



## 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 30µA, and the dropout voltage is extremely low. For stable operation, the output capacitance value should be 2.2µF 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

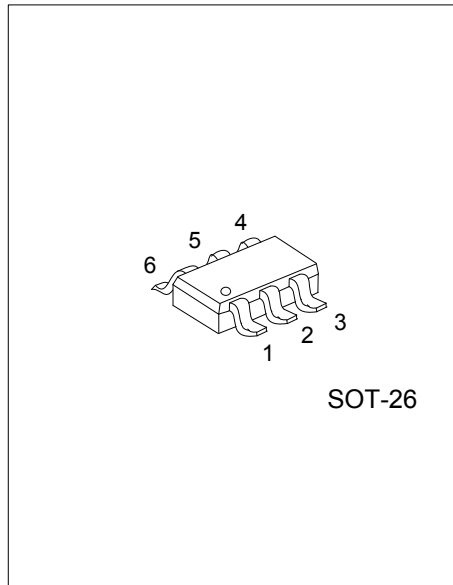
- \* Very Low Dropout Voltage
- \* Guaranteed Output Current: 300mA
- \* Quiescent Current: 30µA (TYP.)
- \* Typical Accuracy Within 2%
- \* Over-Temperature Shutdown
- \* Current Limiting
- \* Short Circuit Current Fold-Back
- \* Power Good Detector (6 pin version only)
- \* Power-Saving Shutdown Mode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

#### ORDERING INFORMATION

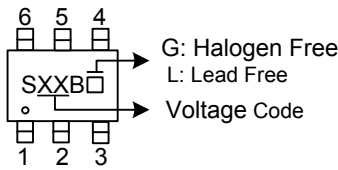
Ordering Number		Package	Packing
Lead Free	Halogen Free		
L1183BG-xx-AG6-R	L1183BG-xx-AG6-R	SOT-26	Tape Reel

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

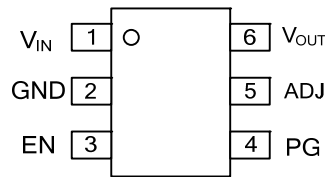
<p>L1183BL-xx-AG6-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Output Voltage Code</li> <li>(4) Lead Free</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) AG6: SOT-26</li> <li>(3) xx: Refer to Marking Information</li> <li>(4) L: Lead Free, G: Halogen Free</li> </ul>
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### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-26	12 :1.2V 15 :1.5V 28 :2.8V 31 :3.1V 33 :3.3V	

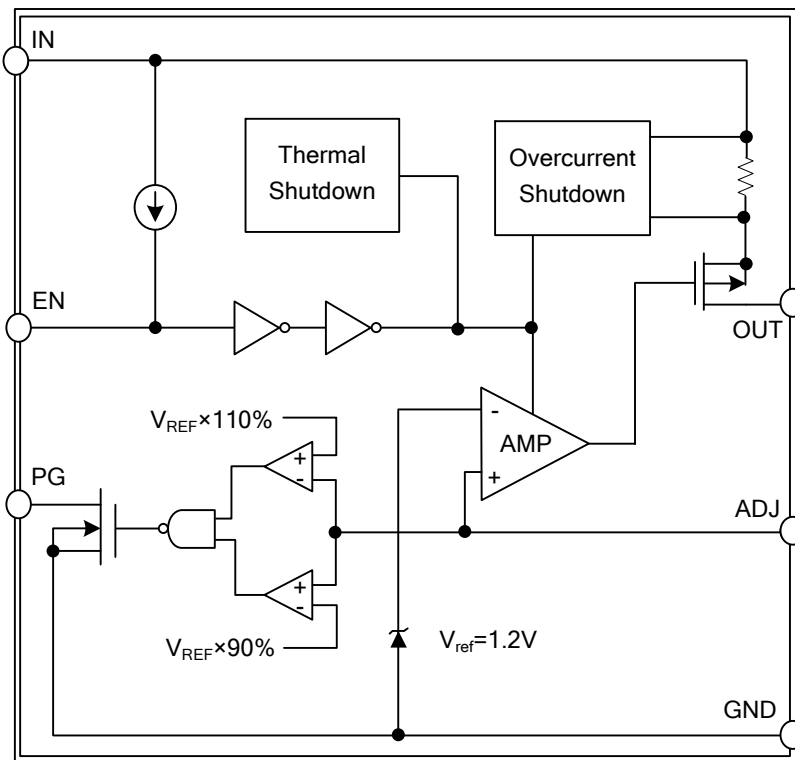
### PIN CONFIGURATION



### PIN DESCRIPTION

PIN NO	PIN NAME	DESCRIPTION
1	V <sub>IN</sub>	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 <sub>OUT</sub>	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

