

## UZ1084

## LINEAR INTEGRATED CIRCUIT

## 5A ADJUSTABLE/FIXED LOW DROPOUT LINEAR REGULATOR

## ■ DESCRIPTION

The UTC **UZ1084-ADJ**/Fixed voltages are low dropout three-terminal regulators with 5A output current capability. These devices have been optimized for low voltage applications including VTT bus termination, where transient response and minimum input voltage are critical.

On-chip thermal limiting provides protection against any combination of overload and ambient temperature that would create excessive junction temperatures.

## ■ FEATURES

- \*Fast transient response
- \*Low dropout Voltage at up to 5A
- \*Load regulation : 0.5% typical
- \*On-chip thermal limiting

## ■ APPLICATIONS

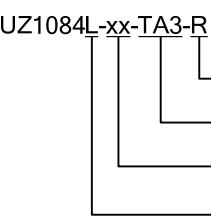
- \*Desktop PCs, RISC and embedded processors' supply
- \*GTI, SSTL logic reference bus supply
- \*Low voltage V<sub>CC</sub> logic supply
- \*Battery-powered circuitry
- \*Post regulator for switching supply
- \*Cable and ADSL modems' DSP core supply
- \*Set Top Boxes and Web Boxes modules' supply

## ■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UZ1084L-xx-TA3-T	UZ1084G-xx-TA3-T	TO-220	A/G	O	I	Tube
UZ1084L-xx-TF3-T	UZ1084G-xx-TF3-T	TO-220F	A/G	O	I	Tube
UZ1084L-xx-TN3-R	UZ1084G-xx-TN3-R	TO-252	A/G	O	I	Tape Reel
UZ1084L-xx-TN3-T	UZ1084G-xx-TN3-T	TO-252	A/G	O	I	Tube
UZ1084L-xx-TQ2-R	UZ1084G-xx-TQ2-R	TO-263	A/G	O	I	Tape Reel
UZ1084L-xx-TQ2-T	UZ1084G-xx-TQ2-T	TO-263	A/G	O	I	Tube
UZ1084L-xx-TQ3-R	UZ1084G-xx-TQ3-R	TO-263-3	A/G	O	I	Tape Reel
UZ1084L-xx-TQ3-T	UZ1084G-xx-TQ3-T	TO-263-3	A/G	O	I	Tube

Note: 1. xx: Output voltage, refer to Marking Information.

2. A: ADJ (for adjustable regulator), G: GND (for fixed regulator), O:V<sub>OUT</sub>, I:V<sub>IN</sub>

 (1)Packing Type (2)Package Type (3)Output Voltage Code (4)Lead Free	(1) R: Tape Reel, T: Tube
	(2) TA3: TO-220, TF3: TO-220F, TN3: TO-252, TQ2: TO-263, TQ3: TO-263-3
	(3) xx: refer to Marking Information
	(4) G: Halogen Free, L: Lead Free

### ■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-220	15 :1.5V	
TO-220F	18 :1.8V	
TO-252	25 :2.5V	
TO-263	33 :3.3V	
TO-263-3	50 :5.0V	
	AD:ADJ	<p>The marking diagram illustrates the pinout and marking scheme for the UZ1084 integrated circuit. The device is shown in a package with pins numbered 1, 2, and 3 at the bottom. Above the pins, the markings are as follows: 'UTC' in a box, 'UZ1084' in a larger box, and a small square box containing a character. Arrows point from specific labels to these markings: 'LOT Code' points to the small square box; 'Voltage Code' points to the 'XX' characters in the 'UZ1084' box; and 'Date Code' points to the small square box containing a character. To the right of the markings, text defines abbreviations: 'L: Lead Free', 'G: Halogen Free', and 'Date Code'.</p>

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

PARAMETER	SYMBOL	RATINGS	UNIT
DC Input Voltage	$V_{IN}$	15	V
Operating Temperature	$T_{OPR}$	0 ~ +125	°C
Storage Temperature	$T_{STG}$	-65 ~ 150	°C

Note: 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 Ambient	TO-252	112	°C/W
	TO-220		°C/W
	TO-263/TO-263-3		°C/W
Junction to Case	TO-252	12	°C/W
	TO-220		°C/W
	TO-263/TO-263-3		°C/W

