



L1183A

Preliminary

CMOS IC

300mA CMOS LDO

DESCRIPTION

The UTC **L1183A** is a COMS positive linear regulator. One of it's feature is the very low quiescent current typical as low as 30 μ A and its dropout voltage is extremely low with 300mA output current.

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

In application, the UTC **L1183A** needs a low noise, regulated supply. For stable operation, the output capacitance value should be 2.2 μ F or more.

The UTC **L1183A** is an ideal for battery applications, such as instrumentations, portable electronics, wireless devices, cordless phones, PC peripherals, and battery powered widgets.

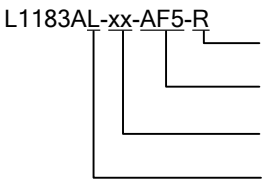
FEATURES

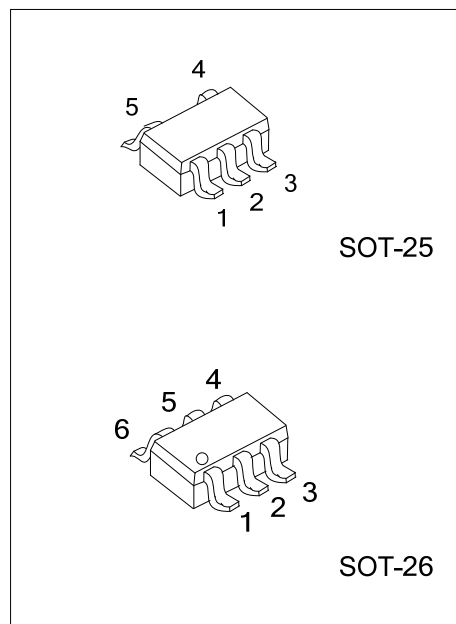
- * Accurate To Within 1.5%
- * Quiescent Current: 30 μ A
- * With Current Limiting
- * Internal Short Circuit Current Fold-Back
- * Has Power-Saving Shutdown Mode
- * Very Low Temperature Coefficient

ORDERING INFORMATION

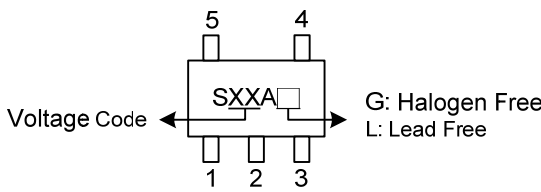
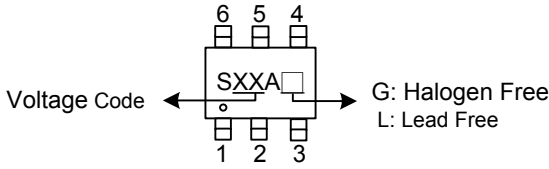
Ordering Number		Package	Packing
Lead Free	Halogen Free		
L1183AL-xx-AF5-R	L1183AG-xx-AF5-R	SOT-25	Tape Reel
L1183AL-xx-AG6-R	L1183AG-xx-AG6-R	SOT-26	Tape Reel

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

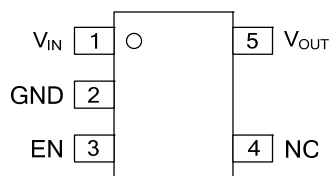
	(1) Packing Type	(1) R: Tape Reel
	(2) Package Type	(2) AF5: SOT-25, AG6: SOT-26
	(3) Output Voltage Code	(3) xx: Refer to Marking Information
	(4) Lead Free	(4) L: Lead Free, G: Halogen Free



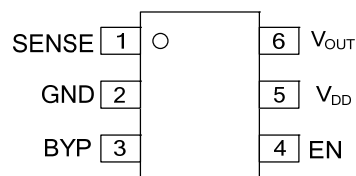
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-25	12:1.2V 15:1.5V 18:1.8V 25:2.5V 28:2.8V	
SOT-26	30:3.0V 31:3.1V 33:3.3V 50:5.0V	

