

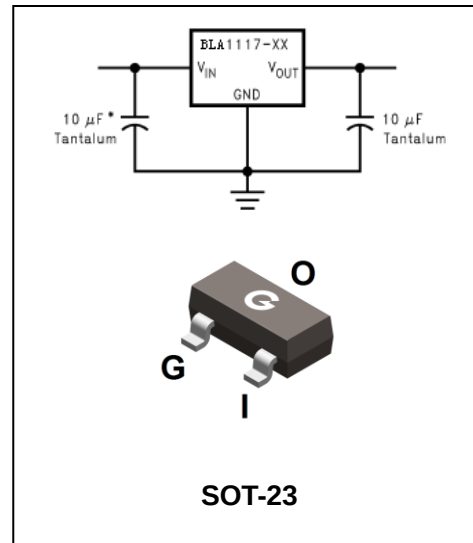
800mA Low-Dropout Linear Regulator

BLA1117

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)
- RoHS compliant with Halogen-free

HF



APPLICATIONS

- Post Regulator for Switching DC/DC Converter
- High Efficiency Linear Regulators
- Battery Charger
- Battery Powered Instrumentation

ORDERING INFORMATION

Type No.	Marking	Package Code
BLA1117-ADJ	1117-ADJ	SOT-23
BLA1117-1.5	1117-1.5	SOT-23
BLA1117-1.8	1117-1.8	SOT-23
BLA1117-2.5	1117-2.5	SOT-23
BLA1117-2.85	1117-2.85	SOT-23
BLA1117-3.3	1117-3.3	SOT-23
BLA1117-5.0	1117-5.0	SOT-23

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	350	mW
$R_{\theta JA}$	Thermal Resistance Junction-to-Air	357	°C/W
T_{OPR}	Operating Temperature Range	-40 ~ +125	°C
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-65 ~ +150	°C

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ELECTRICAL CHARACTERISTICS

Typicals and limits appearing in normal type apply for $T_J=25^{\circ}\text{C}$. Limits appearing in Boldface type apply over the entire junction temperature range for operation, 0°C to 125°C

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Reference Voltage	V_{REF}	BLA1117-ADJ $I_{OUT}=10\text{mA}, V_{IN}-V_{OUT}=2\text{V}, T_J=25^{\circ}\text{C}$	1.238	1.250	1.262	V
		$10\text{mA} \leq I_{OUT} \leq 800\text{mA}, 1.4\text{V} \leq V_{IN}-V_{OUT} \leq 10\text{V}$	1.225	1.250	1.270	
Output Voltage	V_{OUT}	BLA1117-1.5 $I_{OUT}=10\text{mA}, V_{IN}=3.5\text{V}, T_J=25^{\circ}\text{C}$	1.485	1.5	1.515	V
		$10\text{mA} \leq I_{OUT} \leq 800\text{mA}, 3.0\text{V} \leq V_{IN} \leq 10\text{V}$	1.470	1.5	1.530	
		BLA1117-1.8 $I_{OUT}=10\text{mA}, V_{IN}=3.8\text{V}, T_J=25^{\circ}\text{C}$	1.782	1.800	1.818	V
		$0\text{mA} \leq I_{OUT} \leq 800\text{mA}, 3.2\text{V} \leq V_{IN} \leq 10\text{V}$	1.746	1.800	1.854	
		BLA1117-2.5 $I_{OUT}=10\text{mA}, V_{IN}=4.5\text{V}, T_J=25^{\circ}\text{C}$	2.475	2.500	2.525	V
		$0\text{mA} \leq I_{OUT} \leq 800\text{mA}, 3.9\text{V} \leq V_{IN} \leq 10\text{V}$	2.450	2.500	2.550	
		BLA1117-2.85 $I_{OUT}=10\text{mA}, V_{IN}=4.85\text{V}, T_J=25^{\circ}\text{C}$	2.82	2.85	2.88	V
		$0\text{mA} \leq I_{OUT} \leq 800\text{mA}, 4.25\text{V} \leq V_{IN} \leq 10\text{V}$	2.79	2.85	2.91	
		$0\text{mA} \leq I_{OUT} \leq 800\text{mA}, V_{IN}=4.1\text{V}$	2.79	2.85	2.91	
		BLA1117-3.3 $I_{OUT}=10\text{mA}, V_{IN}=5\text{V}, T_J=25^{\circ}\text{C}$	3.267	3.3	3.333	V
		$0\text{mA} \leq I_{OUT} \leq 800\text{mA}, 4.75\text{V} \leq V_{IN} \leq 10\text{V}$	3.235	3.3	3.365	
		BLA1117-5.0 $I_{OUT}=10\text{mA}, V_{IN}=7\text{V}, T_J=25^{\circ}\text{C}$	4.95	5.0	5.05	V
		$0\text{mA} \leq I_{OUT} \leq 800\text{mA}, 6.5\text{V} \leq V_{IN} \leq 12\text{V}$	4.9	5.0	5.1	
Line regulation	ΔV_{OUT}	BLA1117-ADJ $I_{OUT}=10\text{mA}, 1.5\text{V} \leq V_{IN}-V_{OUT} \leq 13.75\text{V}$		0.035	0.2	%
		BLA1117-1.5 $I_{OUT}=10\text{mA}, 1.5\text{V} \leq V_{IN}-V_{OUT} \leq 10\text{V}$		1	6	mV
		BLA1117-1.8 $I_{OUT}=10\text{mA}, 3.2\text{V} \leq V_{IN} \leq 10\text{V}$		1	6	mV

