voltage $\Delta V_{REF} = 1\%$	V_D			25		1		V
				Over Temp.		1.1	1.3	
Current Limit ($V_{in} - V_{out} = 5V$)	I_{cL}			Over Temp.	5.5	6.5		A
Quiescent Current Fixed Model	I_Q	5V						
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	500mA	Over Temp.		0.2	5	%
Minimum Load Current Adjust Model	I_o	5V				0.5		%
RMS Output Noise ⁽²⁾	V_N			25		5	10	mA
Ripple Rejection Ratio ⁽³⁾	R_A	5V	5.0A	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.

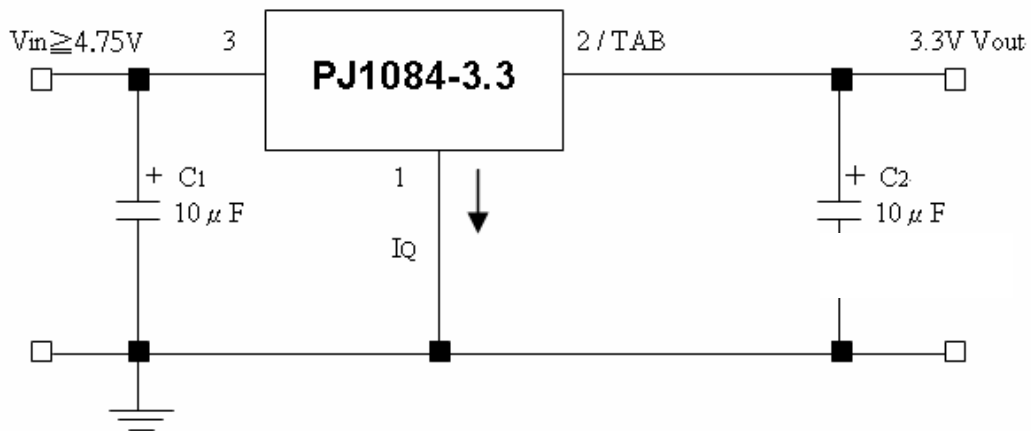
(3) 120Hz input ripple (C_{ADJ} for ADJ) = 25 μF .

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

5 Amp Low Dropout Positive Voltage Regulator

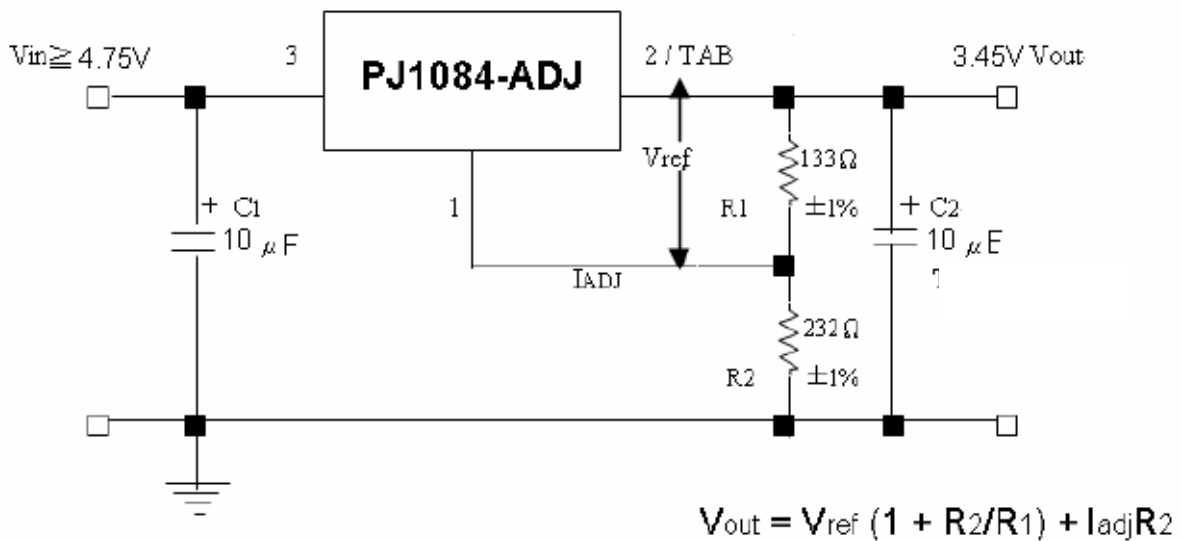
Typical Application Circuit

FIXED VOLTAGE REGULATOR (1)(2)