■ ELECTRICAL CHARACTERISTICS

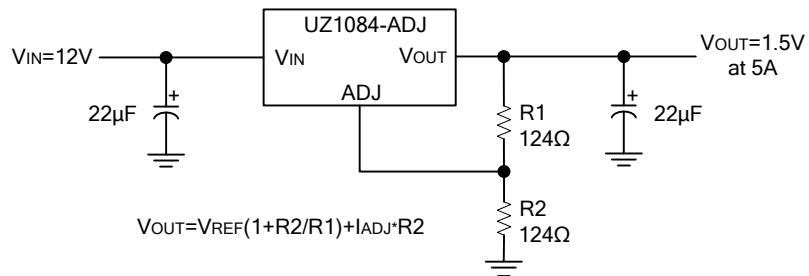
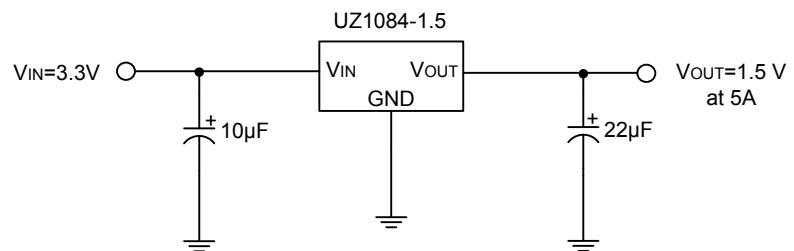
For UZ1084-Adjustable (Operating Conditions:  $4.75 \leq V_{IN} \leq 5.25$ ,  $T_J = 25^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	$V_{REF}$	$I_{OUT}=10\text{mA}$	1.23	1.25	1.27	V
Line Regulation	$\Delta V_{OUT}$	$I_{OUT}=10\text{mA}$		0.5	2	%
Load Regulation	$\Delta V_{OUT}$	$10\text{mA} \leq I_{OUT} \leq 5\text{A}$		0.5	2.5	%
Dropout Voltage	$V_D$	$\Delta V_{REF\%}=2\%$ , $I_{OUT}=5\text{A}$			1.5	V
Current Limit	$I_{LIMIT}$	$(V_{IN}-V_{OUT})=2\text{V}$	5.5	6.5		A
Adjust Pin Current	$I_{ADJ}$			35	100	μA
Adjust Pin Current Change	$\Delta I_{ADJ}$	$1.5\text{V} \leq (V_{IN}-V_{OUT}) \leq 5.75\text{V}$ , $10\text{mA} \leq I_{OUT} \leq 5\text{A}$			5	μA
Minimum Load Current	$I_{O(MIN)}$	$1.5\text{V} \leq (V_{IN}-V_{OUT}) \leq 5.75\text{V}$		5	10	mA
Thermal shutdown				150		°C

