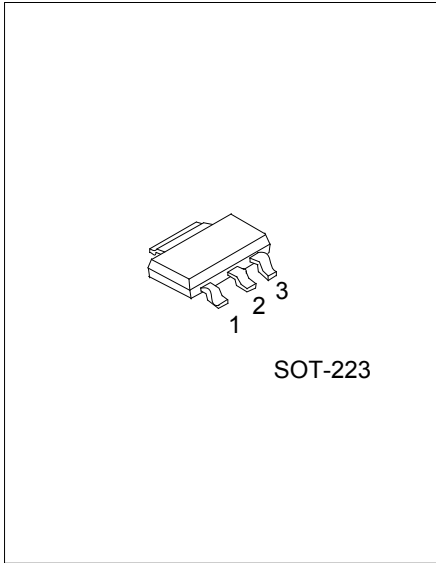




# LD4117

## LINEAR INTEGRATED CIRCUIT

### LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATORS



■ DESCRIPTION

The UTC **LD4117** is a low dropout, 3-terminal positive voltage regulator designed to provide output current up to 1A, There are adjustable version ( $V_{REF}=1.25V$ ) and various fixed versions.

■ FEATURES

- \* Low dropout voltage
- \* Suitable for SCSI-2 active termination if  $V_{OUT}$  set to 2.85V
- \* Output current up to 1A
- \* Built-in current limit and over temperature protection
- \* Low current consumption
- \* Support MLCC

■ ORDERING INFORMATION

Ordering Number		Package	① Pin Assignment	② Packing																				
Lead Free	Halogen Free																							
LD4117L-xx-AA3-①-R	LD4117G-xx-AA3-①-R	SOT-223	<table border="1"> <thead> <tr> <th>Pin Code</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>G</td> <td>O</td> <td>I</td> </tr> <tr> <td>B</td> <td>O</td> <td>G</td> <td>I</td> </tr> <tr> <td>C</td> <td>G</td> <td>I</td> <td>O</td> </tr> <tr> <td>D</td> <td>I</td> <td>G</td> <td>O</td> </tr> </tbody> </table>	Pin Code	1	2	3	A	G	O	I	B	O	G	I	C	G	I	O	D	I	G	O	R: Tape Reel
Pin Code	1	2	3																					
A	G	O	I																					
B	O	G	I																					
C	G	I	O																					
D	I	G	O																					

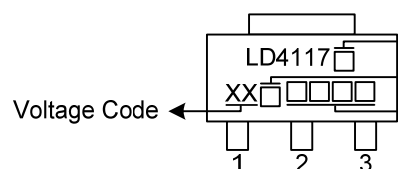
Notes: 1. Pin Assignment: I:  $V_{IN}$  O:  $V_{OUT}$  G: GND  
 2. xx: Output Voltage.

<p>LD4117G-xx-AA3-①-②</p>	<ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Pin Assignment</li> <li>(3) Package Type</li> <li>(4) Output Voltage Code</li> <li>(5) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) refer to Pin Assignment</li> <li>(3) AA3: SOT-223</li> <li>(4) xx: refer to Marking Information</li> <li>(5) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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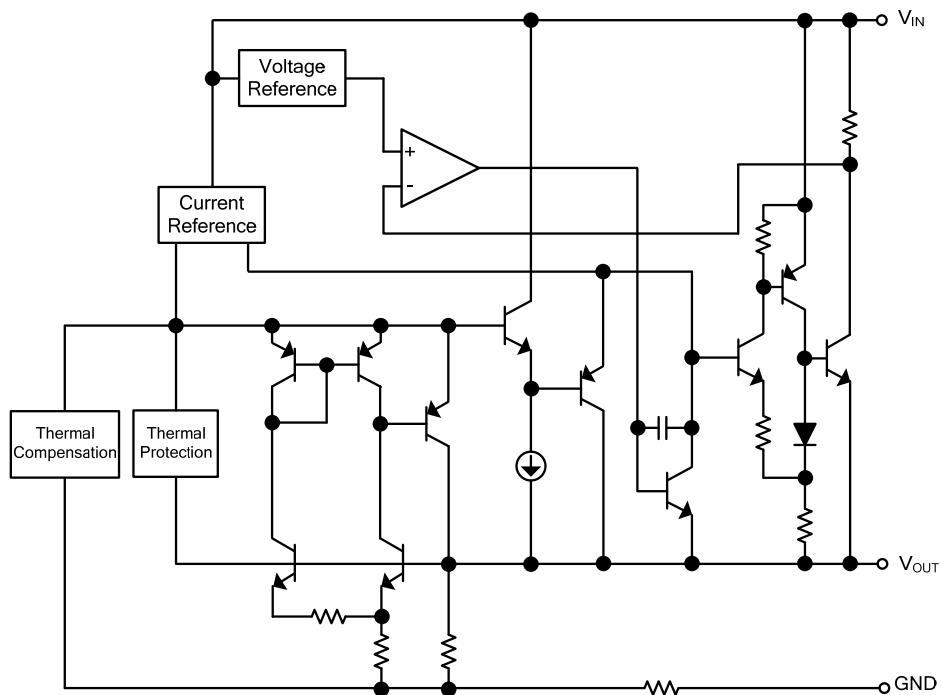
# LD4117