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

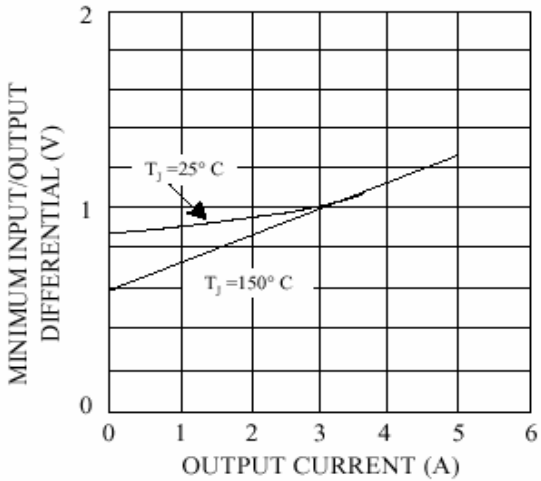
ADJUSTABLE VOLTAGE REGULATOR (1)(2)



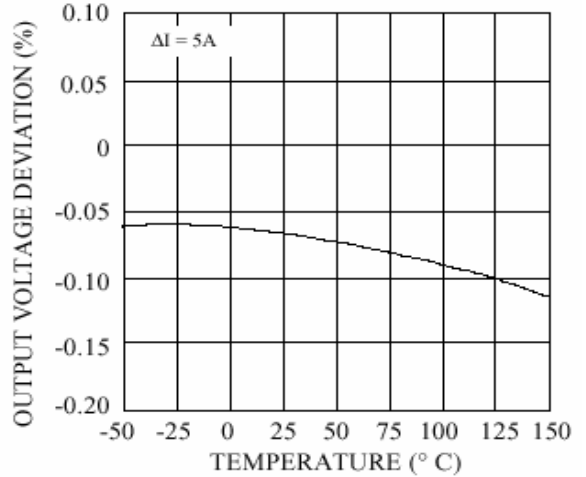
- (1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS
- (2) C2 REQUIRED FOR STABILITY

