

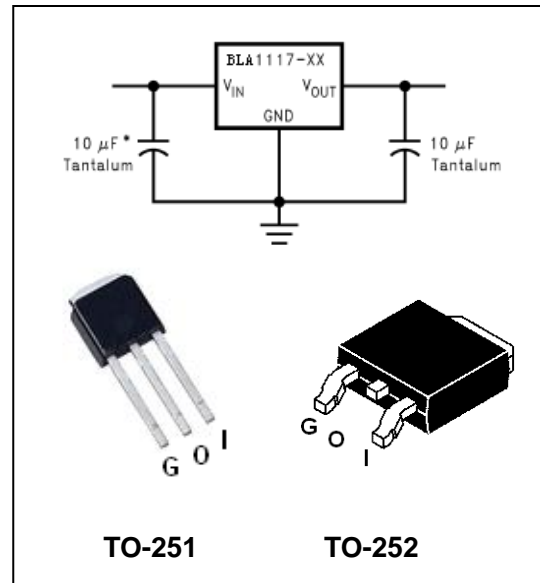
800 mA Low-Dropout Linear Regulator

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)

HF



APPLICATIONS

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

Ordering Information

Part Number	Package	Shipping	Marking Code
BLA1117-ADJ	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-ADJ
BLA1117-1.5	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-1.5
BLA1117-1.8	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-1.8
BLA1117-2.5	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-2.5
BLA1117-2.85	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-2.85
BLA1117-3.3	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-3.3
BLA1117-5.0	TO-251/TO-252	80/Tube or 2500/Tape Reel	1117-5.0

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	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction-Air	80	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	10	$^{\circ}C/W$
T_J	Operating Junction Temperature Range	-40 to +125	$^{\circ}C$
T_{STG}	Storage Temperature Range	-65 to +150	$^{\circ}C$

800 mA Low-Dropout Linear Regulator

BLA1117

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

800 mA Low-Dropout Linear Regulator

BLA1117

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Line regulation	ΔV_{OUT}	BLA1117-2.5 $I_{OUT}=10\text{mA}, 3.9\text{V} \leq V_{IN} \leq 10\text{V}$		1	6	mV
		BLA1117-2.85 $I_{OUT}=10\text{mA}, 4.25\text{V} \leq V_{IN} \leq 10\text{V}$		1	6	mV
		BLA1117-3.3 $I_{OUT}=10\text{mA}, 4.75\text{V} \leq V_{IN} \leq 15\text{V}$		1	6	mV
		BLA1117-5.0 $I_{OUT}=10\text{mA}, 6.5\text{V} \leq V_{IN} \leq 15\text{V}$		1	10	mV
Load regulation	ΔV_{OUT}	BLA1117-ADJ $V_{IN}-V_{OUT}=3\text{V}, 10 \leq I_{OUT} \leq 800\text{mA}$		0.2	0.4	%
		BLA1117-1.5 $V_{IN}-V_{OUT}=2\text{V}, 10 \leq I_{OUT} \leq 800\text{mA}$		1	10	mV
		BLA1117-1.8 $V_{IN}=3.2\text{V}, 0 \leq I_{OUT} \leq 800\text{mA}$		1	10	mV
		BLA1117-2.5 $V_{IN}=3.9\text{V}, 0 \leq I_{OUT} \leq 800\text{mA}$		1	10	mV
		BLA1117-2.85 $V_{IN}=4.25\text{V}, 0 \leq I_{OUT} \leq 800\text{mA}$		1	10	mV
		BLA1117-3.3 $V_{IN}=4.75\text{V}, 0 \leq I_{OUT} \leq 800\text{mA}$		1	10	mV
		BLA1117-5.0 $V_{IN}=6.5\text{V}, 0 \leq I_{OUT} \leq 800\text{mA}$		1	15	mV
Dropout Voltage	$V_{IN}-V_{OUT}$	$I_{OUT}=100\text{mA}$		1.1	1.2	V
		$I_{OUT}=500\text{mA}$		1.15	1.25	
		$I_{OUT}=800\text{mA}$		1.2	1.3	
Current Limit		$V_{IN}-V_{OUT}=5\text{V}, T_J=25^\circ\text{C}$	800	1200	1500	mA
Minimum Load Current	I_{LIMIT}	BLA1117-ADJ $V_{IN}=15\text{V}$		1.7	5	mA