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Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Line regulation	ΔV_{OUT}	BLA1117-2.5 $I_{OUT}=10mA, 3.9V \leq V_{IN} \leq 10V$		1	6	mV
		BLA1117-2.85 $I_{OUT}=10mA, 4.25V \leq V_{IN} \leq 10V$		1	6	mV
		BLA1117-3.3 $I_{OUT}=10mA, 4.75V \leq V_{IN} \leq 15V$		1	6	mV
		BLA1117-5.0 $I_{OUT}=10mA, 6.5V \leq V_{IN} \leq 15V$		1	10	mV
Load regulation	ΔV_{OUT}	BLA1117-ADJ $V_{IN}-V_{OUT}=3V, 10 \leq I_{OUT} \leq 800mA$		0.2	0.4	%
		BLA1117-1.5 $V_{IN}-V_{OUT}=2V, 10 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117-1.8 $V_{IN}=3.2V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117-2.5 $V_{IN}=3.9V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117-2.85 $V_{IN}=4.25V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117-3.3 $V_{IN}=4.75V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117-5.0 $V_{IN}=6.5V, 0 \leq I_{OUT} \leq 800mA$		1	15	mV
Dropout 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		$V_{IN}-V_{OUT}=5V, T_J=25^\circ C$	800	1200	1500	mA
Minimum Load Current	I_{LIMIT}	BLA1117-ADJ $V_{IN}=15V$		1.7	5	mA

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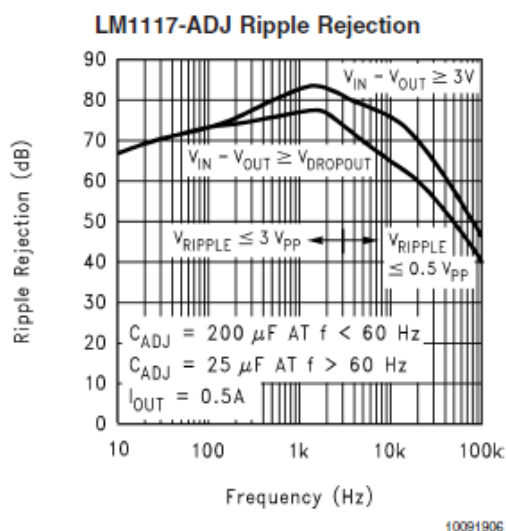
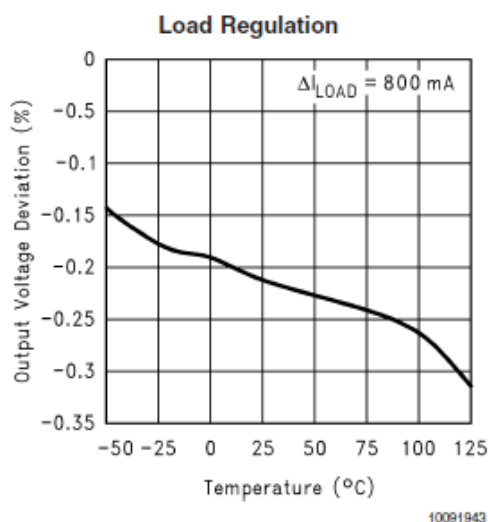
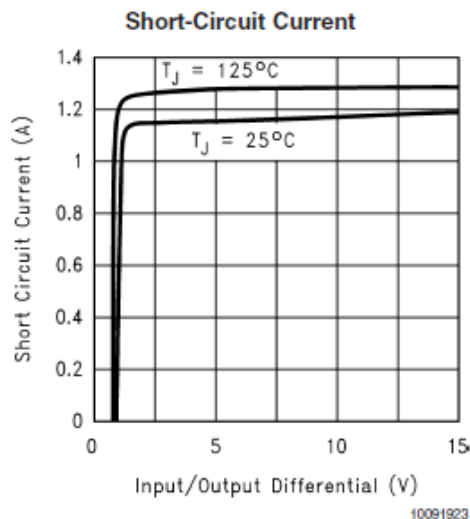
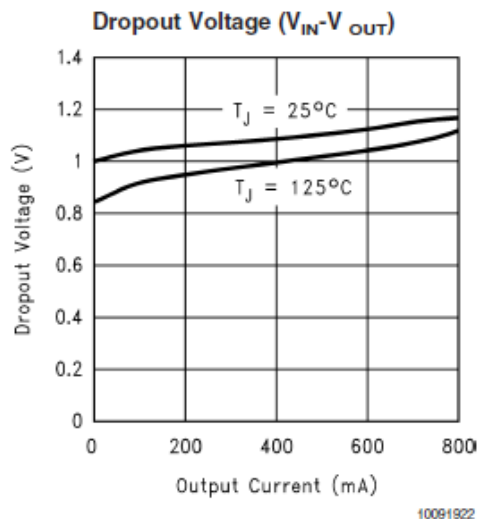
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Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Quiescent Currnt		BLA1117-1.5 $V_{IN}-V_{OUT}=2V$		5	10	mA
		BLA1117-1.8 $V_{IN} \leq 15V$		5	10	mA
		BLA1117-2.5 $V_{IN} \leq 15V$		5	10	mA
		BLA1117-2.85 $V_{IN} \leq 10V$		5	10	mA
		BLA1117-3.3 $V_{IN} \leq 15V$		5	10	mA
		BLA1117-5.0 $V_{IN} \leq 15V$		5	10	mA
Thermal Regulation		$T_A=25^{\circ}C$, 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		$10 \leq I_{OUT} \leq 800mA$		0.2	5	uA

