



LR1118

LINEAR INTEGRATED CIRCUIT

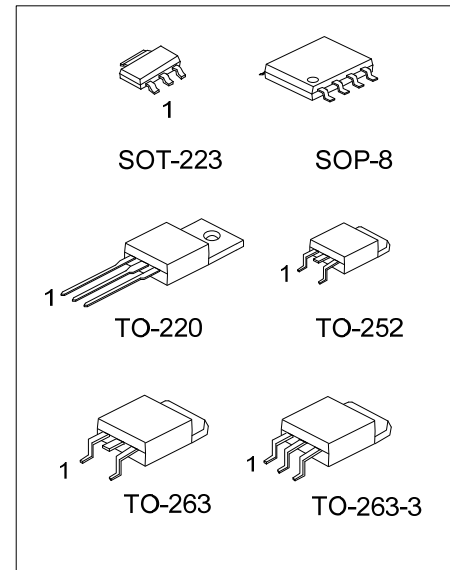
LOW DROP POSITIVE VOLTAGE REGULATORS

DESCRIPTION

The UTC LR1118 is a low drop voltage regulator able to provide up to 1A of output current, available also for adjustable version ($V_{REF}=1.24V$). Output consists of PNP power transistor. So that dropout voltage can be extremely low.

FEATURES

- * 2.85V device are suitable for SCSI-2 active termination
- * Output current up to 1A
- * Adjustable version available. ($V_{REF}=1.24V$)
- * Internal current and thermal limit
- * Available in $\pm 1\%$ (at 25°C) and 2% in all temperature range



ORDERING INFORMATION

Ordering Number		Package	① Pin Assignment	② Packing
Lead Free	Halogen Free			
LR1118L-xx-AA3-①-②	LR1118G-xx-AA3-①-②	SOT-223	A: GOI B: OGI C: GIO D: IGO	R: Tape Reel T: Tube
LR1118L-xx-TA3-①-②	LR1118G-xx-TA3-①-②	TO-220		
LR1118L-xx-TN3-①-②	LR1118G-xx-TN3-①-②	TO-252		
LR1118L-xx-TQ2-①-②	LR1118G-xx-TQ2-①-②	TO-263		
LR1118L-xx-TQ3-①-②	LR1118G-xx-TQ3-①-②	TO-263-3		
LR1118L-xx-S08-①-②	LR1118G-xx-S08-①-②	SOP-8	GOOIxOOx	

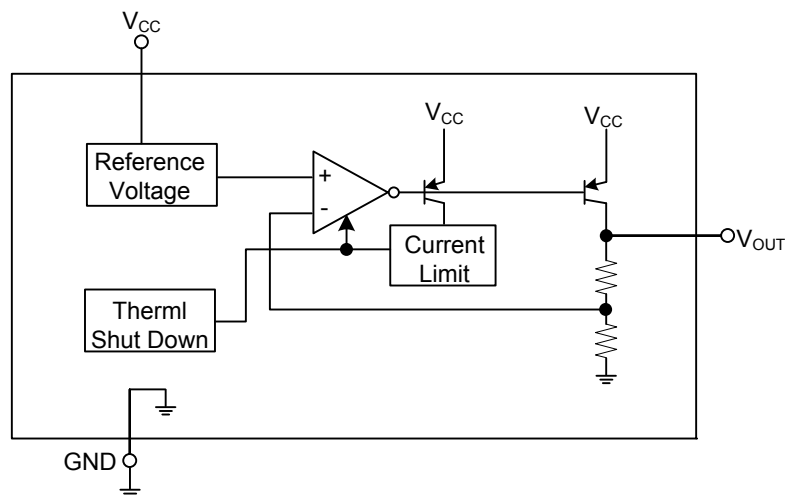
Note: 1. Pin assignment: I: V_{IN} O: V_{OUT} G: GND x: NC
 2. xx: Output Voltage, refer to Marking Information.

