

800mA Low-Dropout Linear Regulator

BLA1117E-XX

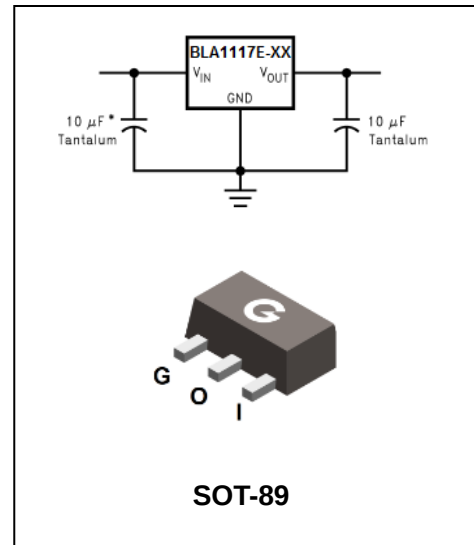
FEATURES

- Available in 1.5V, 1.8V, 2.5V, 2.85V, 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
BLA1117E-ADJ	1117-ADJ	SOT-89
BLA1117E-1.5	1117-1.5	SOT-89
BLA1117E-1.8	1117-1.8	SOT-89
BLA1117E-2.5	1117-2.5	SOT-89
BLA1117E-2.85	1117-2.85	SOT-89
BLA1117E-5.0	1117-5.0	SOT-89

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	500	mW
$R_{\theta JA}$	Thermal Resistance Junction-Air	200	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	25	°C/W
$R_{\theta JL}$	Thermal Resistance Junction-Lead	11.5	°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}	BLA1117E-ADJ $I_{\text{OUT}}=10\text{mA}$, $V_{\text{IN}}-V_{\text{OUT}}=2\text{V}$, $T_J=25^{\circ}\text{C}$ $10\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $1.4\text{V} \leq V_{\text{IN}}-V_{\text{OUT}} \leq 10\text{V}$	1.238 1.225	1.250 1.250	1.262 1.270	V
Output Voltage	V_{OUT}	BLA1117E-1.5 $I_{\text{OUT}}=10\text{mA}$, $V_{\text{IN}}=3.5\text{V}$, $T_J=25^{\circ}\text{C}$ $10\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $3.0\text{V} \leq V_{\text{IN}} \leq 10\text{V}$	1.485 1.470	1.5 1.5	1.515 1.530	V
		BLA1117E-1.8 $I_{\text{OUT}}=10\text{mA}$, $V_{\text{IN}}=3.8\text{V}$, $T_J=25^{\circ}\text{C}$ $0\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $3.2\text{V} \leq V_{\text{IN}} \leq 10\text{V}$	1.782 1.746	1.800 1.800	1.818 1.854	V
		BLA1117E-2.5 $I_{\text{OUT}}=10\text{mA}$, $V_{\text{IN}}=4.5\text{V}$, $T_J=25^{\circ}\text{C}$ $0\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $3.9\text{V} \leq V_{\text{IN}} \leq 10\text{V}$	2.475 2.450	2.500 2.500	2.525 2.550	V
		BLA1117E-2.85 $I_{\text{OUT}}=10\text{mA}$, $V_{\text{IN}}=4.85\text{V}$, $T_J=25^{\circ}\text{C}$ $0\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $4.25\text{V} \leq V_{\text{IN}} \leq 10\text{V}$ $0\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $V_{\text{IN}}=4.1\text{V}$	2.82 2.79 2.79	2.85 2.85 2.85	2.88 2.91 2.91	V
		BLA1117E-5.0 $I_{\text{OUT}}=10\text{mA}$, $V_{\text{IN}}=7\text{V}$, $T_J=25^{\circ}\text{C}$ $0\text{mA} \leq I_{\text{OUT}} \leq 800\text{mA}$, $6.5\text{V} \leq V_{\text{IN}} \leq 12\text{V}$	4.95 4.9	5.0 5.0	5.05 5.1	V
		BLA1117E-ADJ $I_{\text{OUT}}=10\text{mA}$, $1.5\text{V} \leq V_{\text{IN}}-V_{\text{OUT}} \leq 13.75\text{V}$		0.035	0.2	%
		BLA1117E-1.5 $I_{\text{OUT}}=10\text{mA}$, $1.5\text{V} \leq V_{\text{IN}}-V_{\text{OUT}} \leq 10\text{V}$		1	6	mV
		BLA1117E-1.8 $I_{\text{OUT}}=10\text{mA}$, $3.2\text{V} \leq V_{\text{IN}} \leq 10\text{V}$		1	6	mV
		BLA1117E-2.5 $I_{\text{OUT}}=10\text{mA}$, $3.9\text{V} \leq V_{\text{IN}} \leq 10\text{V}$		1	6	mV
Line regulation	ΔV_{OUT}					