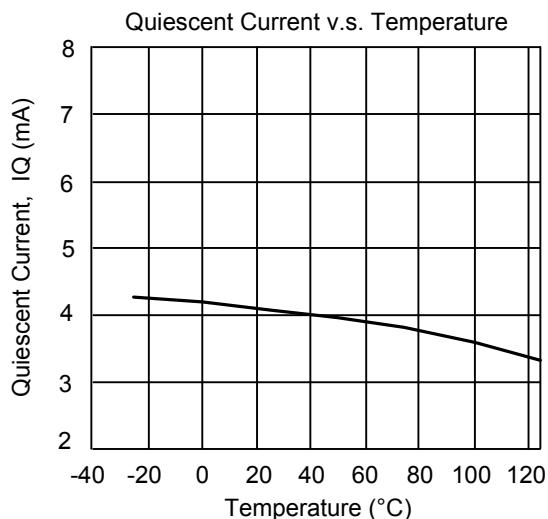
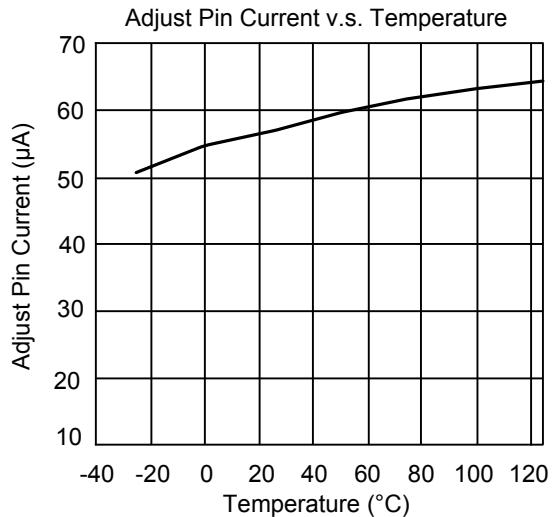
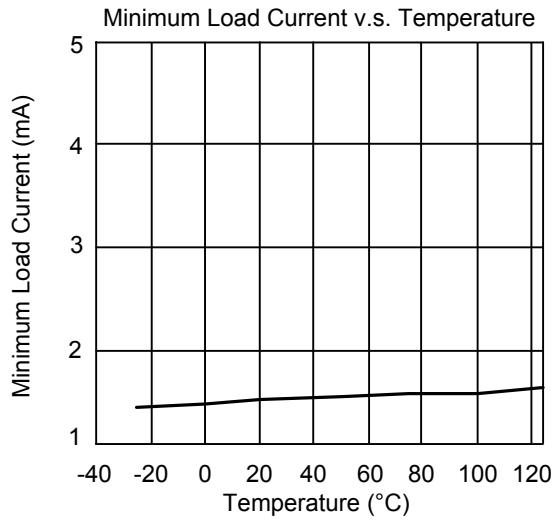
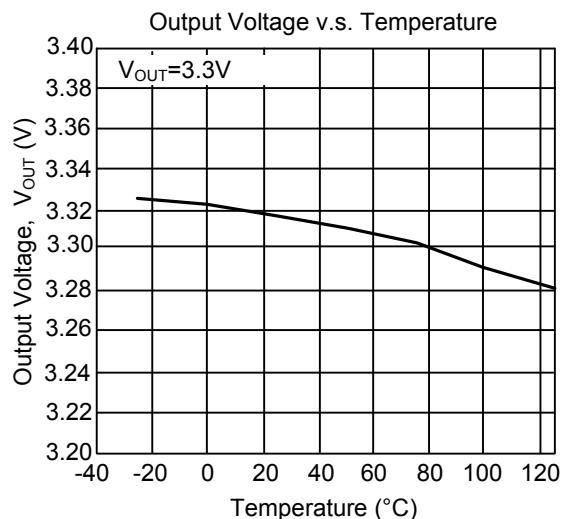
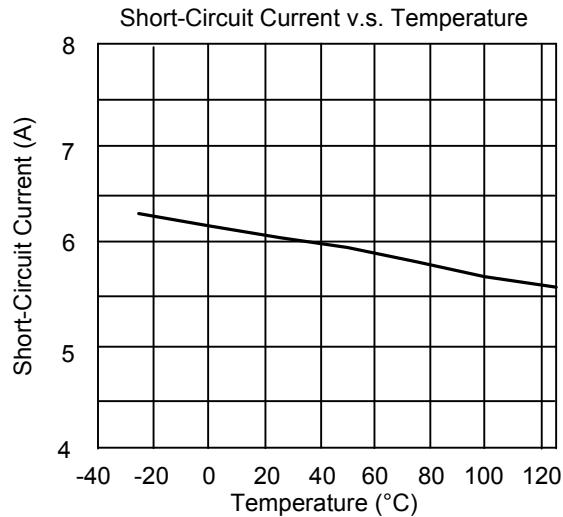
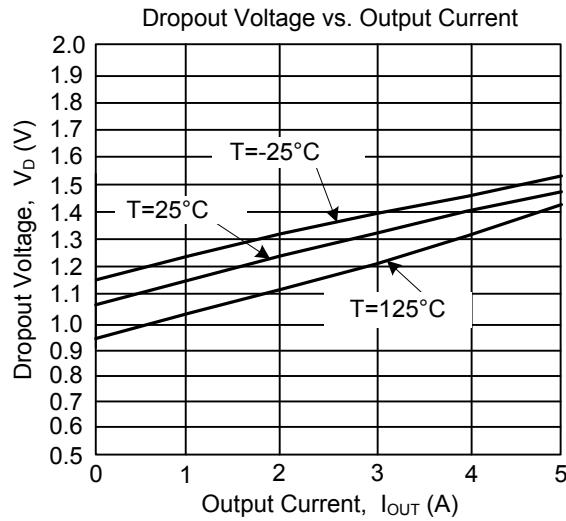
For UZ1084-xx (Fixed Voltage)

(Operating Conditions:  $1.5\text{V} \leq (V_{IN}-V_{OUT}) \leq 5.75\text{V}$ ,  $T_J=25^\circ\text{C}$  unless otherwise specified)

