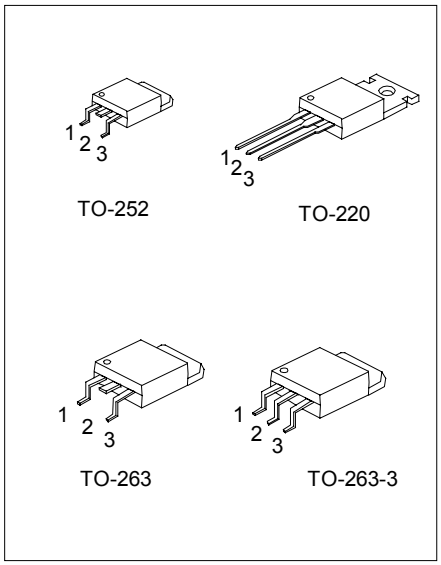
UTC UZ1085 LINEAR INTEGRATED CIRCUIT

3A ADJUSTABLE/FIXED LOW DROPOUT LINEAR REGULATOR



1: ADJ/GND 2: V_{OUT} 3: V_{IN}

DESCRIPTION

The UZ1085-ADJ,UZ1085-Fixed 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

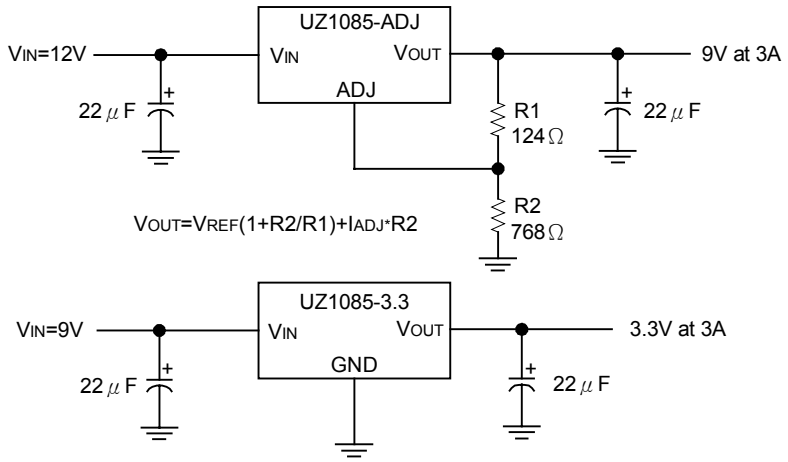
APPLICATIONS

*Pentium Class GTL+bus supply

*Low voltage logic supply

*Post regulator for switching supply

TYPICAL APPLICATIONS



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	18	V
(V_{IN} – V_{OUT}) * I_{OUT}		See Figure 1	
Operating Junction Temperature Range	Tj	0~125	℃
Storage Temperature Range	T_{stg}	-65~150	℃
Lead Temperature(Soldering,10 sec.)	T_{lead}	300	℃

