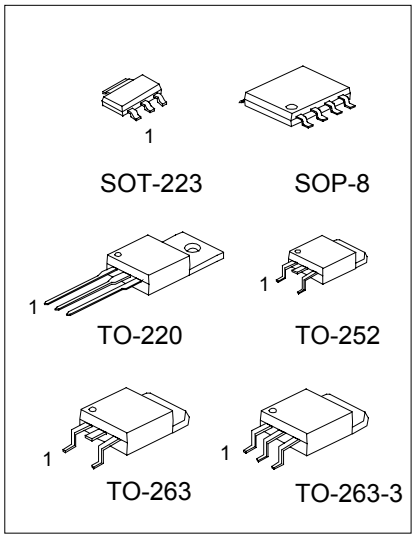
UTC LR1116/A LINEAR INTEGRATED CIRCUIT

LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATORS



SOP-8 1: GND; 2,3,6,7: Vout;
4: Vin; 5,8: NC

*Pb-free plating product number: LR1116L/LR1116AL

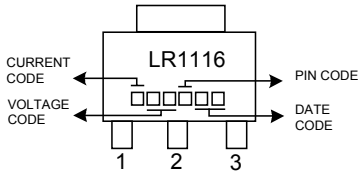
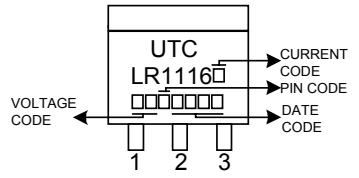
DESCRIPTION

The UTC LR1116/A is a LOW DROP Voltage Regulator able to provide up to 0.8/1.0A of Output Current, available also for adjustable version (Vref=1.25V). Output consists of pnp power transistor. So that dropout voltage can be extremely low.

FEATURES

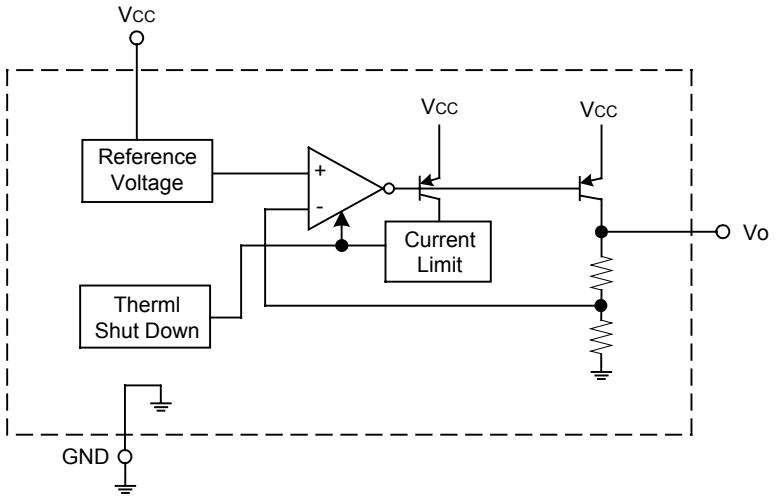
* Low dropout voltage (0.6V max.)
* 2.85V device are suitable for SCSI-2 active termination
* Output current up to 0.8/1.0A
* Fixed output voltage of: 1.5V, 1.8V, 2.5V, 2,85V, 3.0V, 3.3V, , 5.0V
* Adjustable version availability (Vref=1.25V)
* Internal current and thermal limit
* Available in ±1%(at 25°C) and 2% in all temperature range

MARKING INFORMATION

PACKAGE	VOLTAGE CODE	PIN CODE	PIN 1	PIN 2	PIN 3	MARKING
SOT-223	15:1.5V 18:1.8V 25:2.5V 28:2.85V 30:3.0V 33:3.3V	A	GND	OUT	IN	
		B	OUT	GND	IN	
		C	GND	IN	OUT	
		D	IN	GND	OUT	
TO-220 TO-252 TO-263 TO-263-3	50:5.0V AD:ADJ	A	GND	OUT	IN	
		B	OUT	GND	IN	
		C	GND	IN	OUT	
		D	IN	GND	OUT	

Note: The current code “A” means output current up to 1.0A, while without “A” means output current up to 0.8A.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

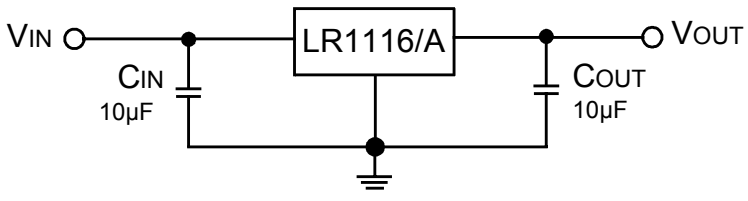
PARAMETER	SYMBOL	RATINGS	UNIT
DC Input Voltage	V_{IN}	15	V
Storage temperature	Tstg	-65 ~ +150	°C
Operating Junction Temperature	Top	-40 ~ +150	°C

Note: Absolute Maximum Ratings are those value beyond which damage to the device may occur. Functional operation under there condition is not implied. Over the above suggested Max Power Dissipation a Short Circuit could definitively damage the device.