## LINEAR INTEGRATED CIRCUIT

### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	33: 3.3V	 <p>                     L: Lead Free                      G: Halogen Free                      Pin Code                      Date Code                 </p>

### BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
DC Input Voltage	$V_{IN}$	20	V
Power Dissipation	$P_D$	Internally limited	
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Operating Temperature (Note 2)	$T_{OPR}$	-40 ~ +125	$^\circ\text{C}$
Storage temperature	$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. This condition is only determined from design. It can't be 100% tested in mass production.

■ RECOMMENDED OPERATING RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	18	V
Operating Junction Temperature	$T_J$	-40 ~ +125	$^\circ\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	165	$^\circ\text{C}/\text{W}$
Junction to Case	$\theta_{JC}$	15	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS

( $T_A=25^\circ\text{C}$ , refer to the test circuits,  $C_O=10\mu\text{F}$ , unless otherwise specified)

For LD4117-3.3

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	$V_{OUT}$	$V_{IN}=5.3\text{V}$ , $I_{OUT}=10\text{mA}$ , $T_J=25^\circ\text{C}$	3.234	3.300	3.366	V
Output Voltage	$V_{OUT}$	$V_{IN}=4.75$ to $10\text{V}$ , $I_{OUT}=0\sim 1\text{A}$	3.234	3.300	3.366	V
Line Regulation	$\Delta V_{OUT}$	$V_{IN}=4.75$ to $18\text{V}$ , $I_{OUT}=0\text{mA}$		1	6	mV
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=4.75\text{V}$ , $I_{OUT}=0\sim 1\text{A}$		1	10	mV
Temperature stability	$\Delta V_{OUT}$			0.5		%
Long Term Stability	$\Delta V_{OUT}$	1000 hrs, $T_J=125^\circ\text{C}$		0.3		%
Operating Input Voltage	$V_{IN}$	$I_{OUT}=100\text{mA}$			18	V
Quiescent Current	$I_Q$	$V_{IN}\leq 18\text{V}$		5	10	mA
Current Limit	$I_{LIMIT}$	$V_{IN}=8.3\text{V}$ , $T_J=25^\circ\text{C}$	1			A
Output Noise Voltage	$e_N$	$B=10\text{Hz}$ to $10\text{KHz}$ , $T_J=25^\circ\text{C}$		100		$\mu\text{V}$
Supply Voltage Rejection	SVR	$I_{OUT}=40\text{mA}$ , $f=120\text{Hz}$ , $T_J=25^\circ\text{C}$ , $V_{IN}=6.3\text{V}$ , $V_{RIPPLE}=1\text{V}_{PP}$	60	75		dB
Dropout Voltage	$V_D$	$I_{OUT}=100\text{mA}$		1.00	1.10	V
		$I_{OUT}=500\text{mA}$		1.15	1.25	V
		$I_{OUT}=800\text{mA}$		1.20	1.30	V
		$I_{OUT}=1\text{A}$		1.20	1.30	V
Thermal Regulation		$T_A=25^\circ\text{C}$ , 30ms Pulse		0.01	0.10	%/W