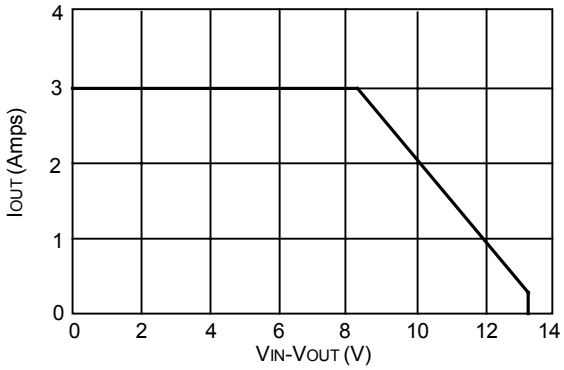


Figure 1. Absolute Maximum Sate Operating Area

UTC UZ1085-ADJ(ADJUSTABLE) ELECTRICAL CHARACTERISTICS

(Tj=25℃ unless otherwise specified)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Reference Voltage	1.5V≦(V_{IN} – V_{OUT})≦8.25V 10mA≦I_{OUT}≦3A	1.225	1.25	1.275	V
Line Regulation	(V_{OUT} +1.5V) ≦V_{IN}≦12V, I_{OUT}=10mA		0.005	0.2	%
Load Regulation	(V_{IN} – V_{OUT})=3V 10mA≦I_{OUT}≦3A		0.05	0.5	%
Dropout Voltage	△V_{REF}%=1%,$I_{O=3}$A		1.30	1.40	V
Current Limit	(V_{IN}-V_{OUT})=2V	3.1	4		A
Adjust Pin Current			35	120	μA
Adjust Pin Current Change	1.5V≦（V_{IN} – V_{OUT}）≦12V， 10mA≦I_{OUT}≦3A		0.2	5	μA
Minimum Load Current	1.5V≦(V_{IN}-V_{OUT})≦12V			10	mA
Quiescent Current	V_{IN}=12V		4	13	mA
Ripple Rejection	f=120Hz，C_{OUT}=22μF Tatalum, (V_{IN} – V_{OUT})=3V,I_{OUT}=3A	60	72		dB
Thermal Regulation	T_A=25℃,30ms pulse		0.004	0.02	%/W
Temperature Stability			0.5		%
Long-Term Stability	T_A=125℃, 1000hr		0.03	1.0	%
RMS Output Noise(% of V_{OUT})	TA=25℃,10Hz≦f≦10kHz		0.003		%
Thermal Resistance, Junction to Case (TO-220/TO-252/TO-263/TO-263-3)			3		°C/W
Thermal shutdown			150		℃

UTC UZ1085-X.X(FIXED VOLTAGE) ELECTRICAL CHARACTERISTICS

(Tj=25℃ unless otherwise specified)

PARAMETER		CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	UZ1085-1.5	3.0V≤V_{IN}≤8.5V 10mA≤I_{OUT}≤3A	1.470	1.5	1.530	V
	UZ1085-1.8V	3.3V≤V_{IN}≤8.8V 10mA≤I_{OUT}≤3A	1.764	1.8	1.830	
	UZ1085-2.5V	4.0V≤V_{IN}≤9.5V 10mA≤I_{OUT}≤3A	2.450	2.5	2.550	
	UZ1085-3.3	4.8V≦V_{IN}≦10.3V 10mA≦I_{OUT}≦3A	3.234	3.3	3.366	
	UZ1085-5.0	6.5V≦V_{IN}≦12V 10mA≦I_{OUT}≦3A	4.900	5.0	5.100	
Line Regulation		(V_{OUT} +1.5V) ≦V_{IN}≦12V, I_{OUT}=10mA		0.005	0.2	%
Load Regulation		(V_{IN} – V_{OUT})=3V 10mA≦I_{OUT}≦3A		0.05	0.5	%
Dropout Voltage		△V_{REF}%=1%,I_O=3A		1.30	1.40	V
Current Limit		(V_{IN}-V_{OUT})=2V	3.1	4		A
Minimum Load Current		1.5V≦(V_{IN}-V_{OUT})≦12V			10	mA
Quiescent Current		V_{IN}=12V		4	13	mA
Ripple Rejection		f=120Hz，C_{OUT}=22μF Tatalum, (V_{IN} – V_{OUT})=3V,I_{OUT}=3A	60	72		dB
Thermal Regulation		T_A=25℃,30ms pulse		0.004	0.02	%/W
Temperature Stability				0.5		%
Long-Term Stability		T_A=125℃, 1000hr		0.03	1.0	%
RMS Output Noise(% of Vout)		TA=25℃,10Hz≦f≦10kHz		0.003		%
Thermal Resistance, Junction to Case (TO-220/TO-252/TO-263/TO-263-3)				3		°C/W
Thermal shutdown				150		℃

