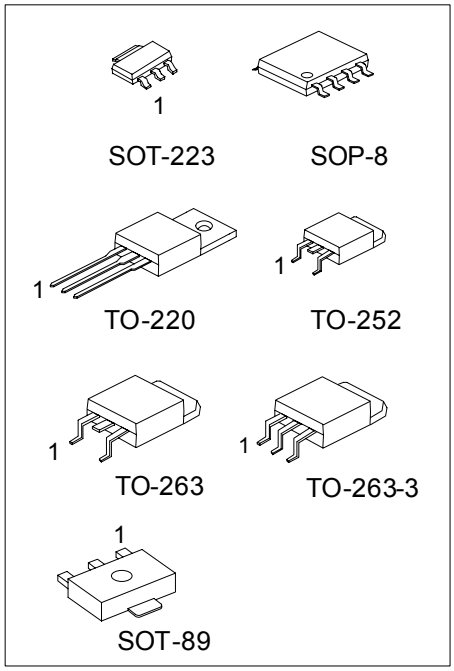
LR1118

LINEAR INTEGRATED CIRCUIT

LOW DROP POSITIVE VOLTAGE REGULATORS



*Pb-free plating product number: LR1118L

■ 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 ±1%(at 25°C) and 2% in all temperature range

■ ORDERING INFORMATION

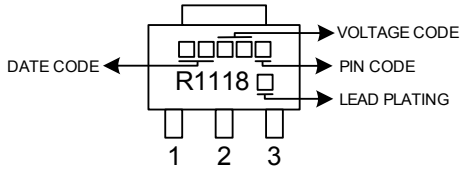
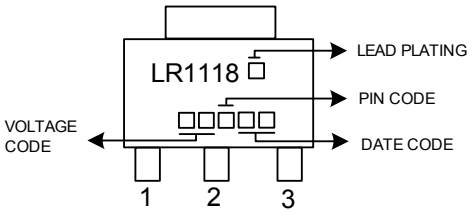
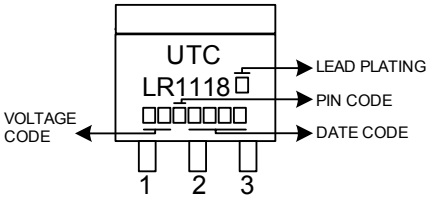
Order Number		Package	① Pin Assignment	② Packing
Normal	Lead Free Plating			
LR1118-xx-AA3-①-②	LR1118L-xx-AA3-①-②	SOT-223	A: GOI B: OGI C: GIO D: IGO	R: Tape Reel T: Tube
LR1118-xx-AB3-①-②	LR1118L-xx-AB3-①-②	SOT-89		
LR1118-xx-TA3-①-②	LR1118L-xx-TA3-①-②	TO-220		
LR1118-xx-TN3-①-②	LR1118L-xx-TN3-①-②	TO-252		
LR1118-xx-TQ2-①-②	LR1118L-xx-TQ2-①-②	TO-263		
LR1118-xx-TQ3-①-②	LR1118L-xx-TQ3-①-②	TO-263-3		
LR1118-xx-S08-①-②	LR1118L-xx-S08-①-②	SOP-8	GOOIxOOx	

Note: 1. Pin assignment: I:Vin O:Vout G:GND x:NC
2. xx: Output Voltage, refer to Marking Information.

LR1118L-xx-AA3-①-②
(1)Packing Type
(2)Pin Assignment
(3)Package Type
(4)Output Voltage Code
(5)Lead Plating

(1) R: Tape Reel, T: Tube
(2) refer to Pin Assignment
(3) AA3: SOT-223, AB3: SOT-89, TA3: TO-220
TN 3: TO-252, TQ2: TO-263, TQ3: TO-263-3,
S 08: SOP-8
(4) xx: refer to Marking Information
(5) L: Lead Free Plating Blank: Pb/Sn