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Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Line regulation	ΔV_{OUT}	BLA1117E-2.85 $I_{OUT}=10mA, 4.25V \leq V_{IN} \leq 10V$		1	6	mV
		BLA1117E-5.0 $I_{OUT}=10mA, 6.5V \leq V_{IN} \leq 15V$		1	10	mV
Load regulation	ΔV_{OUT}	BLA1117E-ADJ $V_{IN}-V_{OUT}=3V, 10 \leq I_{OUT} \leq 800mA$		0.2	0.4	%
		BLA1117E-1.5 $V_{IN}-V_{OUT}=2V, 10 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117E-1.8 $V_{IN}=3.2V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117E-2.5 $V_{IN}=3.9V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117E-2.85 $V_{IN}=4.25V, 0 \leq I_{OUT} \leq 800mA$		1	10	mV
		BLA1117E-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	I_{LIMIT}	$V_{IN}-V_{OUT}=5V, T_J=25^\circ C$	800	1200	1500	mA
Minimum Load Current		BLA1117E-ADJ $V_{IN}=15V$		1.7	5	mA

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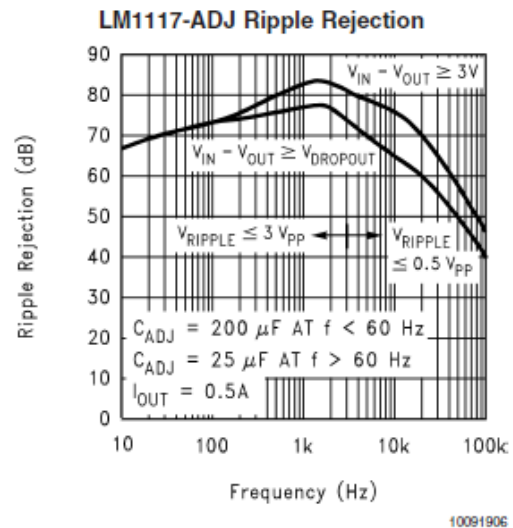
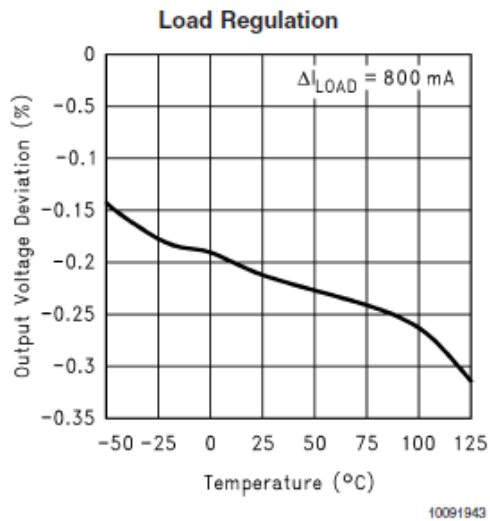
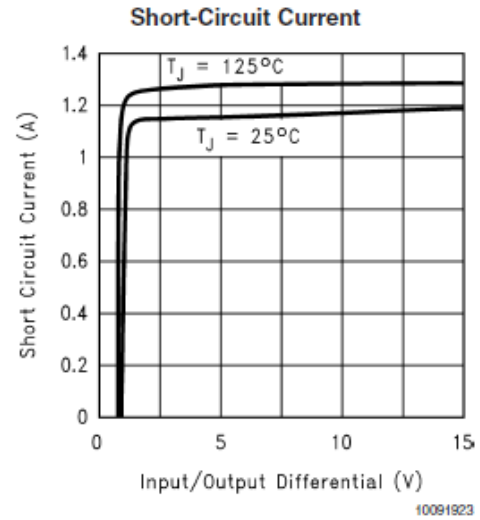
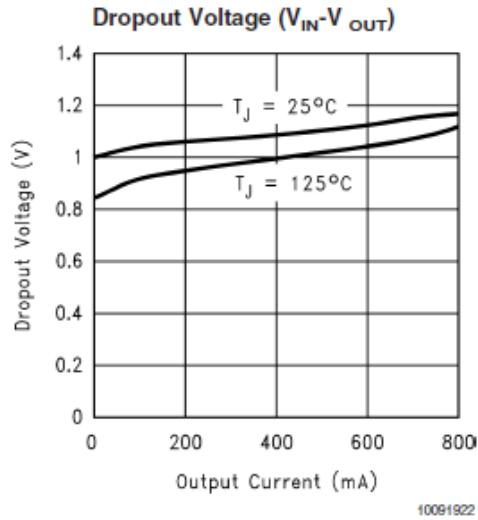
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Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Quiescent Currnt		BLA1117E-1.5 $V_{IN}-V_{OUT}=2V$		5	10	mA
		BLA1117E-1.8 $V_{IN} \leq 15V$		5	10	mA
		BLA1117E-2.5 $V_{IN} \leq 15V$		5	10	mA
		BLA1117E-2.85 $V_{IN} \leq 10V$		5	10	mA
		BLA1117E-5.0 $V_{IN} \leq 15V$		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	μA
Ajust Pin Current Change		$10 \leq I_{OUT} \leq 800mA$		0.2	5	μA