5 Amp Low Dropout Positive Voltage Regulator

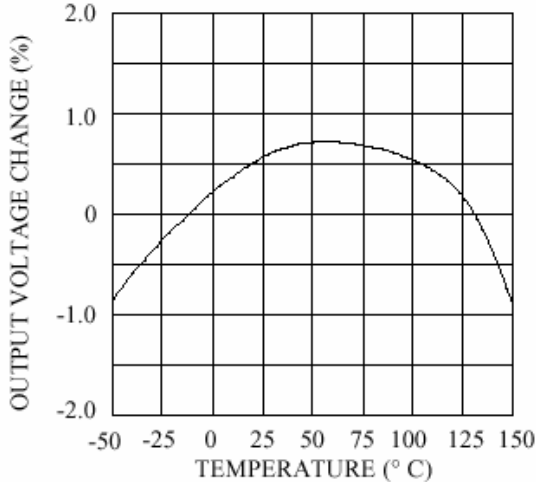
Dropout Voltage



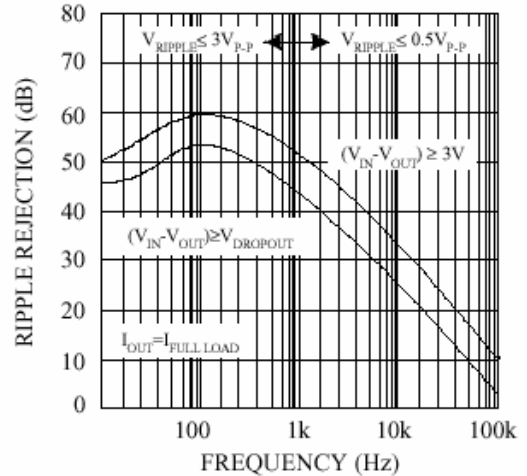
Load Regulation



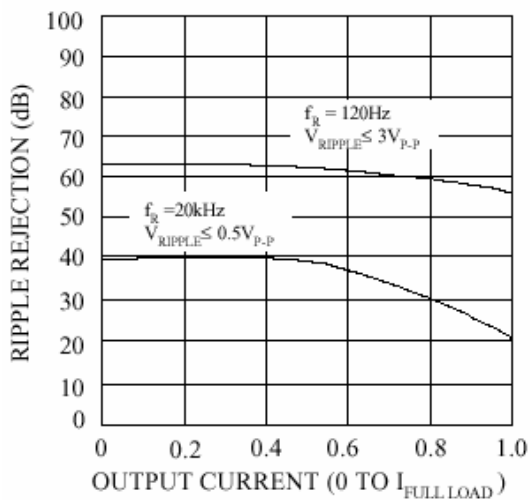
Temperature Stability



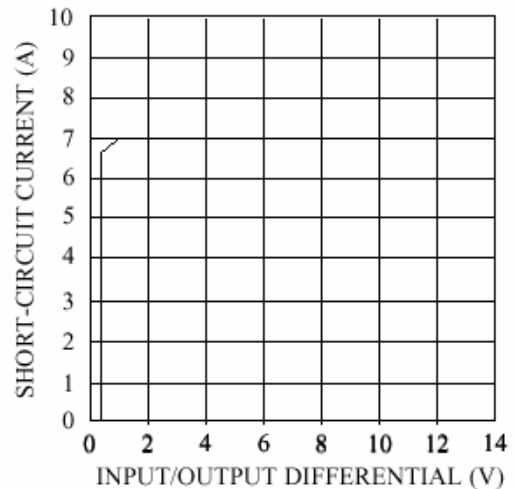
Ripple Rejection



Ripple Rejection vs. Current

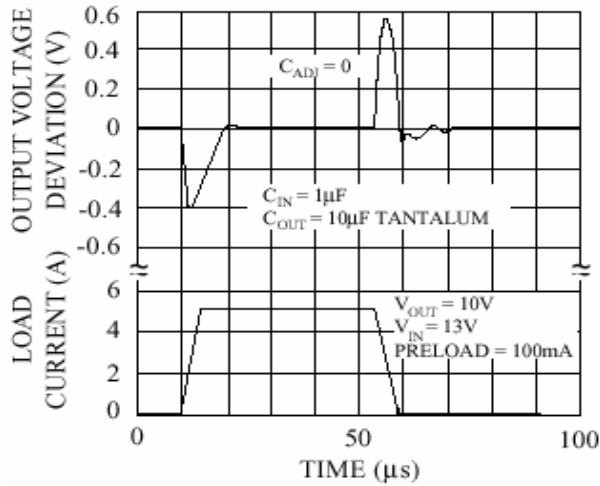


Short-Circuit Current

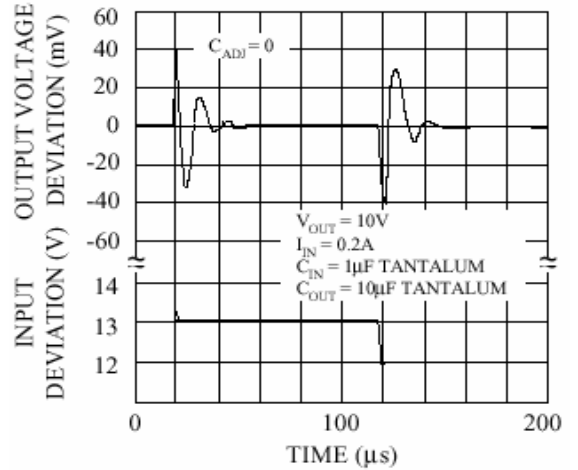