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TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



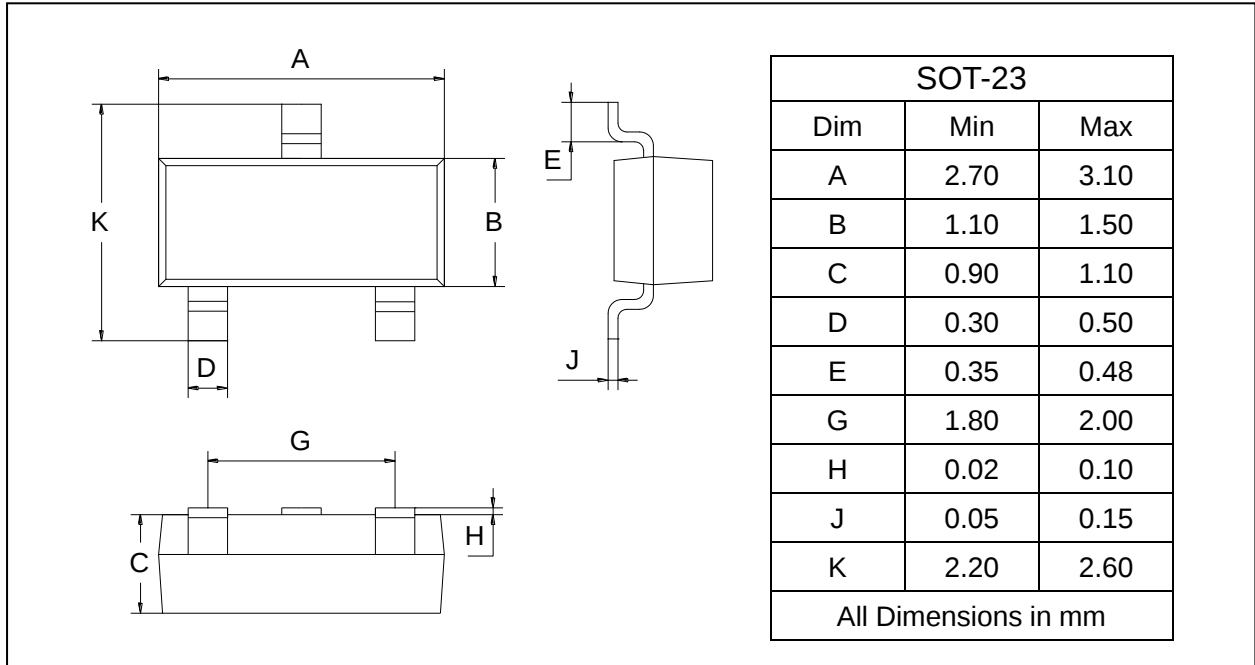
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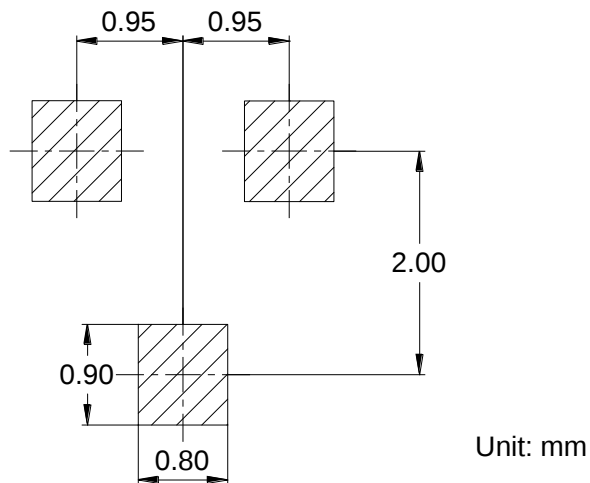
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BAL1117-XX	SOT-23	3000 pcs / Tape & Reel