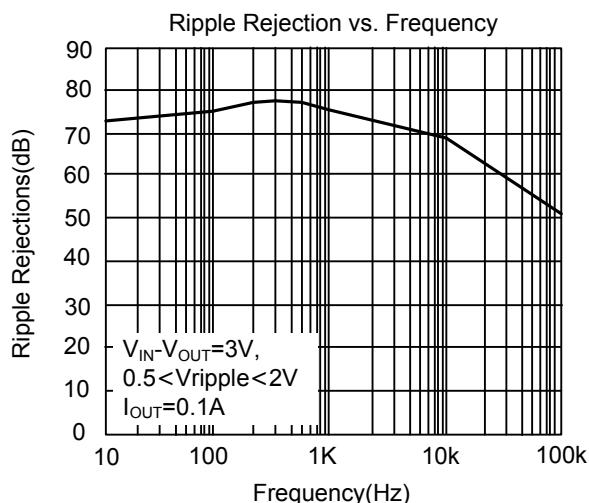
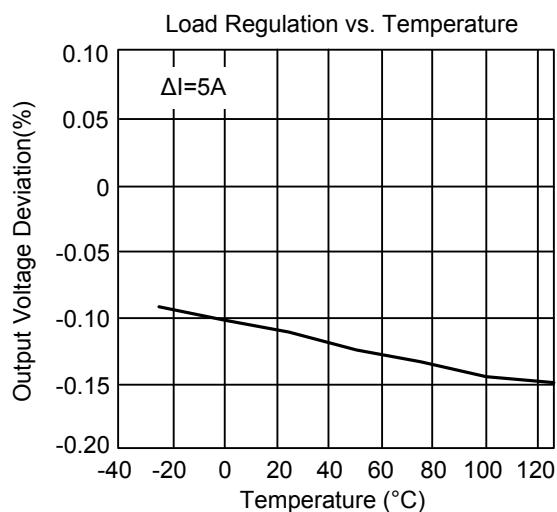
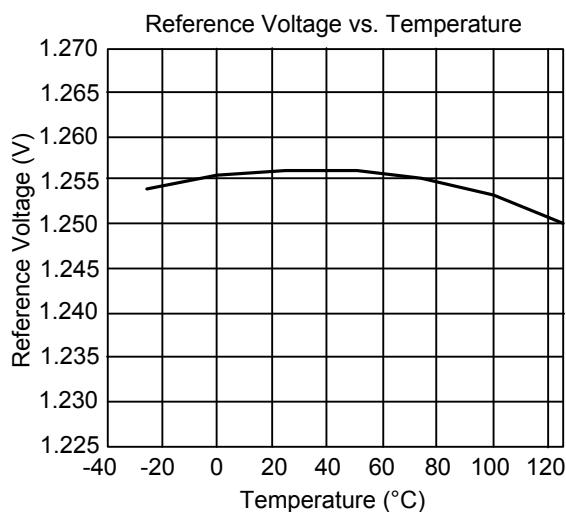
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	UZ1084-15 $I_{OUT}=10\text{mA}$	1%	1.485	1.5	1.515
			2%	1.470	1.5	1.530
		UZ1084-18 $I_{OUT}=10\text{mA}$	1%	1.782	1.8	1.818
			2%	1.764	1.8	1.836
		UZ1084-25 $I_{OUT}=10\text{mA}$	1%	2.475	2.5	2.525
			2%	2.450	2.5	2.550
		UZ1084-33 $I_{OUT}=10\text{mA}$	1%	3.267	3.3	3.333
			2%	3.234	3.3	3.366
		UZ1084-50 $I_{OUT}=10\text{mA}$	1%	4.950	5.0	5.050
			2%	4.900	5.0	5.100
Line Regulation	$\Delta V_{OUT}$	$I_{OUT}=10\text{mA}$		0.5	2	%
Load Regulation	$\Delta V_{OUT}$	$10\text{mA} \leq I_{OUT} \leq 5\text{A}$		0.5	2.5	%
Dropout Voltage	$V_D$	$\Delta V_{REF\%}=2\%$ , $I_{OUT}=5\text{A}$			1.5	V
Current Limit	$I_{LIMIT}$	$(V_{IN}-V_{OUT})=2\text{V}$	5.5	6.5		A
Minimum Load Current	$\Delta I_{ADJ}$	$1.5\text{V} \leq (V_{IN}-V_{OUT}) \leq 5.75\text{V}$		5	10	mA
Quiescent Current	$I_Q$	$V_{IN}=12\text{V}$		10	13	mA
Thermal shutdown				150		°C

**■ TYPICAL APPLICATION CIRCUITS****Adjustable Voltage Regulator****Fixed Voltage Regulator**

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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