5 Amp Low Dropout Positive Voltage Regulator

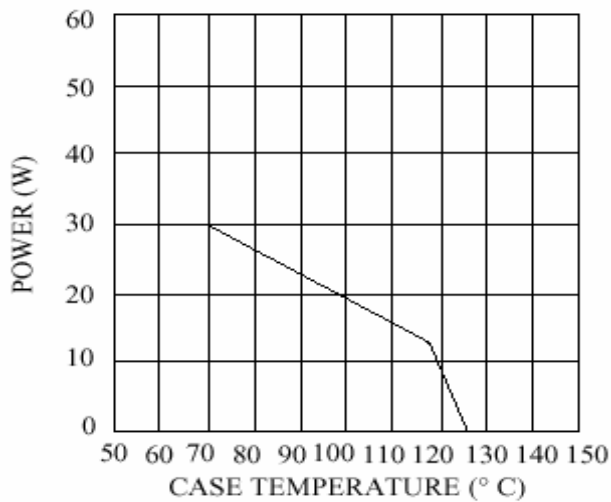
Load Transient Response



Line Transient Response

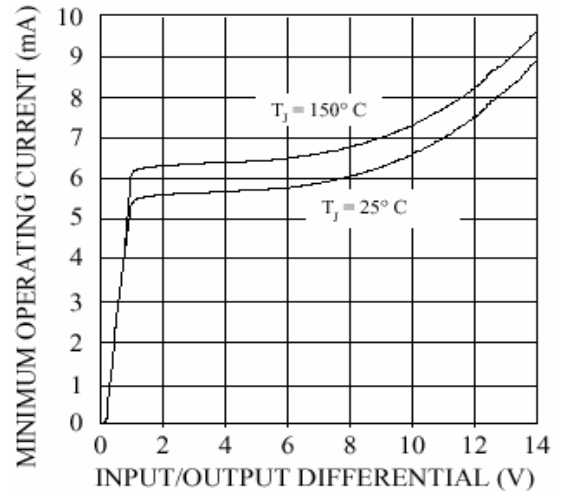


Maximum Power Dissipation*

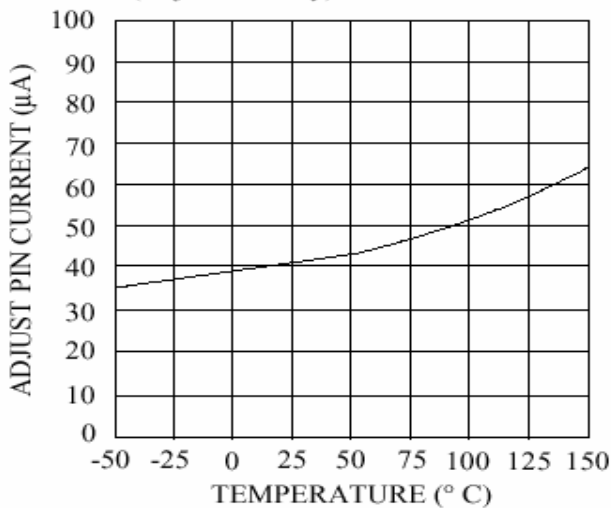


*AS LIMITED BY MAXIMUM JUNCTION TEMPERATURE

Minimum Operating Current (Adjustable only)

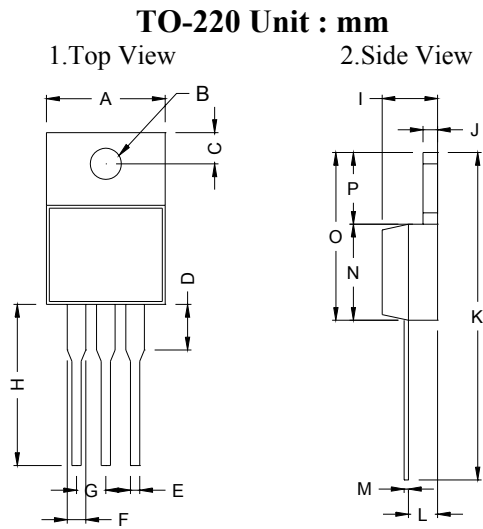


Adjust Pin Current (Adjustable only)



