



UZ1085

LINEAR INTEGRATED CIRCUIT

3A ADJUSTABLE/FIXED LOW DROPOUT LINEAR REGULATOR

DESCRIPTION

The UTC **UZ1085-xx** series are low dropout three-terminal regulators with 3A 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.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. 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 3A
- *Load regulation:0.05% typical
- *Trimmed current limit
- *On-chip thermal limiting

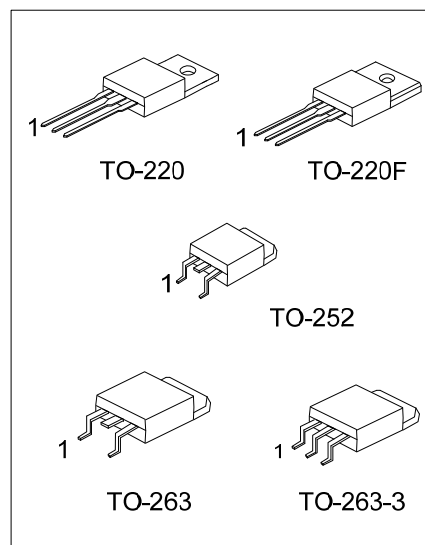
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UZ1085L-xx-TA3-T	UZ1085G-xx-TA3-T	TO-220	A/G	O	I	Tube
UZ1085L-xx-TF3-T	UZ1085G-xx-TF3-T	TO-220F	A/G	O	I	Tube
UZ1085L-xx-TN3-R	UZ1085G-xx-TN3-R	TO-252	A/G	O	I	Tape Reel
UZ1085L-xx-TQ2-T	UZ1085G-xx-TQ2-T	TO-263	A/G	O	I	Tube
UZ1085L-xx-TQ2-R	UZ1085G-xx-TQ2-R	TO-263	A/G	O	I	Tape Reel
UZ1085L-xx-TQ3-T	UZ1085G-xx-TQ3-T	TO-263-3	A/G	O	I	Tube
UZ1085L-xx-TQ3-R	UZ1085G-xx-TQ3-R	TO-263-3	A/G	O	I	Tape Reel

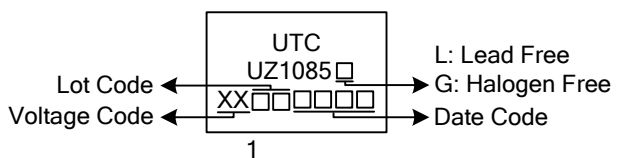
Note: 1. xx: Output Voltage, refer to Marking Information.