<p>LR1118L-xx-AA3-①-②</p> <p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Output Voltage Code (5) Lead Free</p>	<p>(1) R: Tape Reel, T: Tube (2) refer to Pin Assignment (3) AA3: SOT-223, TA3: TO-220, TN3: TO-252, TQ2: TO-263, TQ3: TO-263-3, S08: SOP-8 (4) xx: refer to Marking Information (5) G: Halogen Free, L: Lead Free</p>
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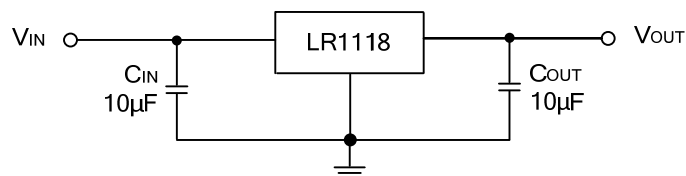
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	12:1.2V 15:1.5V 18:1.8V 25:2.5V 2J:2.85V	
TO-220 TO-252 TO-263 TO-263-3	30:3.0V 33:3.3V 36:3.6V 50:5.0V	

BLOCK DIAGRAM



APPLICATION CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
DC Input Voltage	V_{IN}	15	V
Junction Temperature	T_J	+125	°C
Operating Temperature	T_{OPR}	0 ~ +125	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Note: 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

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	SOT-223	15	°C/W
	SOP-8	20	
	TO-252	8	
	TO-220	4	
	TO-263	4	

■ ELECTRICAL CHARACTERISTICS

($T_A=25^\circ\text{C}$, refer to the test circuits, $T_J=0\sim 125^\circ\text{C}$, $C_O=10\mu\text{F}$, unless otherwise specified.)

For LR1118-1.2V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5\text{V}$, $I_{OUT}=10\text{mA}$, $T_J=25^\circ\text{C}$	1%	1.188	1.2	1.212	V
			2%	1.176		1.224	
		$V_{IN}=(V_{OUT}+2\text{V})\sim 15\text{V}$, $I_{OUT}=0$ to 1A		1.176	1.2	1.224	V
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2\text{V})\sim 15\text{V}$, $I_{OUT}=0\text{A}$		0.1	0.6	%	
Load Regulation		$V_{IN}=V_{OUT}+2\text{V}$, $I_{OUT}=0$ to 1A		2	3	%	
Temperature Stability				0.5		%	
Long Term Stability		1000 hrs, $T_J=125^\circ\text{C}$		0.3		%	
Operating Input Voltage	V_{IN}	$I_{OUT}=100\text{mA}$			15	V	
Quiescent Current	I_D	$V_{IN}\leq 10\text{V}$		5	10	mA	
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5\text{V}$, $T_J=25^\circ\text{C}$	800		1500	mA	
Output Noise Voltage	e_N	$B=10\text{Hz}\sim 10\text{KHz}$, $T_J=25^\circ\text{C}$		100		μV	
Supply Voltage Rejection	SVR	$I_{OUT}=40\text{mA}$, $f=120\text{Hz}$, $T_J=25^\circ\text{C}$ $V_{IN}=V_{OUT}+2.5\text{V}$, $V_{RIPPLE}=1\text{V}_{PP}$	60	75		dB	
Dropout Voltage	V_D	$I_{OUT}=100\text{mA}$		0.88	0.98	V	
		$I_{OUT}=1\text{A}$		1.10	1.20		
Thermal Regulation		$T_A=25^\circ\text{C}$, 30ms Pulse		0.01	0.10	%/W	

■ ELECTRICAL CHARACTERISTICS (Cont.)

For LR1118-1.5V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	1%	1.485	1.5	1.515	V
			2%	1.470		1.530	
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0\text{ to }1A$	1.470	1.5	1.530	V	
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%	
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0\text{ to }1A$		2	3	%	
Temperature Stability				0.5		%	
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%	
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V	
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA	
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA	
Output Noise Voltage	e_N	$B=10Hz\sim 10KHz, T_J=25^{\circ}C$		100		μV	
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB	
Dropout Voltage	V_D	$I_{OUT}=100mA$		0.60	0.73	V	
		$I_{OUT}=1A$		0.82	0.95		
Thermal Regulation		$T_A=25^{\circ}C, 30ms\text{ Pulse}$		0.01	0.10	%/W	

