



L1183B

CMOS IC

300mA CMOS LDO

■ DESCRIPTION

The UTC **L1183B** is a positive, linear regulator. One of the feature is the very low ground current typically as low as 30 μ A, and the dropout voltage is extremely low. For stable operation, the output capacitance value should be 2.2 μ F or more.

The internal circuit includes thermal shutdown and current fold-back device to prevent device failure when the circuit is operated in bad conditions.

The UTC **L1183B** is generally suitable for applications, such as instrumentation, portable electronics, wireless devices, cordless phones, PC peripherals, battery powered widgets.

■ FEATURES

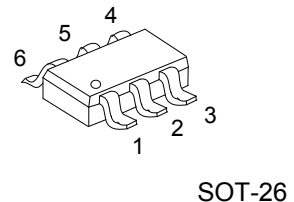
- * Very Low Dropout Voltage
- * Guaranteed Output Current: 300mA
- * Quiescent Current: 30 μ A (TYP.)
- * Typical Accuracy Within 2%
- * Over-Temperature Shutdown
- * Current Limiting
- * Short Circuit Current Fold-Back
- * Power Good Detector (6 pin version only)
- * Power-Saving Shutdown Mode
- * Adjustable Output Voltages
- * Low Temperature Coefficient
- * RoHS-Compliant Product

■ ORDERING INFORMATION

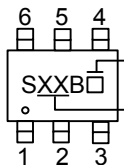
Ordering Number		Package	Packing
Lead Free	Halogen Free		
L1183BG-xx-AG6-R	L1183BG-xx-AG6-R	SOT-26	Tape Reel

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

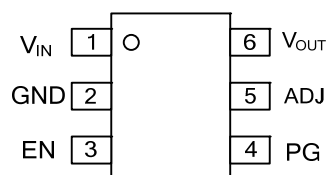
L1183BL-xx-AG6-R	(1) Packing Type	(1) R: Tape Reel
	(2) Package Type	(2) AG6: SOT-26
	(3) Output Voltage Code	(3) xx: Refer to Marking Information
	(4) Lead Free	(4) L: Lead Free, G: Halogen Free



MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-26	12 : 1.2V 15 : 1.5V 28 : 2.8V 31 : 3.1V 33 : 3.3V	 G: Halogen Free L: Lead Free Voltage Code

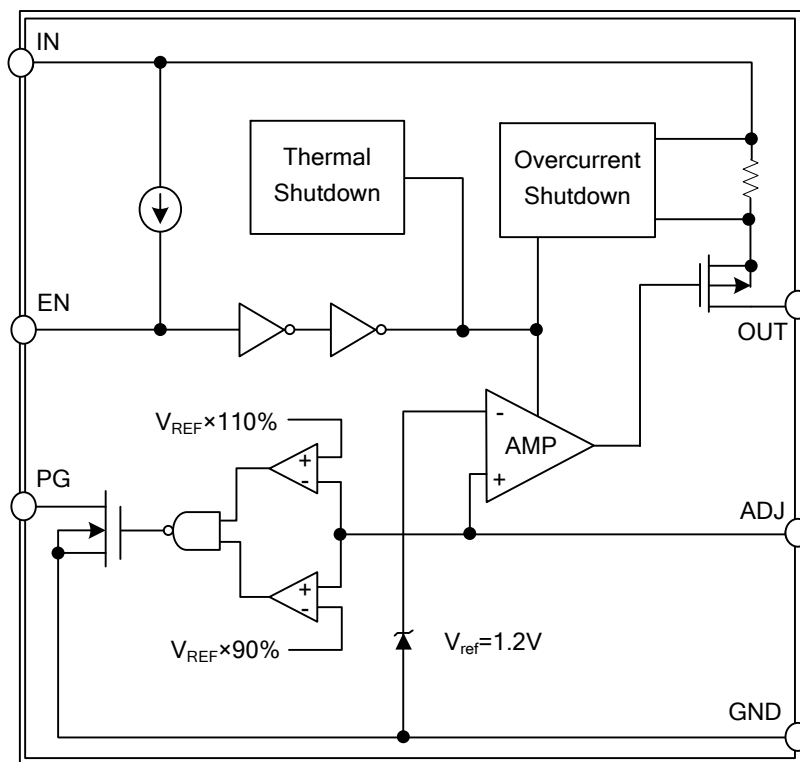
PIN CONFIGURATION



PIN DESCRIPTION

PIN NO	PIN NAME	DESCRIPTION
1	V _{IN}	Input voltage pin
2	GND	Ground connection pin
3	EN	Enable pin
4	PG	Power-Good output
5	ADJ	Feedback output voltage for adjustable device
6	V _{OUT}	LDO voltage regulator output pin