## ■ TYPICAL APPLICATIONS

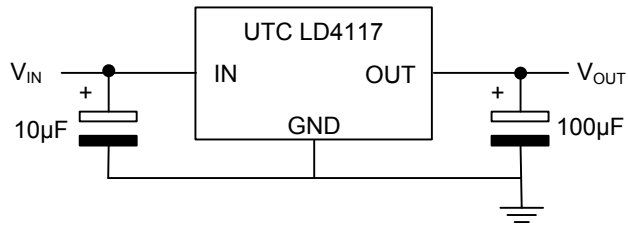


Fig.1 Tynca Application Circuit

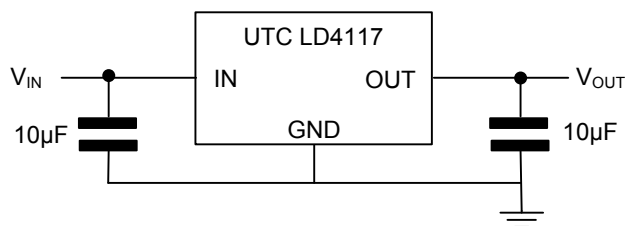
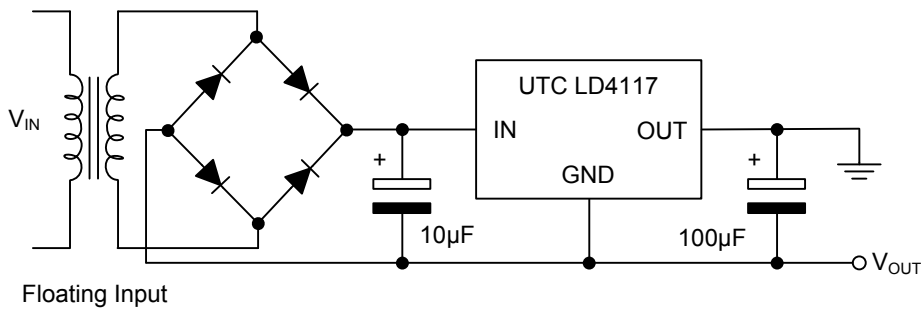


Fig.2 Tynca Application Circuit (FOR MLCC)



Floating Input

Fig.3 Negative Supply

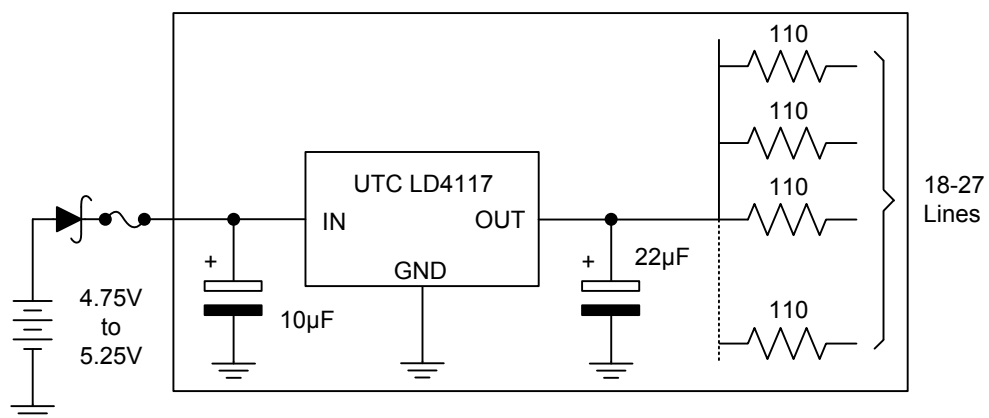


Fig.4 Active Terminator for SCSI-2 BUS

■ TYPICAL APPLICATIONS (Cont.)