2. A: ADJ (for adjustable regulator), G: GND (for fixed regulator), O: V_{OUT} , I: V_{IN}

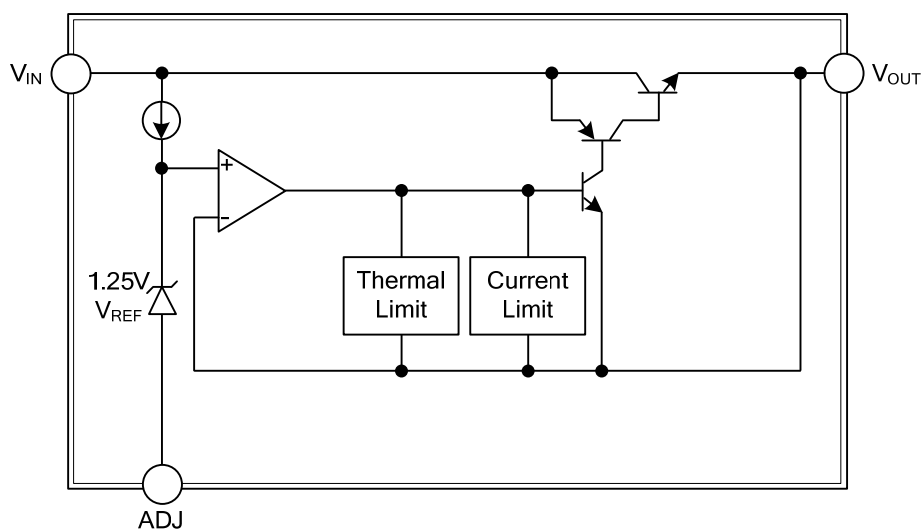
UZ1085G-xx-TA3-T	(1) Packing Type (2) Package Type (3) Output Voltage Code (4) Green Package	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF3: TO-220F, TN3: TO-252 TQ2: TO-263, TQ3: TO-263-3 (3) xx: refer to Marking Information (4) G: Halogen Free and Lead Free, L: Lead Free
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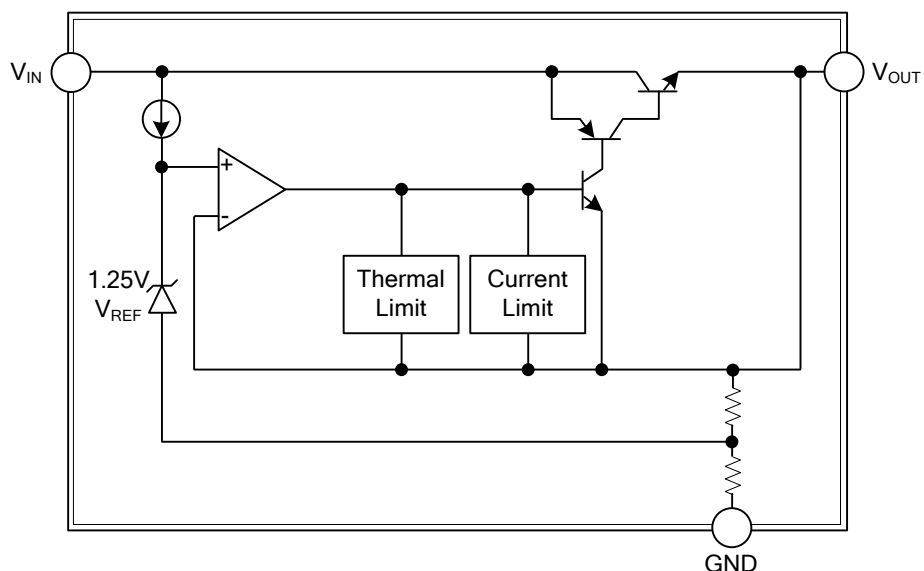
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-220	15 : 1.5V	 Lot Code ← UTC UZ1085 □ Voltage Code ← XX □ □ □ □ □ Date Code → 1 L: Lead Free G: Halogen Free
TO-220F	18 : 1.8V	
TO-252	25 : 2.5V	
TO-263	33 : 3.3V	
TO-263	50 : 5.0V	
TO-263-3	AD: ADJ	

BLOCK DIAGRAM



For Adjustable Voltage



For Fixed Voltage

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	18	V
Junction Temperature	T_J	+125	°C
Operating Temperature	T_{OPR}	-40 ~ +125	°C
Storage Temperature	T_{STG}	-40 ~ +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}	118	°C/W
	TO-220/TO-220F TO-263/ TO-263-3		62	
	Junction to Case		TO-252	
TO-220/TO-263 TO-263-3		4		
TO-220F		7.6		

■ ELECTRICAL CHARACTERISTICS ($C_{OUT}=22\mu F$, $T_A=25^\circ C$, unless otherwise specified.)

For UZ1085-ADJ (Adjustable)