THERMAL DATA

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

APPLICATION CIRCUIT



UTC LR1116/A-Vo＜3.0V ELECTRICAL CHARACTERISTICS

(refer to the test circuits, Tj=-40 ~ 150°C, Co=10μF unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Vin=Vo+1.5V, Io=10mA, Tj=25°C	Vo×0.99 Vo×0.98	Vo	Vo×1.01 Vo×1.02	V
Output Voltage	Vo	Io=0 to 800/1000mA Vin =(Vo+1V) ~ 15V	Vo×0.98	Vo	Vo×1.02	V
Line Regulation	ΔVo	Vin =(Vo+1V) ~ 15V, Io=0mA		0.1	0.6	%
Load Regulation	ΔVo	Vin =(Vo+1V) ~ 15V Io=0 to 800/1000mA		0.2	1	%
Temperature stability	ΔVo			0.5		%
Long Term Stability	ΔVo	1000 hrs, Tj=125°C		0.3		%
Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤10V		5	10	mA
Output Current	Io	Vin=Vo+4.5V, Tj=25°C	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25°C		100		μV
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25°C Vin=Vo+2.5V, Vripple=1Vpp	60	75		dB
Dropout Voltage	Vd	Io= 100mA Io= 500mA Io= 800mA Io=1000mA			0.4 0.6 0.8 0.9	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

UTC LR1116/A-Vo≧3.0V ELECTRICAL CHARACTERISTICS

(refer to the test circuits, Tj=-40 ~ 150°C, Co=10μF unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Vin=Vo+1.5V, Io=10mA, Tj=25°C	Vo×0.99	Vo	Vo×1.01	V
Output Voltage	Vo	Io=0 to 800/1000mA Vin =(Vo+1V) ~ 15V	Vo×0.98	Vo	Vo×1.02	V
Line Regulation	ΔVo	Vin =(Vo+1V) ~ 15V, Io=0mA		0.1	0.6	%
Load Regulation	ΔVo	Vin =(Vo+1V) ~ 15V Io=0 to 800/1000mA		0.2	1	%
Temperature stability	ΔVo			0.5		%
Long Term Stability	ΔVo	1000 hrs, Tj=125°C		0.3		%
Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤10V		5	10	mA
Output Current	Io	Vin=Vo+4.5V, Tj=25°C	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25°C		100		μV
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25°C Vin=Vo+2.5V, Vripple=1Vpp	60	75		dB
Dropout Voltage	Vd	Io= 100mA Io= 500mA Io= 800mA Io=1000mA			0.3 0.4 0.6 0.7	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

UTC LR1116/A-ADJUSTABLE ELECTRICAL CHARACTERISTICS

(refer to the test circuits, Tj=-40 ~ 125°C, Co=10μF unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Reference Voltage	Vref	Vin-VO=1.5V, Io=10mA, Tj=25°C	1.238	1.25	1.262	V
Reference Voltage	Vref	Io=10 to 800/1000mA, Vin-Vo=1V to 10V	1.225		1.275	V
Line Regulation	ΔVo	Vin-Vo=1V to 13.75V, Io=10mA		0.1	0.6	%
Load Regulation	ΔVo	Vin-Vo=1V, Io=10 to 800/1000mA		0.2	1	%
Temperature stability	ΔVo			0.50		%
Long Term Stability	ΔVo	1000 hrs, Tj=125°C		0.3		%
Operating Input Voltage	Vin				15	V
Adjustment Pin Current	Iadj	Vin≤15V		60	120	μA
Adjustment Pin Current Change	ΔIadj	Vin-Vo=1V to 10V, Io=10 to 800/1000mA		1	5	μA
Minimum Load Current	Io(min)	Vin=15V		2	5	mA
Output Current	Io	Vin-Vo=4.5V, Tj=25°C	800	950	1200	mA
Output Noise (%Vo)	eN	B=10Hz to 10KHz, Tj=25°C		0.003		%
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25°C, Vin-Vo=2.5V, Vripple=1Vpp	60	75		dB
Dropout Voltage	Vd	Io= 100mA Io= 500mA Io= 800mA Io=1000mA			0.4 0.6 0.8 0.9	V V V V
Thermal Regulation		Ta=25°C, 30ms Pulse		0.01	0.10	%/W

TYPICAL CHARACTERISTICS

Fig.1 Reference Voltge vs. Temperature

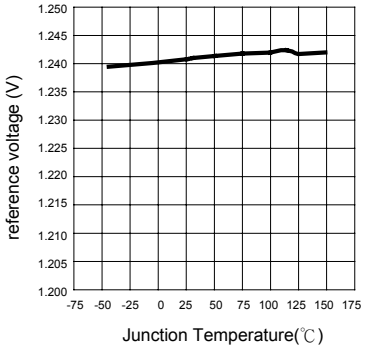


Fig.2 Output Voltage vs. Temperautre

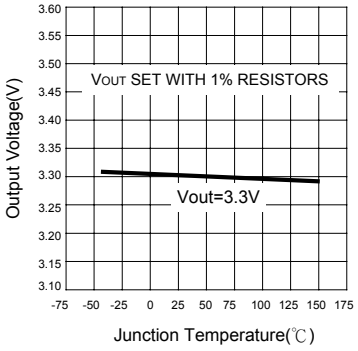


Fig.3 Maximum Power Dissipation