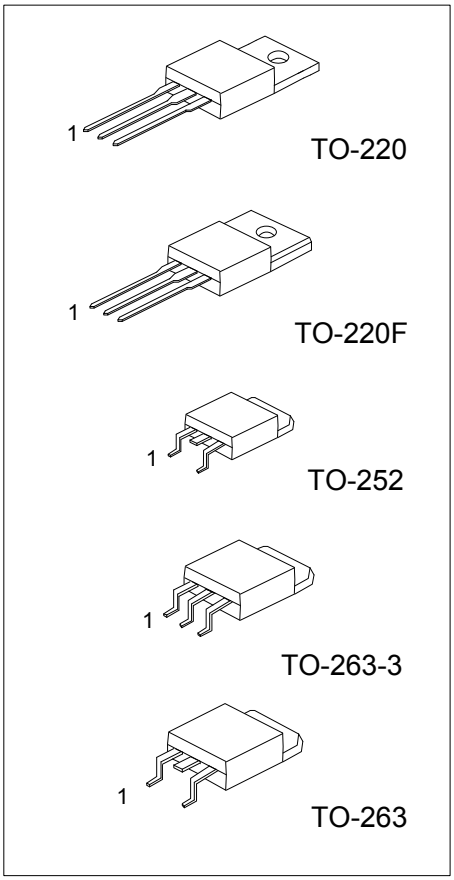
5A ADJUSTABLE/FIXED LOW DROPOUT LINEAR REGULATOR



■ 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

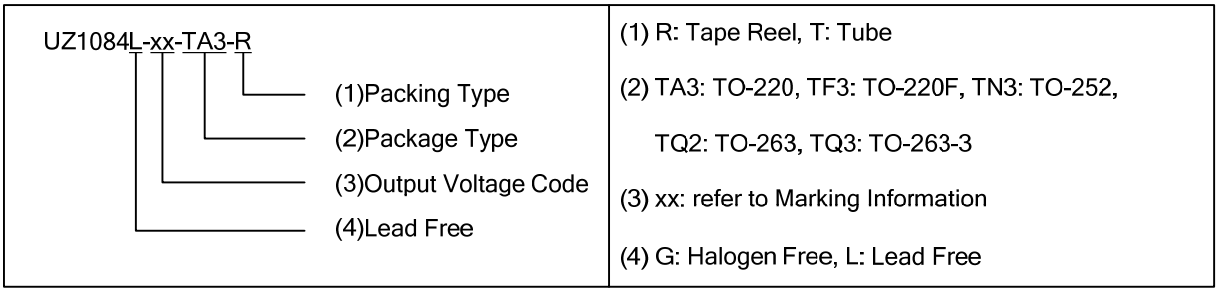
■ APPLICATIONS

*Desktop PCs, RISC and embedded processors' supply
*GTI, SSTL logic reference bus supply
*Low voltage V_{CC} 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

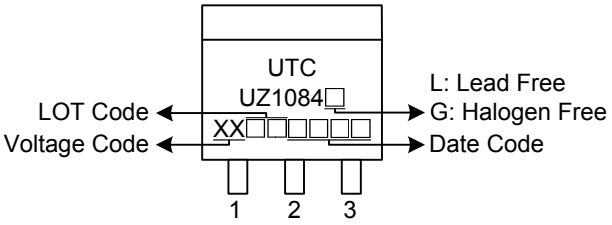
■ ORDERING INFORMATION

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_{OUT}, I:V_{IN}



■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-220 TO-220F TO-252 TO-263 TO-263-3	15 :1.5V 18 :1.8V 25 :2.5V 33 :3.3V 50 :5.0V AD:ADJ	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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	θ_{JA}	112	°C/W
	TO-220		54	°C/W
	TO-263/TO-263-3		64	°C/W
Junction to Case	TO-252	θ_{JC}	12	°C/W
	TO-220		4	°C/W
	TO-263/TO-263-3		4	°C/W

■ ELECTRICAL CHARACTERISTICS

For UZ1084-Adjustable (Operating Conditions: 4.75≤V_{IN}≤5.25, T_J =25°C unless otherwise specified)

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

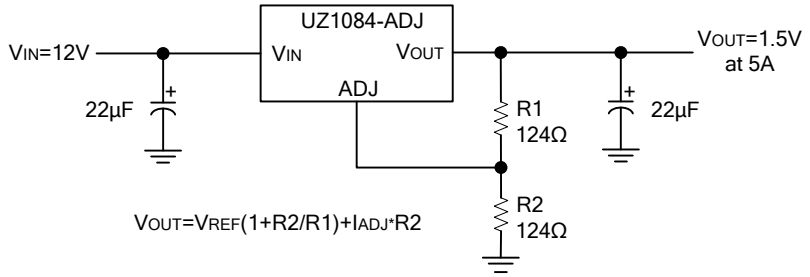
For UZ1084-xx (Fixed Voltage)