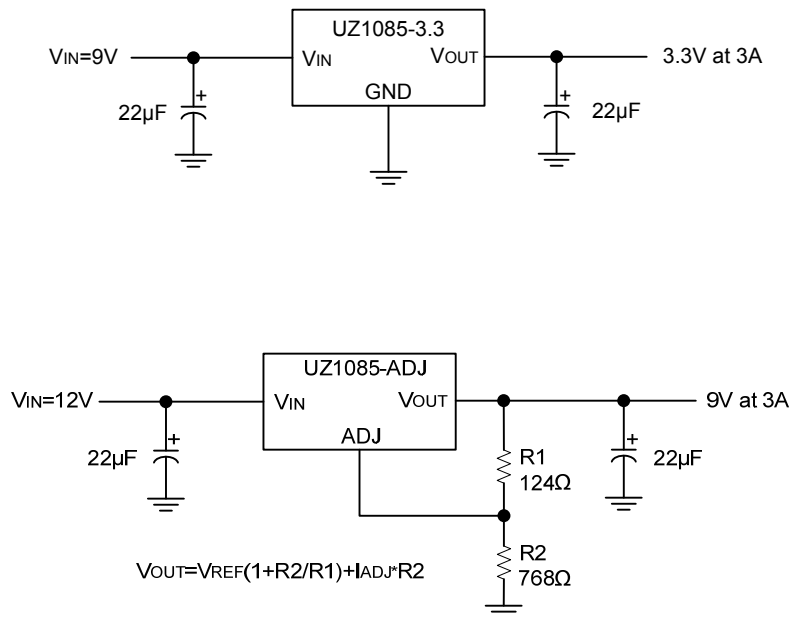
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	V_{REF}	$1.5V \leq (V_{IN} - V_{OUT}) \leq 8.25V$, $10mA \leq I_{OUT} \leq 3A$	1.225	1.25	1.275	V
Line Regulation	ΔV_{OUT}	$(V_{OUT} + 1.5V) \leq V_{IN} \leq 12V$, $I_{OUT}=10mA$		0.005	0.2	%
Load Regulation	ΔV_{OUT}	$(V_{IN} - V_{OUT})=3V$, $10mA \leq I_{OUT} \leq 3A$		0.05	0.5	%
Dropout Voltage	V_D	$\Delta V_{REF}\%=1\%$, $I_{OUT}=3A$		1.30	1.40	V
Current Limit	I_{LIMIT}	$(V_{IN}-V_{OUT})=2V$	3.1	4		A
Adjust Pin Current	I_{ADJ}			35	120	μA
Adjust Pin Current Change	ΔI_{ADJ}	$1.5V \leq (V_{IN} - V_{OUT}) \leq 12V$, $10mA \leq I_{OUT} \leq 3A$		0.2	5	μA
Minimum Load Current	$I_{O(MIN)}$	$1.5V \leq (V_{IN}-V_{OUT}) \leq 12V$			10	mA
Quiescent Current	I_Q	$V_{IN}=12V$		4	13	mA
Ripple Rejection	RR	$f=120Hz$, Tantalum, $(V_{IN}-V_{OUT})=3V$, $I_{OUT}=3A$	60	72		dB
Thermal Regulation		$T_A=25^\circ C$, 30ms pulse		0.004	0.02	%/W
Temperature Stability	ΔV_{OUT}			0.5		%
Long-Term Stability	ΔV_{OUT}	$T_A=125^\circ C$, 1000hr		0.03	1.0	%
Output Noise(% of V_{OUT})	eN	$T_A=25^\circ C$, $10Hz \leq f \leq 10kHz$		0.003		%
Thermal Shutdown				150		°C

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, $C_{OUT}=22\mu\text{F}$, unless otherwise specified.)