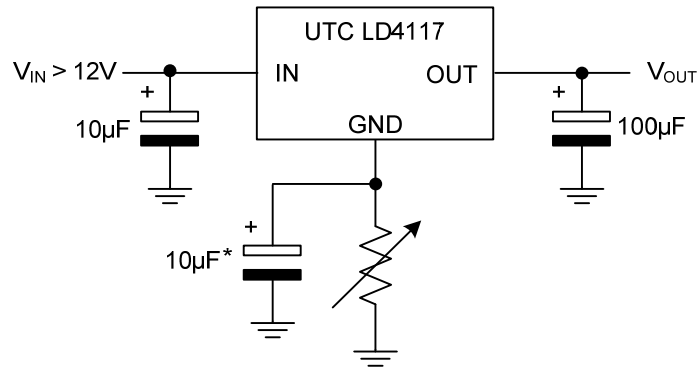
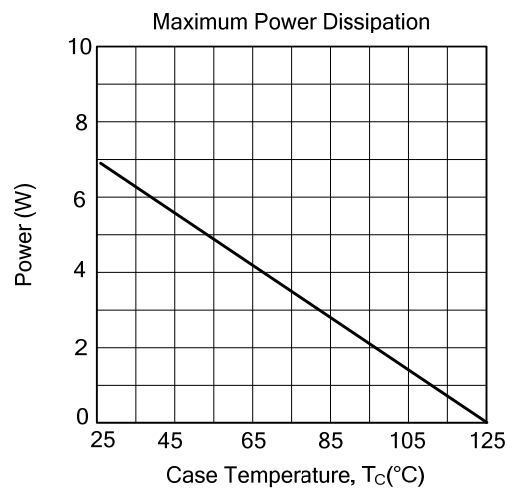
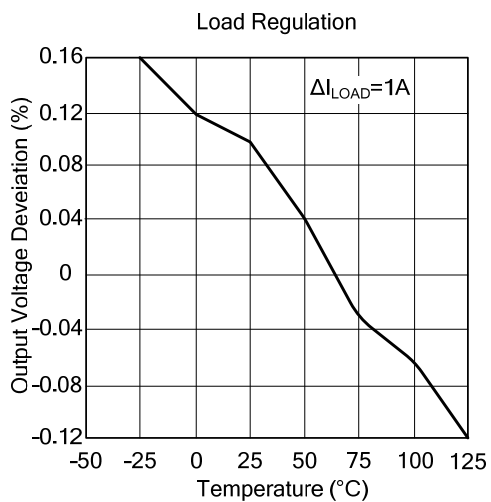
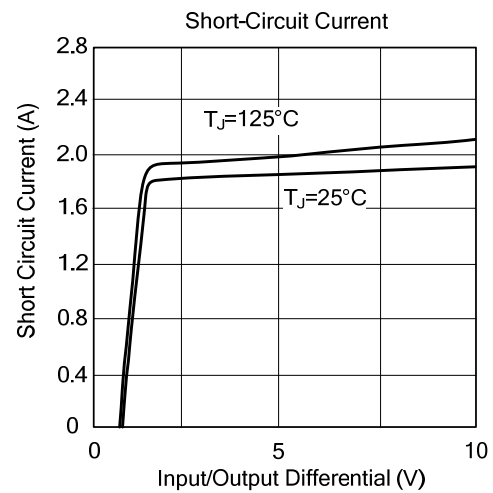
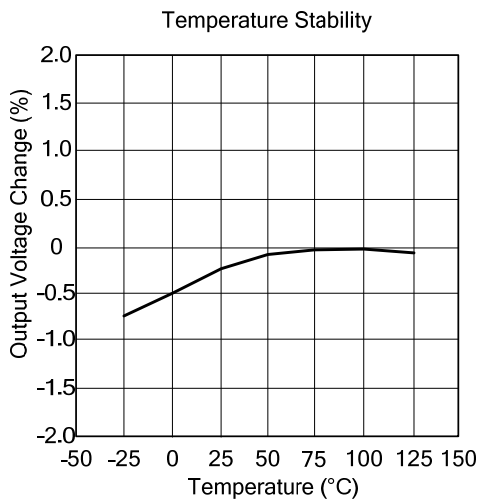
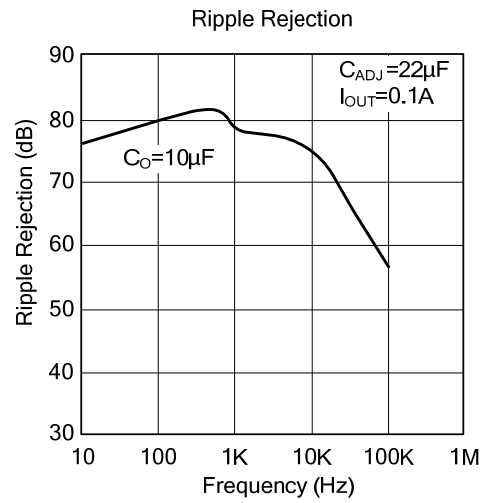
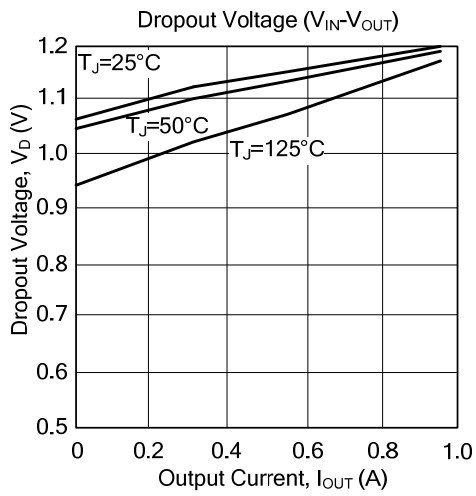
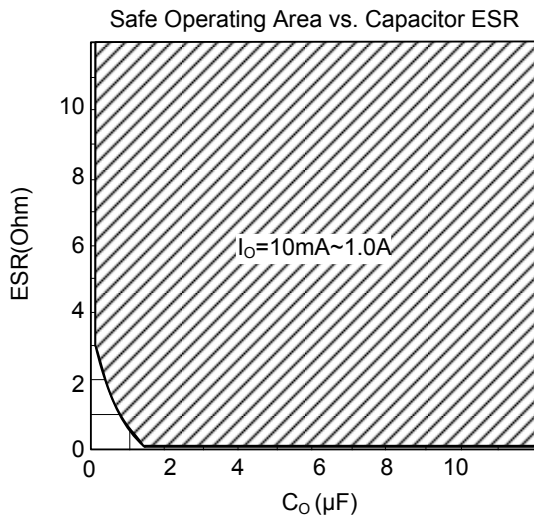


Fig.5 Circuit for Increasing Output Voltage

## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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