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	8	V
Input, Output Voltage		GND - 0.3 ~ $V_{IN} + 0.3$	V
Output Current	I_{OUT}	$P_D / (V_{IN} - V_{OUT})$	mA
Power Dissipation	P_D	400	mW
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Junction Temperature	T_J	-40 ~ +125	°C

Notes: 1. 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.

2. Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device.

■ THERMAL DATA

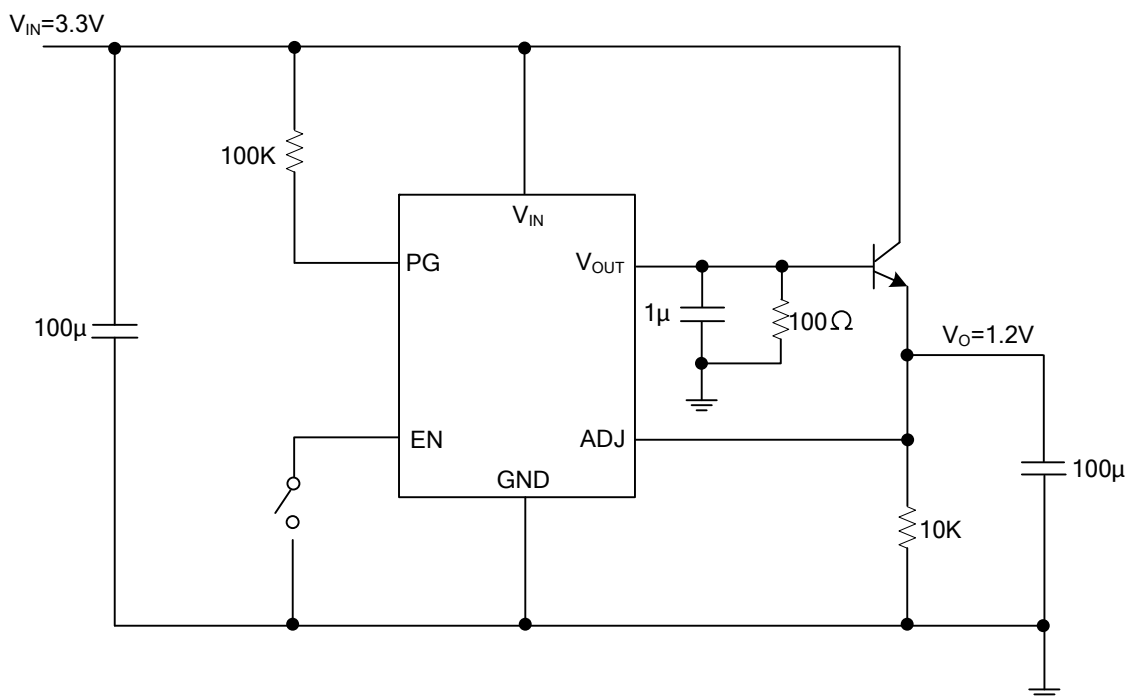
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	280	°C/W
Junction to Case	θ_{JC}	140	

■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, $V_{IN}=5\text{V}$ unless otherwise specified)