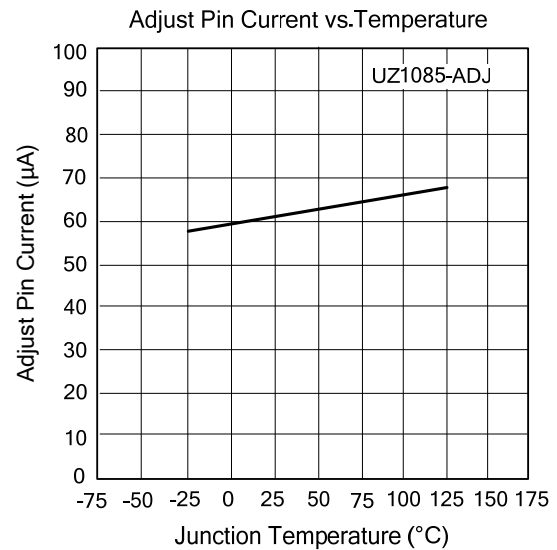
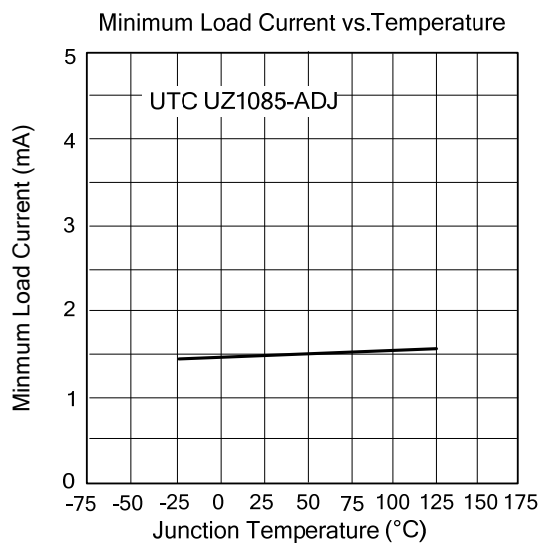
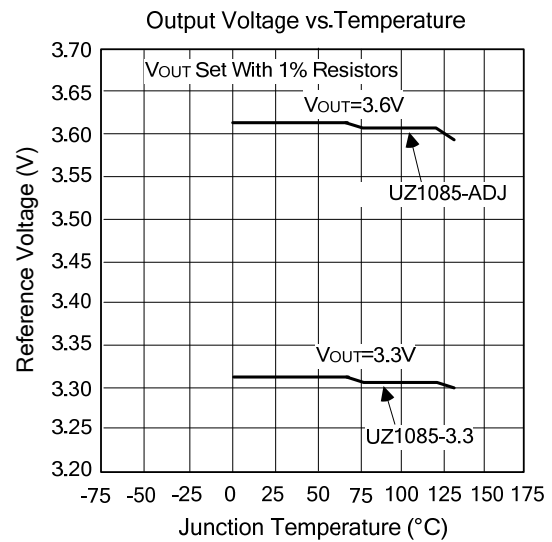
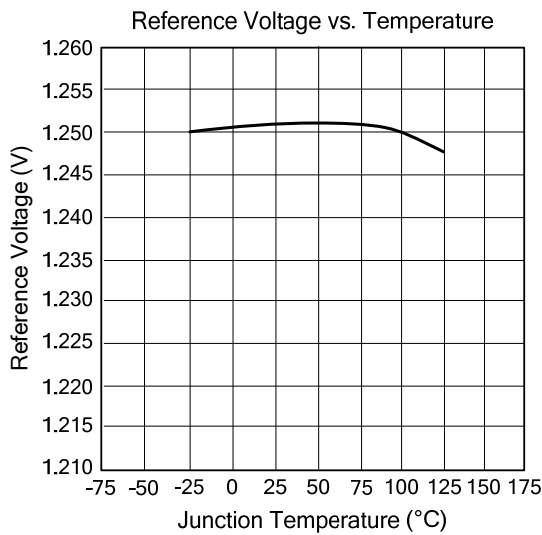
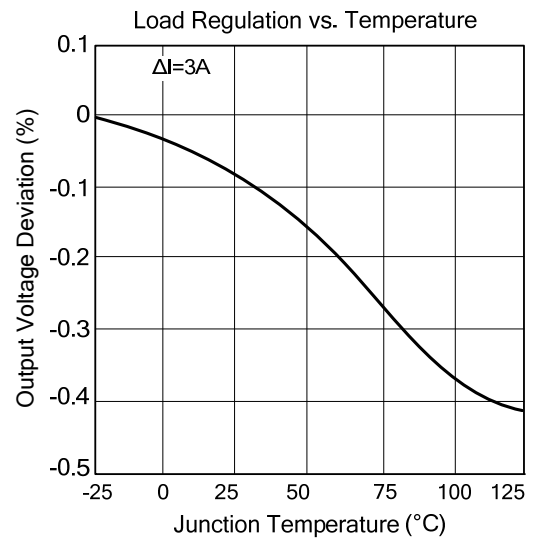
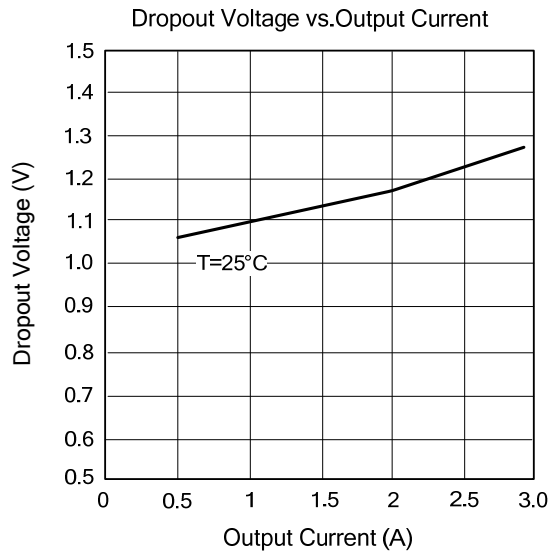
For UZ1085-xx (Fixed Voltage)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Output Voltage	UZ1085-15	V _{OUT}	3.0V≤V _{IN} ≤8.5V, 10mA≤I _{OUT} ≤3A	1.470	1.5	1.530	V	
	UZ1085-18		3.3V≤V _{IN} ≤8.8V, 10mA≤I _{OUT} ≤3A	1.764	1.8	1.830	V	
	UZ1085-25		4.0V≤V _{IN} ≤9.5V, 10mA≤I _{OUT} ≤3A	2.450	2.5	2.550	V	
	UZ1085-33		4.8V≤V _{IN} ≤10.3V, 10mA≤I _{OUT} ≤3A	3.234	3.3	3.366	V	
	UZ1085-50		6.5V≤V _{IN} ≤12V, 10mA≤I _{OUT} ≤3A	4.900	5.0	5.100	V	
Line Regulation		△V _{OUT}	(V _{OUT} +1.5V) ≤V _{IN} ≤12V, I _{OUT} =10mA			0.005	0.2	%
Load Regulation		△V _{OUT}	(V _{IN} – V _{OUT})=3V, 10mA ≤ I _{OUT} ≤3A			0.05	0.5	%
Dropout Voltage		V _D	△V _{REF} %=1%, I _{OUT} =3A			1.30	1.40	V
Current Limit		I _{LIMIT}	(V _{IN} -V _{OUT})=2V		3.1	4		A
Minimum Load Current		I _{O(MIN)}	1.5V≤ (V _{IN} -V _{OUT}) ≤12V				10	mA
Quiescent Current		I _Q	V _{IN} =12V			4	13	mA
Ripple Rejection		RR	f=120Hz, Tantalum, (V _{IN} -V _{OUT})=3V, I _{OUT} =3A		60	72		dB
Thermal Regulation			T _A =25°C,30ms pulse			0.004	0.02	%/W
Temperature Stability		△V _{OUT}	T _A =125°C, 1000hr			0.5		%
Long-Term Stability		△V _{OUT}				0.03	1.0	%
Output Noise(% of V _{OUT})		eN	T _A =25°C,10Hz≤f≤10kHz			0.003		%
Thermal shutdown						150		°C