(Operating Conditions: 1.5V≤ (V_{IN}-V_{OUT}) ≤5.75V, T_J=25°C unless otherwise specified)

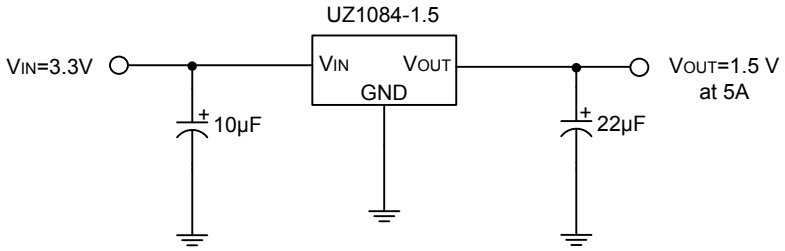
PARAMETER	SYMBOL	TEST CONDITIONS			MIN.	TYP	MAX	UNIT
Output Voltage	V_{OUT}	UZ1084-15	I_{OUT}=10mA	1%	1.485	1.5	1.515	V
				2%	1.470	1.5	1.530	V
		UZ1084-18	I_{OUT}=10mA	1%	1.782	1.8	1.818	V
				2%	1.764	1.8	1.836	V
		UZ1084-25	I_{OUT}=10mA	1%	2.475	2.5	2.525	V
				2%	2.450	2.5	2.550	V
		UZ1084-33	I_{OUT}=10mA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