800 mA Low-Dropout Linear Regulator

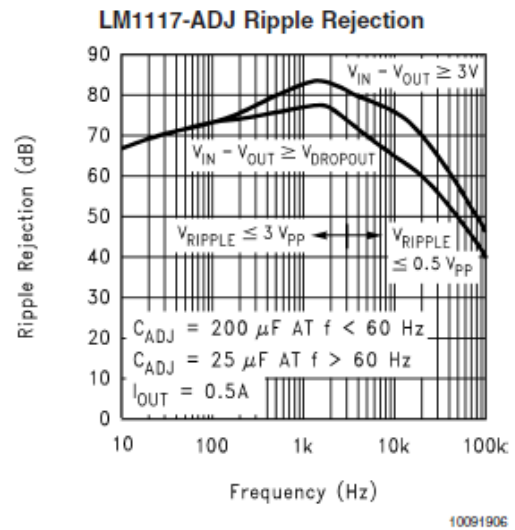
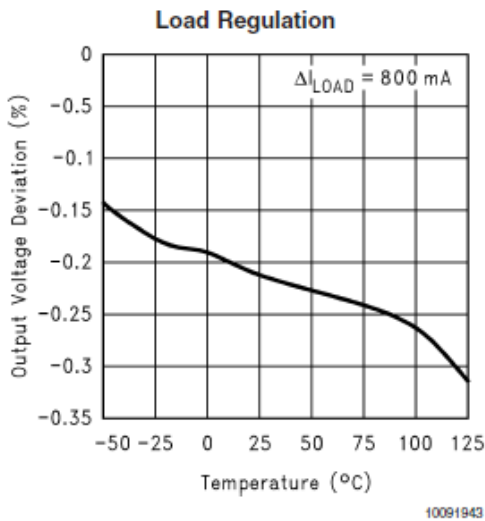
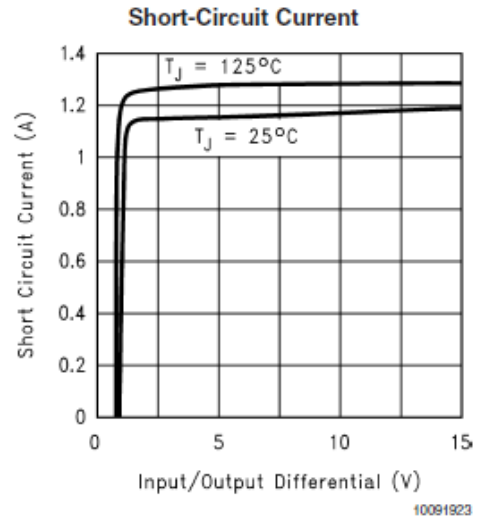
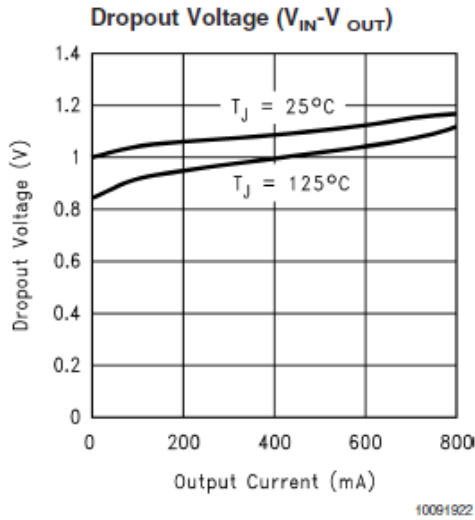
BLA1117

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	μA	
Ajust Pin Current Change		$10 \leq I_{OUT} \leq 800mA$		0.2	5	μA	

800 mA Low-Dropout Linear Regulator

BLA1117

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



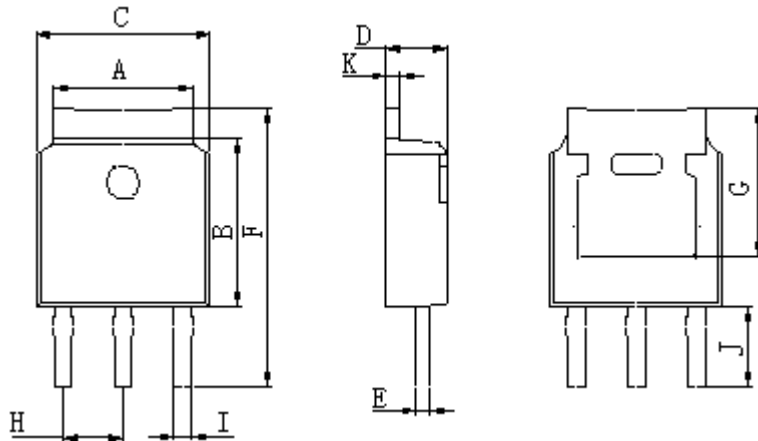
800 mA Low-Dropout Linear Regulator

BLA1117

PACKAGE OUTLINE

Plastic surface mounted package

TO-251

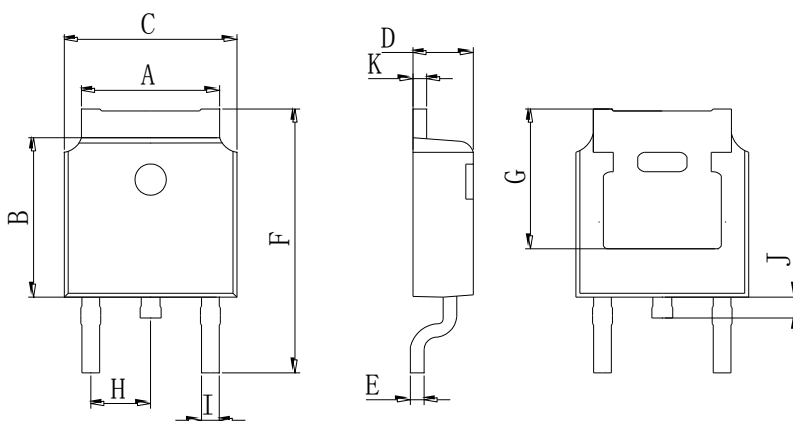


TO-251		
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	12.00	12.60
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	4.90	5.50
K	0.40	0.60
All Dimensions in mm		

PACKAGE OUTLINE

Plastic surface mounted package

TO-252

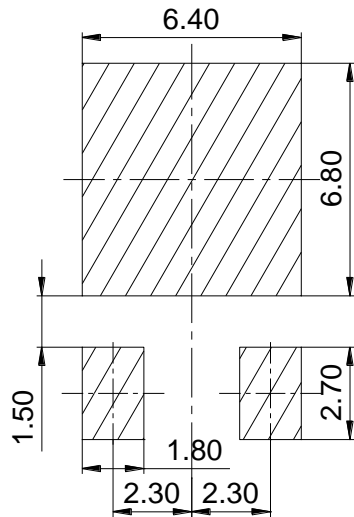


TO-252		
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.7
K	0.40	0.60
All Dimensions in mm		

800 mA Low-Dropout Linear Regulator

BLA1117

SOLDERING FOOTPRINT



Unit: mm