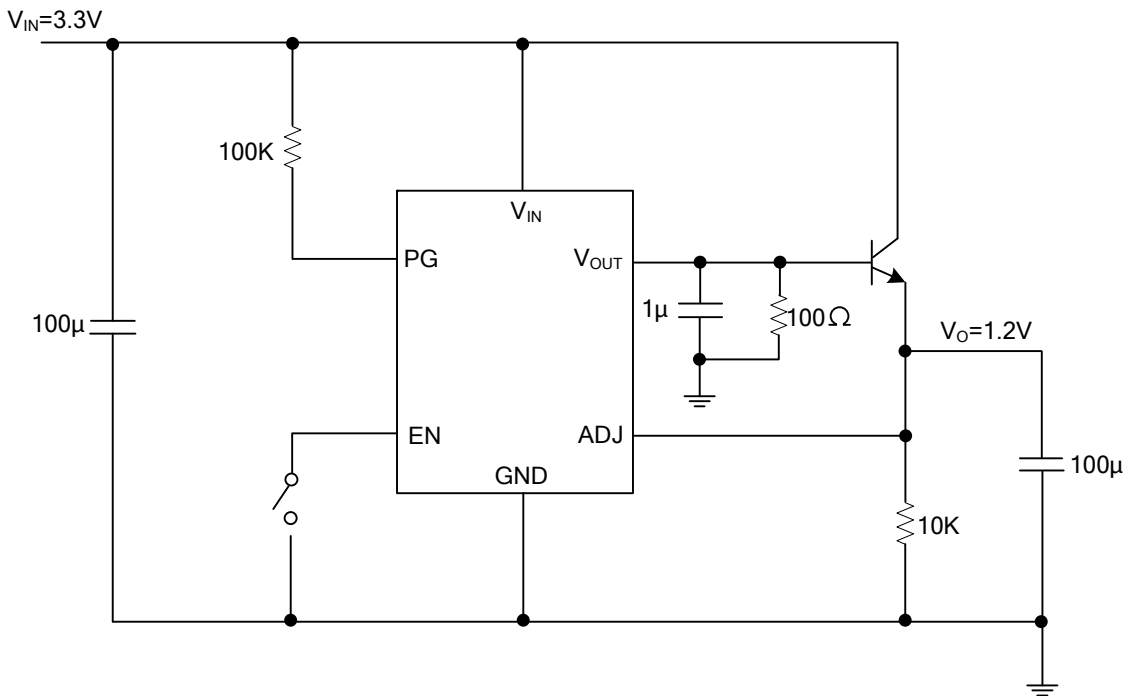
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	280	°C/W
Junction to Case	$\theta_{JC}$	140	

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

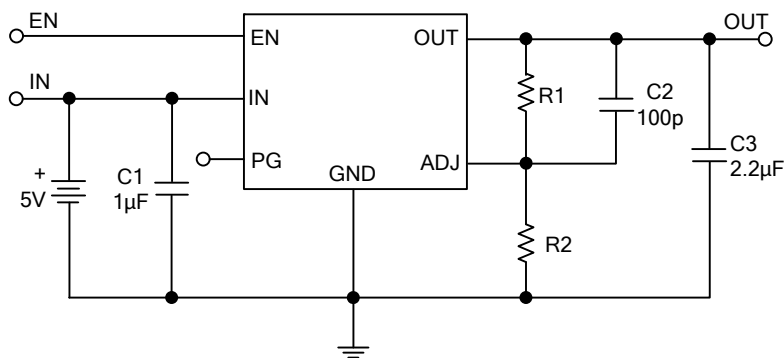
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN}$		Note		7	V
Output Voltage	$V_{OUT}$	$I_{OUT}=1\text{mA}$	-3		3	%
Dropout Voltage	$V_D$	$I_{OUT}=300\text{mA}$			1300	mV
		$V_{OUT}=V_{ONOM}$	$1.2\text{V} \leq V_{O(NOM)} \leq 2.0\text{V}$		400	
		-2.0%	$2.0\text{V} < V_{O(NOM)} \leq 2.8\text{V}$		300	
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	$\mu\text{A}$
Ground Pin Current	$I_{GND}$	$I_{OUT}=1\text{mA} \sim 300\text{mA}$		35		$\mu\text{A}$
Line Regulation	$REG_{LINE}$	$I_{OUT}=5\text{mA}$ $V_{IN}=V_O+1 \sim V_O+2$	$V_{OUT} < 2.0\text{V}$		0.15	%
			$V_{OUT} \geq 2.0\text{V}$	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=1kHz	50		dB
			f=10kHz	20		
			f=100kHz	15		
Output Voltage Noise	$e_N$	f=10Hz ~ 100kHz $I_O=10\text{mA}$ , $C_{BYP}=0\mu\text{F}$		30		$\mu\text{V}_{rms}$
ADJ Input Bias Current	$I_{ADJ}$			1		$\mu\text{A}$
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	$\mu\text{A}$
	$I_{EL}$	$V_{EN}=0\text{V}$ , $V_{IN}=2.7\text{V} \sim 7\text{V}$			0.5	$\mu\text{A}$
Shutdown Supply Current	$I_{SD}$	$V_{IN}=5\text{V}$ , $V_O=0\text{V}$ , $V_{EN}<V_{EL}$		0.5	1	$\mu\text{A}$
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	$\mu\text{A}$
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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