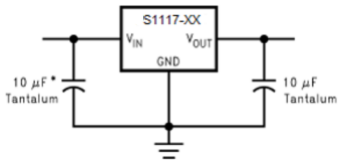
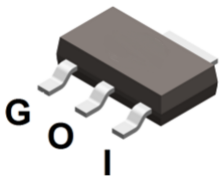
S1117-XX

800 mA Low-Dropout Linear Regulator

FEATURES

- Available in 1.5V, 1.8V, 2.5V, 2.85V, 3.3V 5V, and adjustable versions
- Current limiting and thermal protection
- Output current (800mA)
- Line regulation (0.2%Max)
- Load regulation (0.4%Max)





SOT-223

APPLICATIONS

- Post regualtor for switching DC/DC converter
- High efficiency linear regulators
- Battery charger
- Batterty powered instrumentation

ORDERING INFORMATION

Type No.	Marking	Package Code
S1117-ADJ	1117-ADJ	SOT-223
S117-1.5	1117-1.5	SOT-223
S1117-1.8	1117-1.8	SOT-223
S1117-2.5	1117-2.5	SOT-223
S1117-2.85	1117-2.85	SOT-223
S1117-3.3	1117-3.3	SOT-223
S1117-5.0	1117-5.0	SOT-223

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_I	Input Voltage	15	V
I_{CM}	Maximum Output Current	800	mA
P_D	Power Dissipation	1.1	W
$R_{\theta JA}$	Thermal Resistance Junction-Air	90	°C /W
$R_{\theta JC}$	Thermal Resistance Junction-Case	15	°C /W
T_{OPR}	Operating Temperature Range	-40 ~ +125	°C
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-65 ~ +150	°C

RECOMMENDED OPERATING CONDITIONS

Parameter	MIN	MAX	UNIT
V_{IN}		13	V
Operating Junction Temperature Range	0	125	°C

ELECTRICAL CHARACTERISTICS

Typicals and limits appearing in normal type apply for T_J=25℃.Limits appearing in Boldface type apply over the entire junction temperature range for operation,0℃ to 125℃

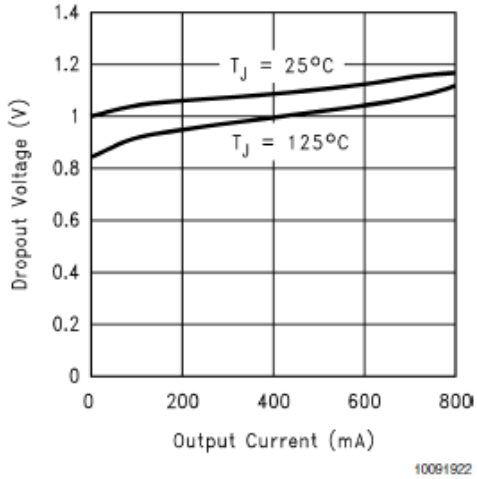
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Reference Voltage	V_{REF}	S1117-ADJ				
		I_{OUT}=10mA,V_{IN}-V_{OUT}=2V,T_J=25℃	1.238	1.250	1.262	V
		10mA≤I_{OUT}≤800mA,1.4V≤V_{IN}-V_{OUT}≤10V	1.225	1.250	1.270	
Output Voltage	V_{OUT}	S1117-1.5				
		I_{OUT}=10mA,V_{IN}=3.5V,T_J=25℃	1.485	1.5	1.515	V
		10mA≤I_{OUT}≤800mA,3.0V≤V_{IN}≤10V	1.470	1.5	1.530	
		S1117-1.8				
		I_{OUT}=10mA,V_{IN}=3.8V,T_J=25℃	1.782	1.800	1.818	V
		0mA≤I_{OUT}≤800mA,3.2V≤V_{IN}≤10V	1.746	1.800	1.854	
		S1117-2.5				
		I_{OUT}=10mA,V_{IN}=4.5V,T_J=25℃	2.475	2.500	2.525	V
		0mA≤I_{OUT}≤800mA,3.9V≤V_{IN}≤10V	2.450	2.500	2.550	
		S1117-2.85				
		I_{OUT}=10mA,V_{IN}=4.85V,T_J=25℃	2.82	2.85	2.88	V
		0mA≤I_{OUT}≤800mA,4.25V≤V_{IN}≤10V	2.79	2.85	2.91	
		0mA≤I_{OUT}≤800mA,V_{IN}=4.1V	2.79	2.85	2.91	
		S1117-3.3				
		I_{OUT}=10mA,V_{IN}=5V,T_J=25℃	3.267	3.3	3.333	V
		0mA≤I_{OUT}≤800mA,4.75V≤V_{IN}≤10V	3.235	3.3	3.365	
		S1117-5.0				
		I_{OUT}=10mA,V_{IN}=7V,T_J=25℃	4.95	5.0	5.05	V
		0mA≤I_{OUT}≤800mA,6.5V≤V_{IN}≤12V	4.9	5.0	5.1	
Line regulation	ΔV_{OUT}	S1117-ADJ				
		I_{OUT}=10mA,1.5V≤V_{IN}-V_{OUT}≤13.75V		0.035	0.2	%
		S1117-1.5				
		I_{OUT}=10mA,1.5V≤V_{IN}-V_{OUT}≤10V		1	6	mV
		S1117-1.8				
		I_{OUT}=10mA,3.2V≤V_{IN}≤10V		1	6	mV