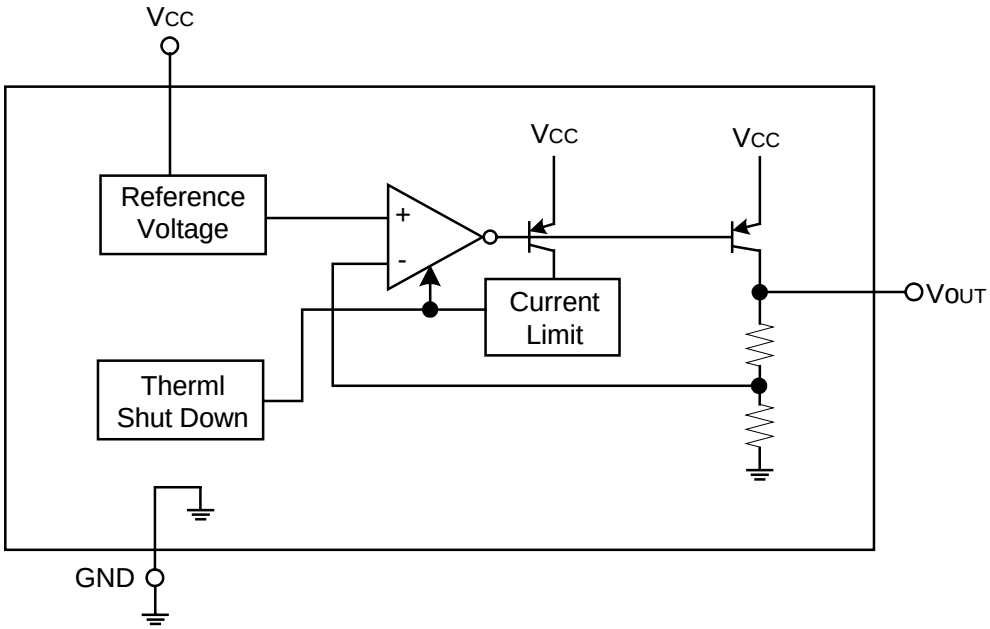
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	18 :1.8V 25 :2.5V 30 :3.0V 33 :3.3V 50 :5.0V	
SOT-223		
TO-220 TO-252 TO-263 TO-263-3		

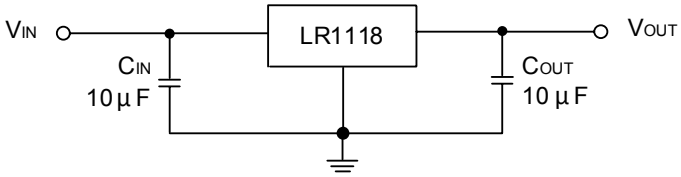
■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-Case	SOT-223	θ_{JC}	15	°C/W
	SOT-89		15	
	SOP-8		20	
	TO-252		8	
	TO-220		4	
	TO-263		4	

■ BLOCK DIAGRAM



■ APPLICATION CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

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

Note: 1. The device may be damaged while beyond Absolute Maximum Rating.
2. The device is guaranteed to meet performance specifications within 0°C~+70°C operation temperature range, and is assured by design from 0°C~+125°C.

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, refer to the test circuits, T_J=-0~125°C, C_O=10μF, unless otherwise specified.)

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°C	1%	1.782	1.8	1.818	V
			2%	1.764		1.836	
Output Voltage	V_{OUT}	V_{IN} =(V_{OUT}+2V)~15V, I_{OUT}=0 to 1A		1.764	1.8	1.836	V
Line Regulation	ΔV_{OUT}	V_{IN} =(V_{OUT}+2V)~15V, I_{OUT}=0A			0.1	0.6	%
Load Regulation	ΔV_{OUT}	V_{IN} =V_{OUT}+2V, I_{OUT}=0 to 1A			2	3	%
Temperature Stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J=125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_D	V_{IN}≤10V			5	10	mA
Output Current	I_{OUT}	V_{IN}=V_{OUT}+4.5V, T_J=25°C		800	950	1200	mA
Output Noise Voltage	eN	B=10Hz~10KHz, T_J=25°C			100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J=25°C V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}= 100mA			0.32	0.48	V
		I_{OUT}= 1A			0.65	0.88	V
Thermal Regulation		Ta=25°C, 30ms Pulse			0.01	0.10	%/W

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°C	1%	2.475	2.5	2.525	V
			2%	2.450		2.550	
Output Voltage	V_{OUT}	V_{IN} =(V_{OUT}+2V)~15V, I_{OUT}=0 to 1A		2.45	2.5	2.55	V
Line Regulation	ΔV_{OUT}	V_{IN} =(V_{OUT}+2V)~15V, I_{OUT}=0A			0.1	0.6	%
Load Regulation	ΔV_{OUT}	V_{IN} =V_{OUT}+2V, I_{OUT}=0 to 1A			2	3	%
Temperature Stability	ΔV_{OUT}				0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J=125°C			0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA				15	V
Quiescent Current	I_D	V_{IN}≤10V			5	10	mA
Output Current	I_{OUT}	V_{IN}=V_{OUT}+4.5V, T_J=25°C		800	950	1200	mA
Output Noise Voltage	eN	B=10Hz~10KHz, T_J=25°C			100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J=25°C V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1Vpp		60	75		dB
Dropout Voltage	V_D	I_{OUT}= 100mA			0.16	0.25	V
		I_{OUT}= 1A			0.56	0.7	V
Thermal Regulation		Ta=25°C, 30ms 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°C	2.970	3.0	3.030	V
Output Voltage	V_{OUT}	V_{IN}=(V_{OUT}+2V)~15V, I_{OUT}=0 to 1A	2.940	3.0	3.060	V
Line Regulation	ΔV_{OUT}	V_{IN}=(V_{OUT}+2V)~15V, I_{OUT}=0A		0.1	0.6	%
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=0 to 1A		2	3	%
Temperature Stability	ΔV_{OUT}			0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J=125°C		0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA			15	V
Quiescent Current	I_D	V_{IN}≤10V		5	10	mA
Output Current	I_{OUT}	V_{IN}=V_{OUT}+4.5V, T_J=25°C	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz ~ 10KHz, T_J=25°C		100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J=25°C V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1Vpp	60	75		dB
Dropout Voltage	V_D	I_{OUT}= 100mA I_{OUT}= 1A		0.11 0.45	0.26 0.65	V V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