TYPICAL PERFORMANCE CHARACTERIISTICS

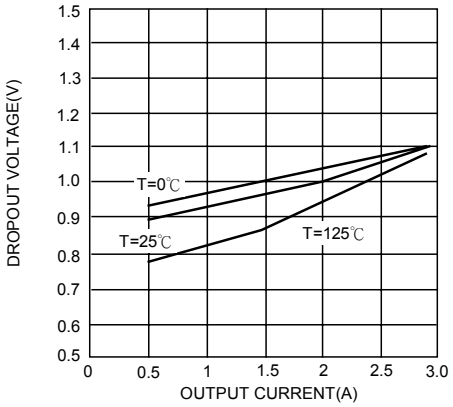


Figure 2. Dropout Voltage vs.Output Current

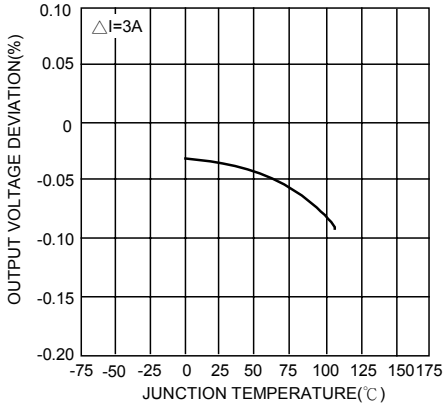


Figure 3. Load Regulation vs.Temperature

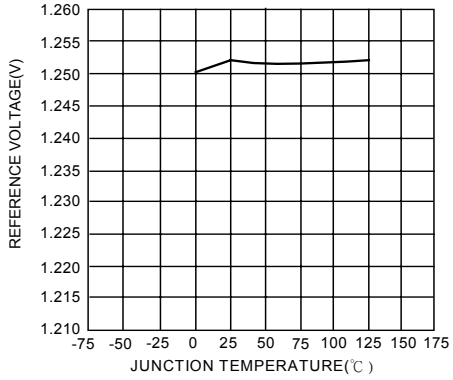


Figure 4. Reference Voltage vs.Temperature

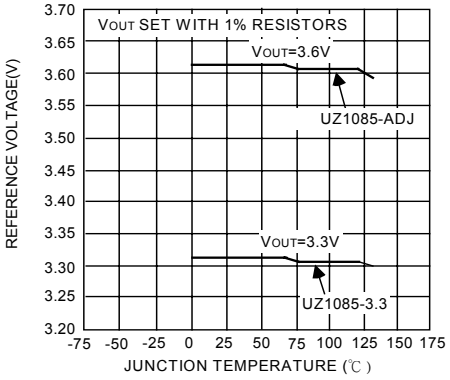


Figure 5. Output Voltage vs.Temperature

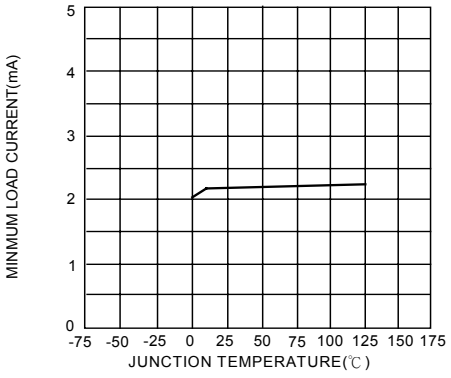


Figure 6. Minimum Load Current vs.Temperature

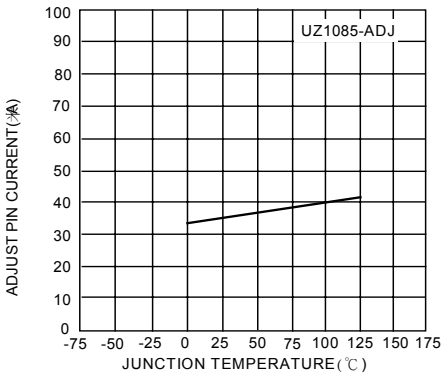


Figure 7. Adjust Pin Current vs.Temperature

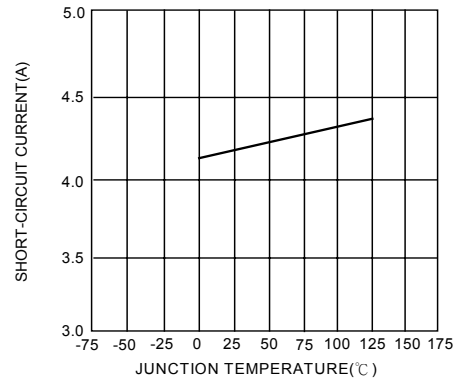


Figure 8. Short-Circuit Current vs.Temperature

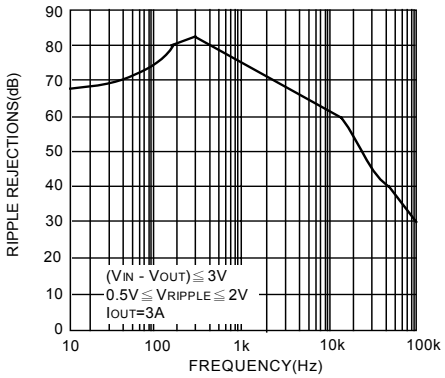


Figure 9. Ripple Rejection vs.Frequency

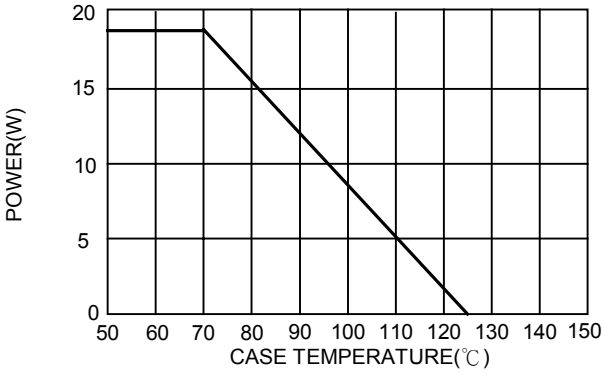


Figure 10. Maximum Power Dissipation