■ TYPICAL APPLICATION CIRCUITS

Adjustable Voltage Regulator

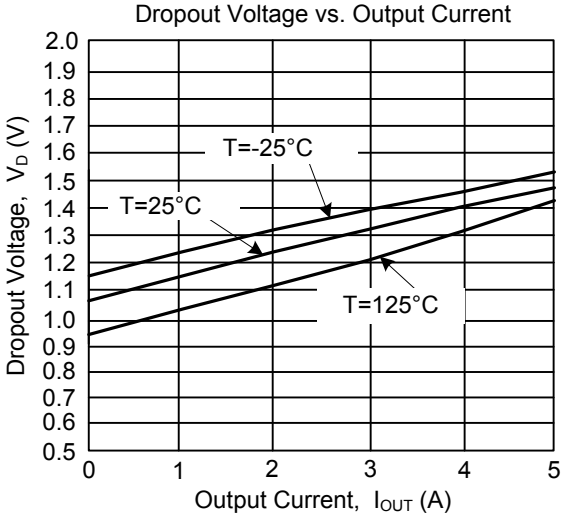


Fixed Voltage Regulator

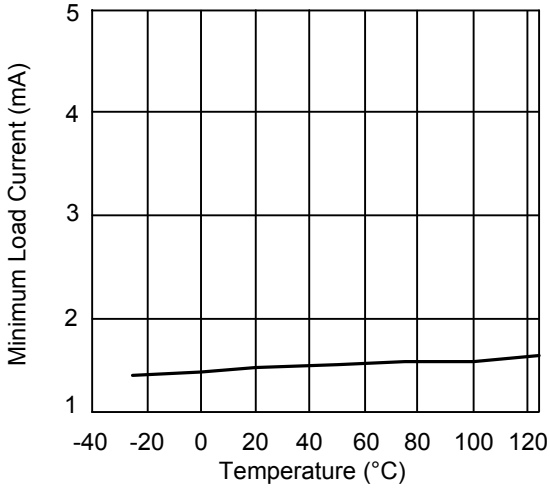


■ TYPICAL CHARACTERISTICS

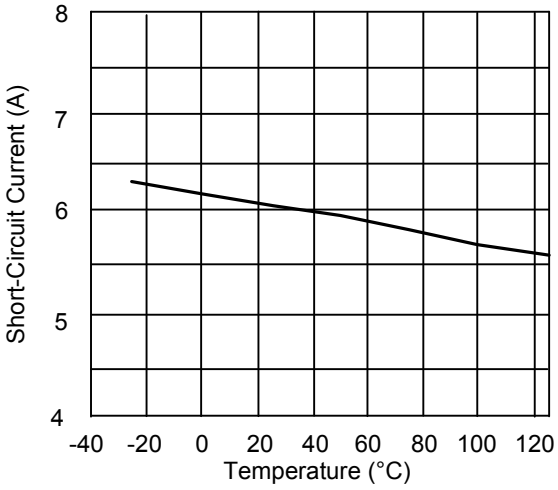
Dropout Voltage vs. Output Current



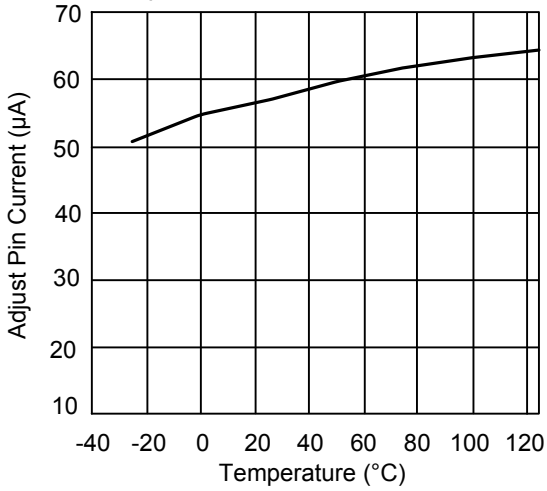
Minimum Load Current v.s. Temperature



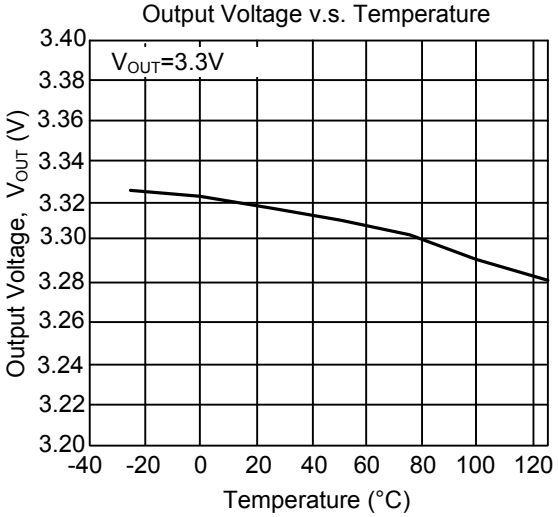
Short-Circuit Current v.s. Temperature



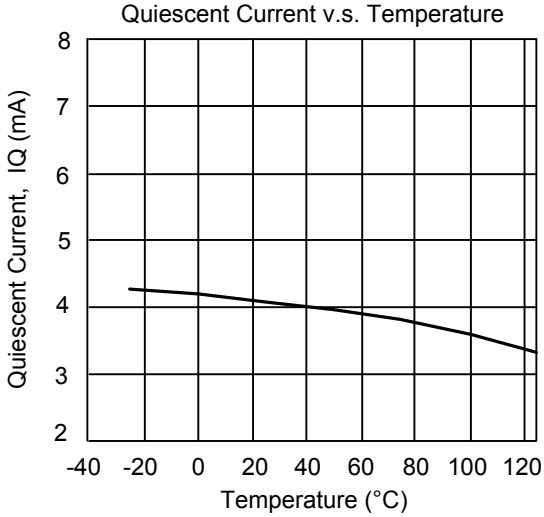
Adjust Pin Current v.s. Temperature



Output Voltage v.s. Temperature

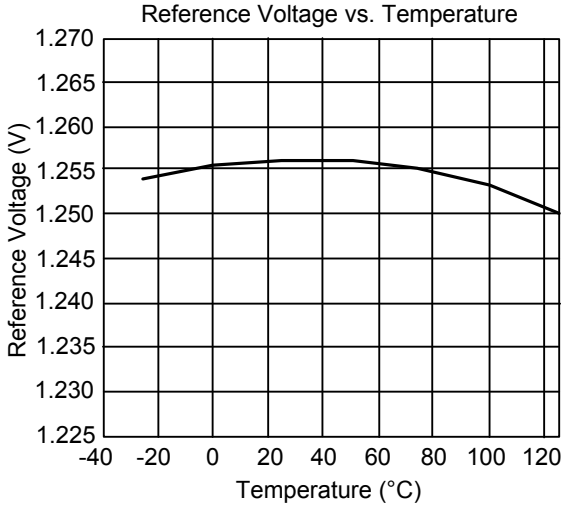


Quiescent Current v.s. Temperature

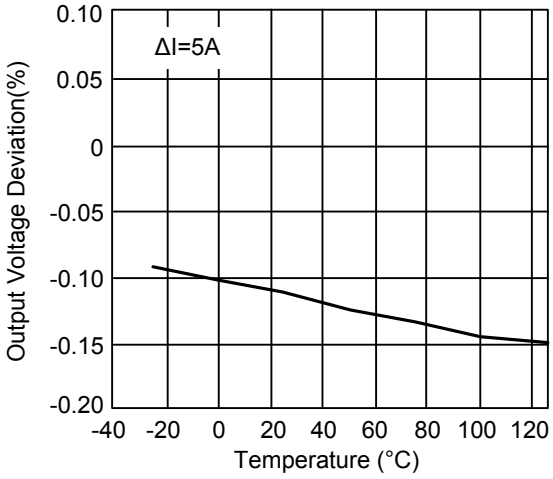


■ TYPICAL CHARACTERISTICS(Cont.)

Reference Voltage vs. Temperature



Load Regulation vs. Temperature



Ripple Rejection vs. Frequency