For LR1118-1.8V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	1%	1.782	1.8	1.818	V
			2%	1.764		1.836	
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0\text{ to }1A$	1.764	1.8	1.836	V	
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%	
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0\text{ to }1A$		2	3	%	
Temperature Stability				0.5		%	
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%	
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V	
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA	
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA	
Output Noise Voltage	e_N	$B=10Hz\sim 10KHz, T_J=25^{\circ}C$		100		μV	
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB	
Dropout Voltage	V_D	$I_{OUT}=100mA$		0.32	0.48	V	
		$I_{OUT}=1A$		0.65	0.88		
Thermal Regulation		$T_A=25^{\circ}C, 30ms\text{ Pulse}$		0.01	0.10	%/W	

■ ELECTRICAL CHARACTERISTICS (Cont.)

For LR1118-2.5V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	1%	2.475	2.5	2.525	V
			2%	2.450		2.550	
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0\text{ to }1A$	2.450	2.5	2.550	V	
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%	
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0\text{ to }1A$		2	3	%	
Temperature Stability				0.5		%	
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%	
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V	
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA	
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA	
Output Noise Voltage	e_N	$B=10Hz\sim 10KHz, T_J=25^{\circ}C$		100		μV	
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB	
Dropout Voltage	V_D	$I_{OUT}=100mA$		0.16	0.25	V	
		$I_{OUT}=1A$		0.56	0.70		
Thermal Regulation		$T_A=25^{\circ}C, 30ms\text{ Pulse}$		0.01	0.10	%/W	

For LR1118-2.85V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	1%	2.822	2.85	2.878	V
			2%	2.793		2.907	
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0\text{ to }1A$	2.793	2.85	2.907	V	
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%	
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0\text{ to }1A$		2	3	%	
Temperature Stability				0.5		%	
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%	
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V	
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA	
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA	
Output Noise Voltage	e_N	$B=10Hz\sim 10KHz, T_J=25^{\circ}C$		100		μV	
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB	
Dropout Voltage	V_D	$I_{OUT}=100mA$		0.132	0.35	V	
		$I_{OUT}=1A$		0.828	0.91		
Thermal Regulation		$T_A=25^{\circ}C, 30ms\text{ Pulse}$		0.01	0.10	%/W	

■ ELECTRICAL CHARACTERISTICS (Cont.)

For LR1118-3.0V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	2.970	3.0	3.030	V
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0$ to 1A	2.940	3.0	3.060	V
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0$ to 1A		2	3	%
Temperature Stability				0.5		%
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA
Output Noise Voltage	e_N	$B=10Hz \sim 10KHz, T_J=25^{\circ}C$		100		μV
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB
Dropout Voltage	V_D	$I_{OUT}=100mA$		0.11	0.26	V
		$I_{OUT}=1A$		0.45	0.65	
Thermal Regulation		$T_A=25^{\circ}C, 30ms$ Pulse		0.01	0.10	%/W

For LR1118-3.3V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	3.267	3.3	3.333	V
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0$ to 1A	3.234	3.3	3.366	V
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0$ to 1A		2	3	%
Temperature Stability				0.5		%
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA
Output Noise Voltage	e_N	$B=10Hz \sim 10KHz, T_J=25^{\circ}C$		100		μV
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB
Dropout Voltage	V_D	$I_{OUT}=100mA$		0.11	0.26	V
		$I_{OUT}=1A$		0.45	0.65	
Thermal Regulation		$T_A=25^{\circ}C, 30ms$ Pulse		0.01	0.10	%/W

■ ELECTRICAL CHARACTERISTICS (Cont.)