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Line regulation	ΔV_{OUT}	S1117-2.5 I_{OUT}=10mA,3.9V≤V_{IN}≤10V		1	6	mV
		S1117-2.85 I_{OUT}=10mA,4.25V≤V_{IN}≤10V		1	6	mV
		S1117-3.3 I_{OUT}=10mA,4.75V≤V_{IN}≤15V		1	6	mV
		S1117-5.0 I_{OUT}=10mA,6.5V≤V_{IN}≤15V		1	10	mV
Load regulation	ΔV_{OUT}	S1117-ADJ V_{IN}-V_{OUT}=3V,10≤I_{OUT}≤800mA		0.2	0.4	%
		S1117-1.5 V_{IN}-V_{OUT}=2V,10≤ I_{OUT}≤800mA		1	10	mV
		S1117-1.8 V_{IN}=3.2V,0≤ I_{OUT}≤800mA		1	10	mV
		S1117-2.5 V_{IN}=3.9V,0≤ I_{OUT}≤800mA		1	10	mV
		S1117-2.85 V_{IN}=4.25V,0≤ I_{OUT}≤800mA		1	10	mV
		S1117-3.3 V_{IN}=4.75V,0≤ I_{OUT}≤800mA		1	10	mV
		S1117-5.0 V_{IN}=6.5V,0≤ I_{OUT}≤800mA		1	15	mV
Droput Voltage	V_{IN}-V_{OUT}	I_{OUT}=100mA I_{OUT}=500mA I_{OUT}=800mA		1.1 1.15 1.2	1.25 1.3 1.4	V
Current Limit	I_{LIMIT}	V_{IN}-V_{OUT}=1.5V	1	1.5	2	A
Minimum Load Current		S1117-ADJ V_{IN}=15V		1.7	5	mA

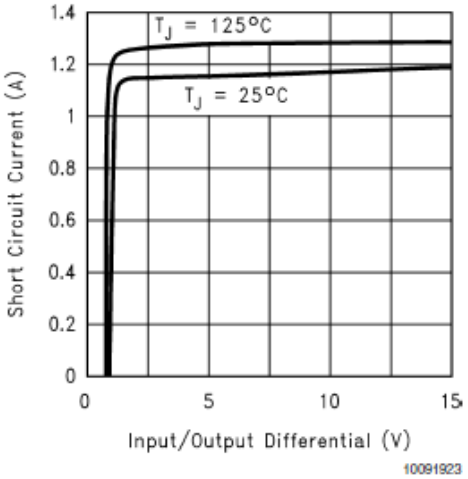
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Quiescent Currnt		S1117-1.5 V_{IN}-V_{OUT}=2V		5	10	mA
		S1117-1.8 V_{IN}≤15V		5	10	mA
		S1117-2.5 V_{IN}≤15V		5	10	mA
		S1117-2.85 V_{IN}≤10V		5	10	mA
		S1117-3.3 V_{IN}≤15V		5	10	mA
		S1117-5.0 V_{IN}≤15V		5	10	mA
Thermal Regulation		T_A=25℃,30ma Pulse		0.01	0.1	%/W
Ripple Regulation	I_{LIMIT}	f_{RIPPLE}=120Hz,V_{IN}-V_{OUT}=3V,V_{RIPPLE}=1V_{PP}	60	75		dB
Ajust Pin Current				60	120	uA
Ajust Pin Current Change		10≤I_{OUT}≤800mA		0.2	5	uA