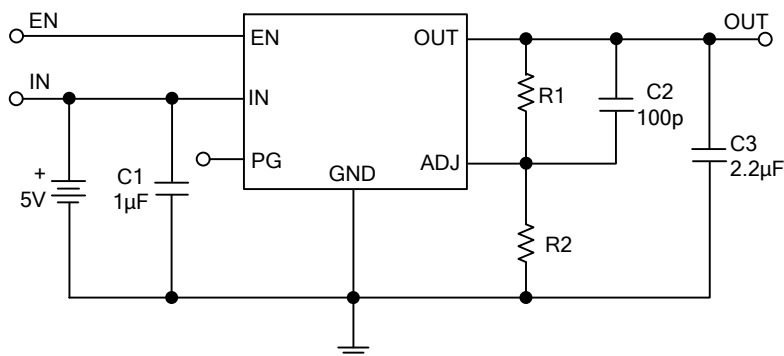
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		Note		7	V
Output Voltage	V_{OUT}	$I_{OUT}=1\text{mA}$	-3		3	%
Dropout Voltage	V_D	$I_{OUT}=300\text{mA}$			1300	mV
		$V_{OUT}=V_{ONOM}$	$1.2\text{V} \leq V_{O(NOM)} \leq 2.0\text{V}$		400	
			$2.0\text{V} < V_{O(NOM)} \leq 2.8\text{V}$		300	
		-2.0%	$2.8\text{V} < V_{O(NOM)} < 3.8\text{V}$			
Output Current	I_{OUT}	$V_{OUT} > 1.2\text{V}$	300			mA
Current Limit	I_{LIMIT}	$V_{OUT} > 1.2\text{V}$	300	450		mA
Short Circuit Current	I_{SC}	$V_{OUT} < 0.8\text{V}$		150	300	mA
Quiescent Current	I_Q	$I_{OUT}=0\text{mA}$		30	50	μA
Ground Pin Current	I_{GND}	$I_{OUT}=1\text{mA} \sim 300\text{mA}$		35		μA
Line Regulation	REG_{LINE}	$I_{OUT}=5\text{mA}$	$V_{OUT} < 2.0\text{V}$		0.15	%
		$V_{IN}=V_O+1 \sim V_O+2$	$V_{OUT} \geq 2.0\text{V}$	0.02	0.1	%
Load Regulation	REG_{LOAD}	$I_{OUT}=1\text{mA} \sim 300\text{mA}$		0.2	1	%
Over Temperature Shutdown	OTS			150		°C
Over Temperature Hysteresis	OTH			30		°C
V_O Temperature Coefficient	TC			30		ppm/°C
Power Supply Rejection	PSRR	$I_{OUT}=100\text{mA}$ $C_O=2.2\mu\text{F}$	$f=1\text{kHz}$	50		dB
			$f=10\text{kHz}$	20		
			$f=100\text{kHz}$	15		
Output Voltage Noise	e_N	$f=10\text{Hz} \sim 100\text{kHz}$ $I_O=10\text{mA}, C_{BYP}=0\mu\text{F}$	$C_O=2.2\mu\text{F}$	30		μVrms
ADJ Input Bias Current	I_{ADJ}			1		μA
ADJ Reference Voltage	V_{REF}		1.176	1.2	1.224	V
EN Input Threshold	V_{EH}	$V_{IN}=2.7\text{V} \sim 7\text{V}$	2.0		V_{IN}	V
	V_{EL}	$V_{IN}=2.7\text{V} \sim 7\text{V}$	0		0.4	V
EN Input Bias Current	I_{EH}	$V_{EN}=V_{IN}, V_{IN}=2.7\text{V} \sim 7\text{V}$			0.1	μA
	I_{EL}	$V_{EN}=0\text{V}, V_{IN}=2.7\text{V} \sim 7\text{V}$			0.5	μA
Shutdown Supply Current	I_{SD}	$V_{IN}=5\text{V}, V_O=0\text{V}, V_{EN}<V_{EL}$		0.5	1	μA
Shutdown Output Voltage	$V_{OUT,SD}$	$I_O=35\mu\text{A}, V_{EN}<V_{EL}$	0		0.1	V
Output Under Voltage	V_{UV}				85	% $V_{O(NOM)}$
Output Over Voltage	V_{OV}		115			% $V_{O(NOM)}$
PG Leakage Current	I_{LC}	$V_{PG}=7\text{V}$			1	μA
PG Voltage Rating	V_{PG}	V_O in regulation			7	V
PG Voltage Low	V_{OL}	$I_{SINK}=0.4\text{mA}$			0.4	V

Note: $V_{IN(MIN)}=V_{OUT}+V_D$

■ ADVANCED APPLICATION



■ TYPICAL APPLICATION CIRCUIT



$$V_{OUT} = 1.2 (R1 + R2) / R2$$

C2 is unnecessary when R1 or R2 < 20KΩ

PG pin is only available in the SOT-26 package option

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