For LR1118-3.3V

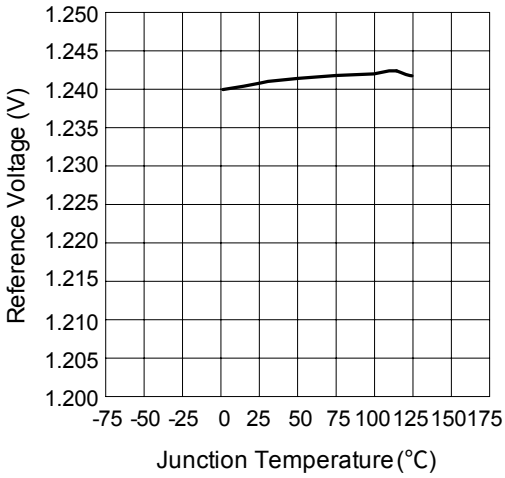
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA,T_J=25°C	3.267	3.3	3.333	V
Output Voltage	V_{OUT}	V_{IN}=(V_{OUT}+2V)~15V, I_{OUT}=0 to 1A	3.234	3.3	3.366	V
Line Regulation	ΔV_{OUT}	V_{IN}=(V_{OUT}+2V)~15V, I_{OUT}=0A		0.1	0.6	%
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=0 to 1A		2	3	%
Temperature Stability	ΔV_{OUT}			0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J=125°C		0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA			15	V
Quiescent Current	I_D	V_{IN}≤10V		5	10	mA
Output Current	I_{OUT}	V_{IN}=V_{OUT}+4.5V, T_J=25°C	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz ~ 10KHz, T_J=25°C		100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J=25°C V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1Vpp	60	75		dB
Dropout Voltage	V_D	I_{OUT}= 100mA I_{OUT}= 1A		0.11 0.45	0.26 0.65	V V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

For LR1118-5.0V

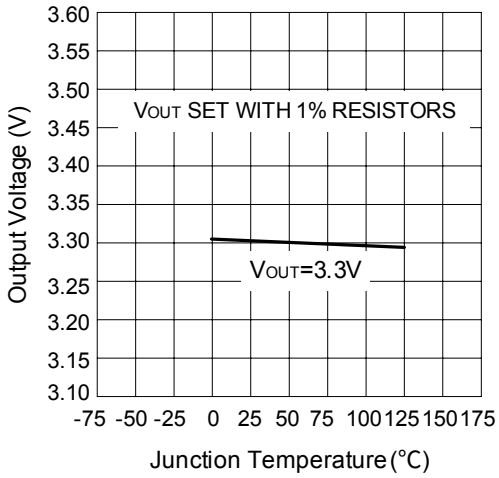
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA,T_J=25°C	4.95	5.0	5.05	V
Output Voltage	V_{OUT}	V_{IN}=(V_{OUT}+2V)~15V, I_{OUT}=0 to 1A	4.90	5.0	5.10	V
Line Regulation	ΔV_{OUT}	V_{IN}=(V_{OUT}+2V)~15V, I_{OUT}=0A		0.1	0.6	%
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=0 to 1A		2	3	%
Temperature Stability	ΔV_{OUT}			0.5		%
Long Term Stability	ΔV_{OUT}	1000 hrs, T_J=125°C		0.3		%
Operating Input Voltage	V_{IN}	I_{OUT}=100mA			15	V
Quiescent Current	I_D	V_{IN}≤10V		5	10	mA
Output Current	I_{OUT}	V_{IN}=V_{OUT}+4.5V, T_J=25°C	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz ~ 10KHz, T_J=25°C		100		μV
Supply Voltage Rejection	SVR	I_{OUT}=40mA, f=120Hz, T_J=25°C V_{IN}=V_{OUT}+2.5V, V_{RIPPLE}=1Vpp	60	75		dB
Dropout Voltage	V_D	I_{OUT}= 100mA I_{OUT}= 1A		0.11 0.45	0.26 0.62	V V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

■ TYPICAL CHARACTERISTICS

Reference Voltage vs. Temperature



Output Voltage vs. Temperautre



Maximum Power Dissipation