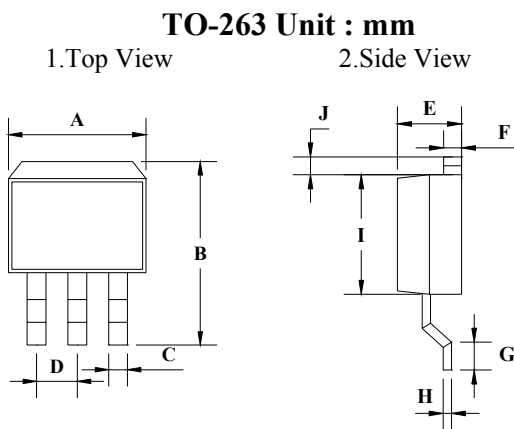
5 Amp Low Dropout Positive Voltage Regulator

TO-220 Mechanical drawing



DIM	TO-220 DIMENSION			
	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

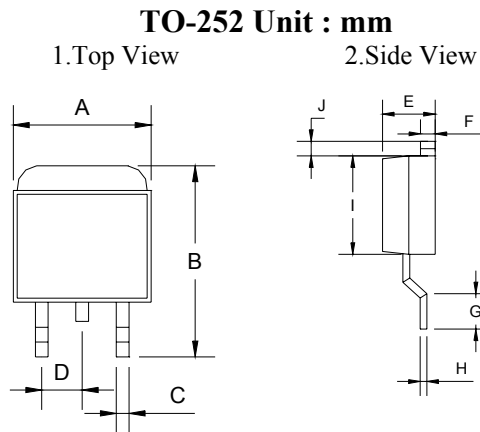
TO-263 Mechanical drawing



DIM	TO-263 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.00	10.50	0.394	0.413
B	14.60	15.87	0.575	0.625
C	0.68	0.92	0.027	0.036
D	2.42	2.66	0.095	0.105
E	4.31	4.83	0.170	0.190
F	1.14	1.40	0.045	0.055
G	2.28	2.79	0.090	0.110
H	0.45	0.73	0.018	0.029
I	8.28	8.80	0.326	0.346
J	1.14	1.4	0.045	0.055

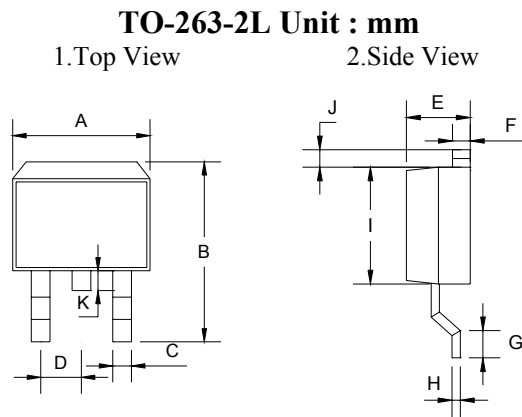
5 Amp Low Dropout Positive Voltage Regulator

TO-252 Mechanical drawing



TO-252 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.57	6.84	0.259	0.269
B	9.25	10.40	0.364	0.409
C	0.62	0.76	0.024	0.030
D	2.56	2.67	0.101	0.105
E	2.30	2.39	0.090	0.094
F	0.49	0.57	0.019	0.022
G	1.46	1.58	0.057	0.062
H	0.52	0.57	0.020	0.022
I	5.34	5.55	0.210	0.219
J	1.46	1.64	0.057	0.065

TO-263-2L Mechanical drawing



TO-263-2L DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.00	10.50	0.394	0.413
B	14.60	15.58	0.575	0.625
C	0.68	0.92	0.027	0.036
D	2.42	2.66	0.095	0.105
E	4.31	4.83	0.170	0.190
F	1.14	1.40	0.045	0.055
G	2.28	2.79	0.090	0.110
H	0.45	0.73	0.018	0.029
I	8.28	8.80	0.326	0.346
J	1.14	1.40	0.045	0.055
K	1.48	1.52	0.058	0.060