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

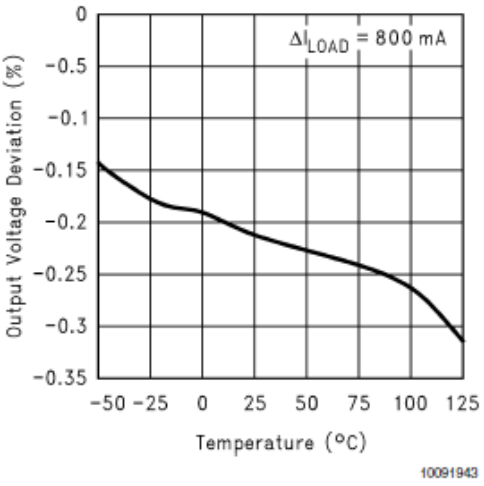
Dropout Voltage (V_{IN}-V_{OUT})



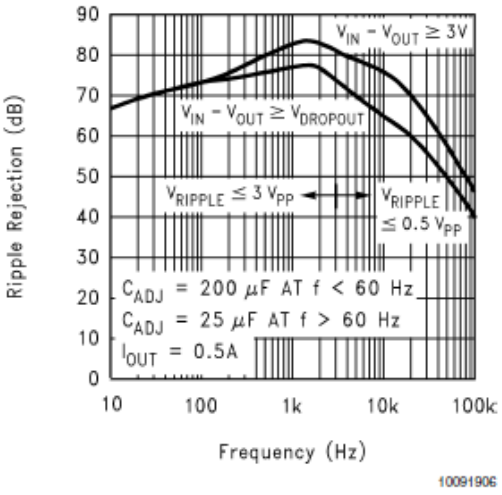
Short-Circuit Current



Load Regulation



LM1117-ADJ Ripple Rejection

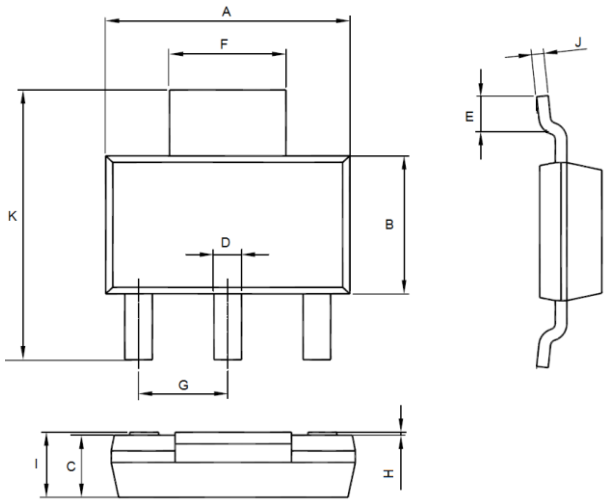


S1117-XX

800 mA Low-Dropout Linear Regulator

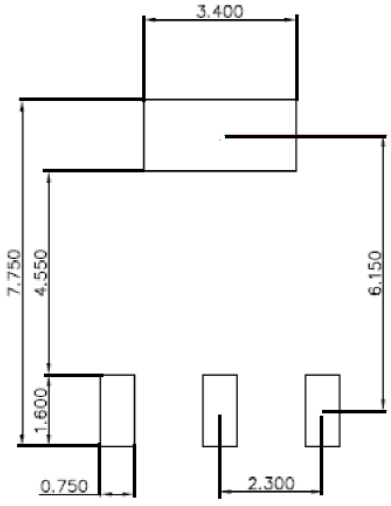
PACKAGE OUTLINE

Plastic surface mounted package SOT-223



SOT-223		
Dim	Min	Max
A	6.10	6.50
B	3.30	3.70
C	1.50	1.70
D	0.66	0.82
E	0.90	1.15
F	2.90	3.10
G	2.20	2.40
H	0.02	0.10
I	1.52	1.80
J	0.20	0.40
K	6.70	7.30
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

Device	Package	Shipping
S1117-XX	SOT-223	4000pcs / Tape & Reel