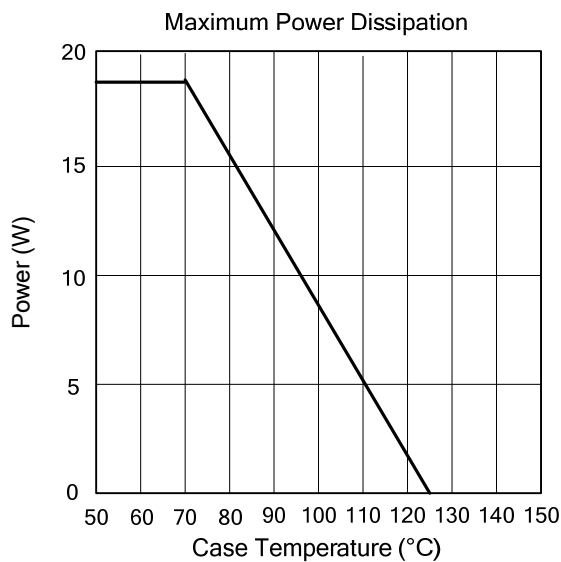
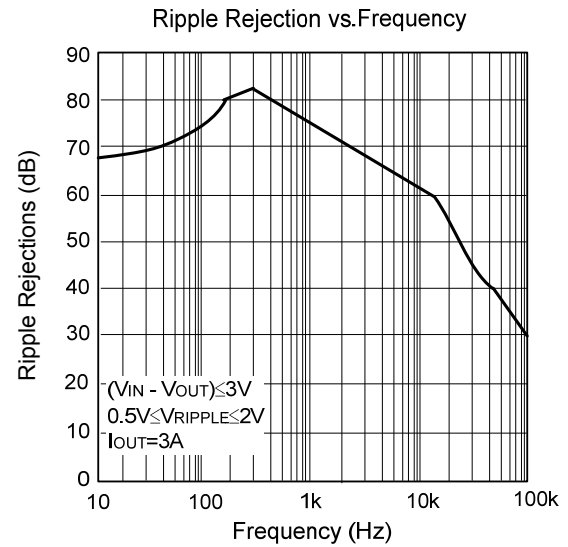
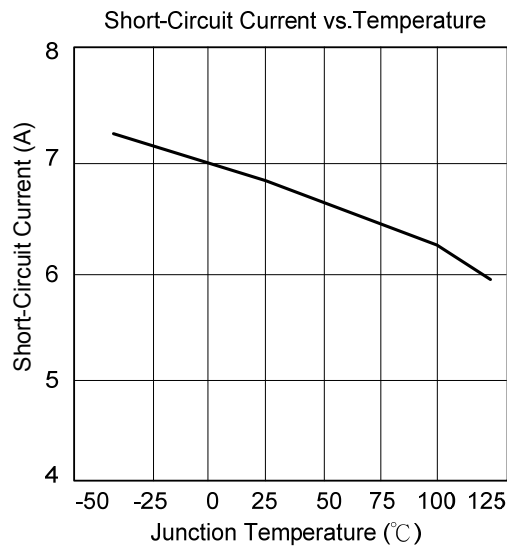
■ TYPICAL APPLICATION CIRCUIT



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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