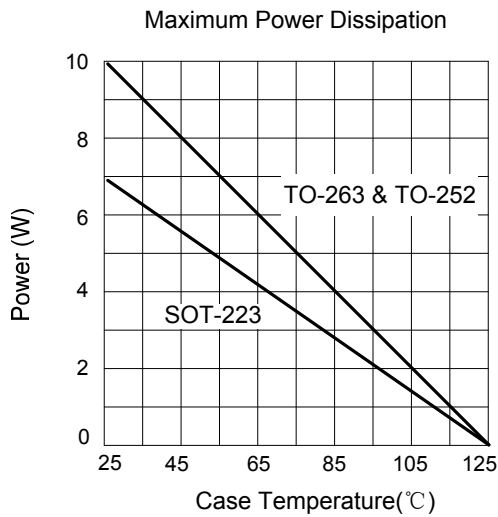
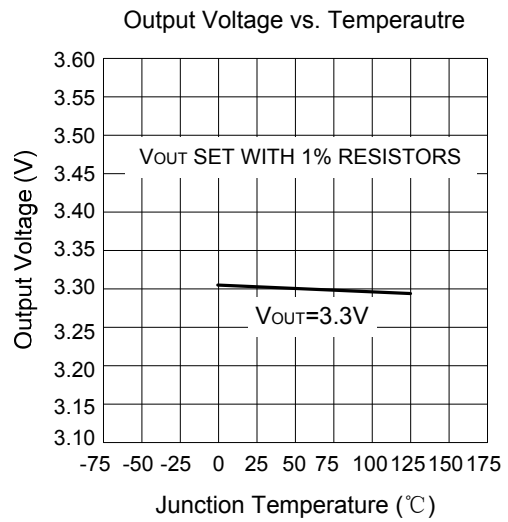
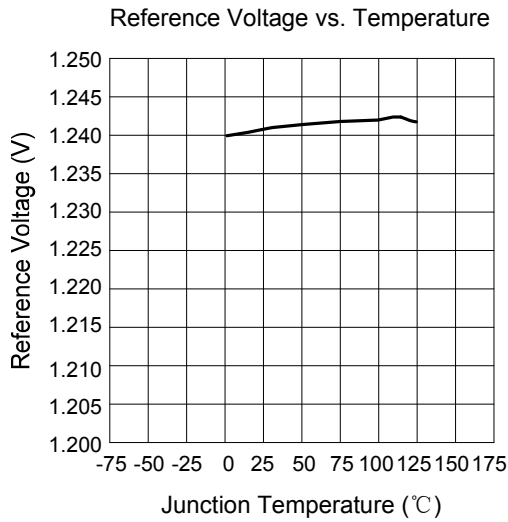
For LR1118-3.6V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	3.564	3.6	3.636	V
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0 \text{ to } 1A$	3.528	3.6	3.672	V
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0 \text{ to } 1A$		2	3	%
Temperature Stability				0.5		%
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA
Output Noise Voltage	e_N	$B=10Hz \sim 10KHz, T_J=25^{\circ}C$		100		μV
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB
Dropout Voltage	V_D	$I_{OUT}= 100mA$		0.19	0.31	V
		$I_{OUT}= 1A$		0.81	0.89	
Thermal Regulation		$T_A=25^{\circ}C, 30ms \text{ Pulse}$		0.01	0.10	%/W

For LR1118-5.0V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_J=25^{\circ}C$	4.95	5.0	5.05	V
		$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0 \text{ to } 1A$	4.90	5.0	5.10	V
Line Regulation	ΔV_{OUT}	$V_{IN}=(V_{OUT}+2V)\sim 15V, I_{OUT}=0A$		0.1	0.6	%
Load Regulation		$V_{IN}=V_{OUT}+2V, I_{OUT}=0 \text{ to } 1A$		2	3	%
Temperature Stability				0.5		%
Long Term Stability		1000 hrs, $T_J=125^{\circ}C$		0.3		%
Operating Input Voltage	V_{IN}	$I_{OUT}=100mA$			15	V
Quiescent Current	I_D	$V_{IN}\leq 10V$		5	10	mA
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+4.5V, T_J=25^{\circ}C$	800		1500	mA
Output Noise Voltage	e_N	$B=10Hz \sim 10KHz, T_J=25^{\circ}C$		100		μV
Supply Voltage Rejection	SVR	$I_{OUT}=40mA, f=120Hz, T_J=25^{\circ}C$ $V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1V_{PP}$	60	75		dB
Dropout Voltage	V_D	$I_{OUT}= 100mA$		0.11	0.26	V
		$I_{OUT}= 1A$		0.45	0.62	
Thermal Regulation		$T_A=25^{\circ}C, 30ms \text{ Pulse}$		0.01	0.10	%/W

TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.