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



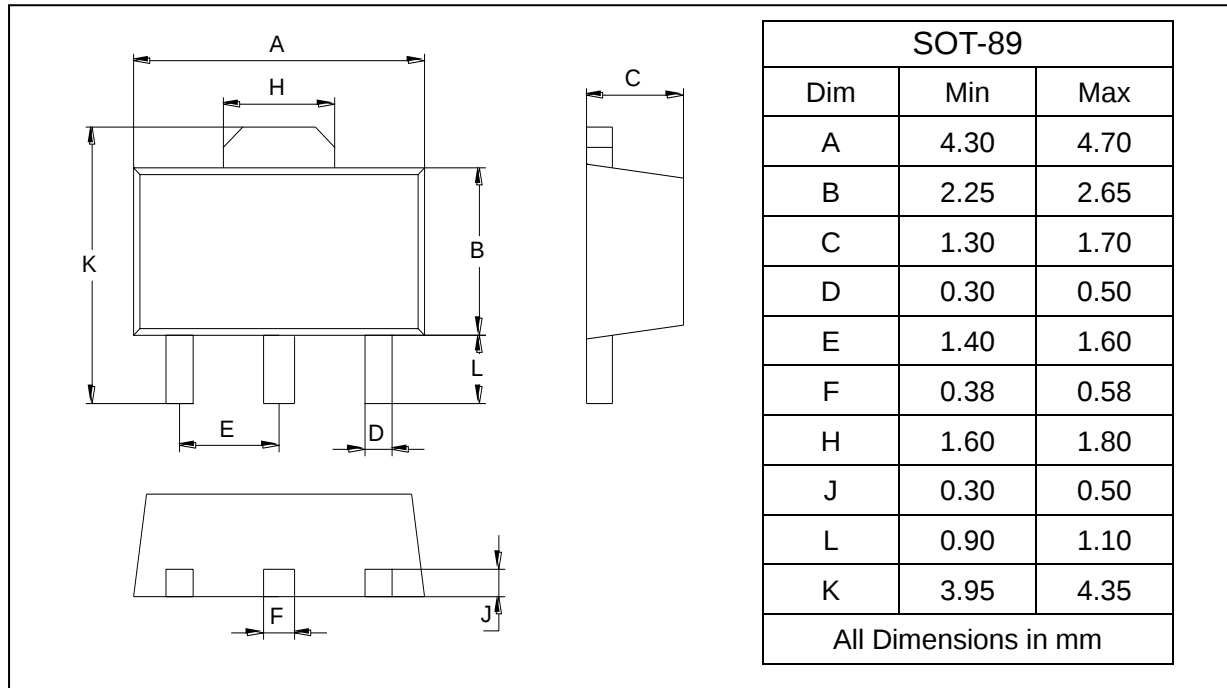
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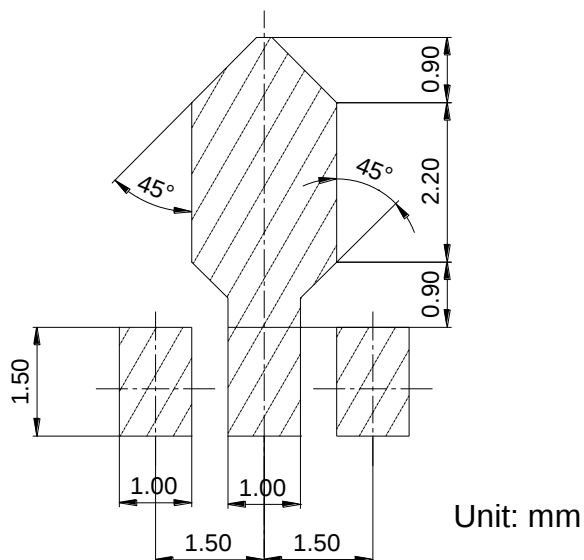
PACKAGE OUTLINE

Plastic surface mounted package

SOT-89



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BLA1117E-XX	SOT-89	1000 pcs / Tape & Reel