PIN CONFIGURATION



SOT-25

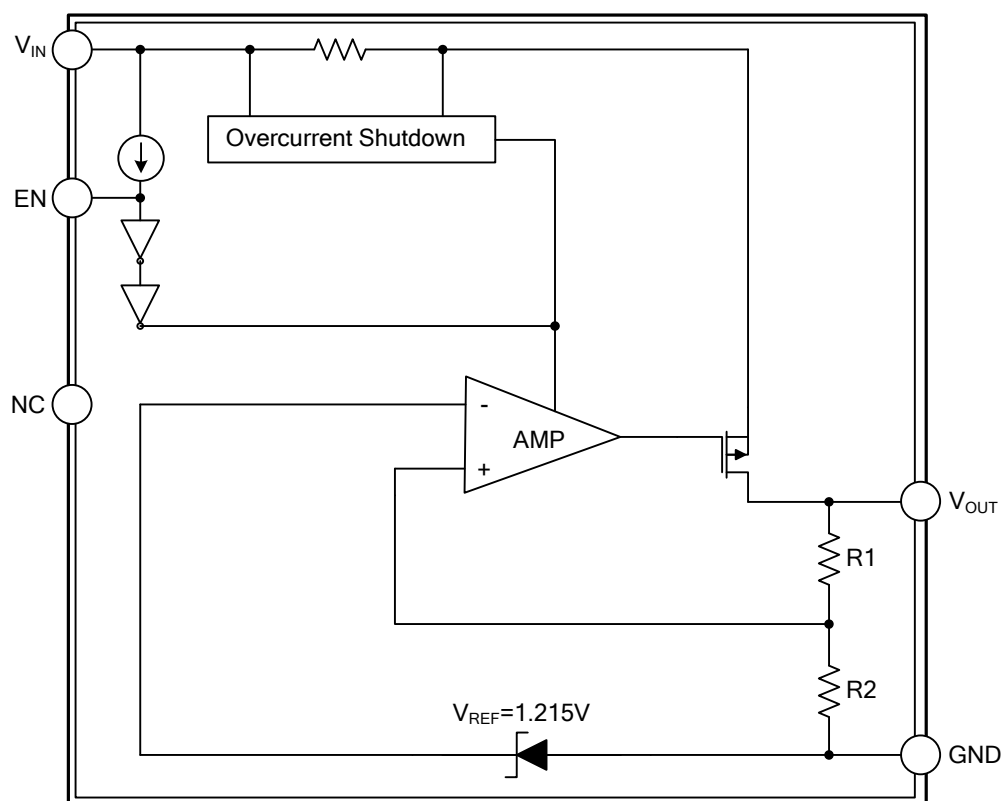


SOT-26

PIN DESCRIPTION

PACKAGE	PIN NO.	PIN NAME	DESCRIPTION
SOT-25	1	V _{IN}	Input for voltage input. A 1μF or greater capacitor should be placed in this pin.
	2	GND	Ground.
	3	EN	Enable pin. Pulling this pin low, can shut down the PMOS pass transistor, and the current consuming can be set less than 1μA.
	4	NC	
	5	V _{OUT}	Output voltage pin. The capacitor which connected between this pin and GND should be decoupled with a 2.2μF or a greater value low ESR ceramic capacitor.
SOT-26	1	SENSE	Remote Sense.
	2	GND	Ground.
	3	BYP	Bypass capacitor for noise reduction.
	4	EN	Enable Input.
	5	V _{DD}	Supply Input.
	6	V _{OUT}	Output Voltage.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (Unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	-0.3~ +6.5	V
Input Voltage (EN,BYP)		-0.3~ +6.5	V
Output Voltage	V_{OUT}	-0.3~ $V_{IN}+0.3$	V
Output Current	I_{OUT}	300	mA
Power Dissipation	P_D	400	mW

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.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Ambient Temperature	T_A	- 40 ~ +85	°C
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

■ THERMAL DATA

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

Note: θ_{JC} on center of molding compound if IC has on tab.

■ ELECTRICAL CHARACTERISTICS (T_A = 25°C, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Input Voltage	V _{IN}			Note1		6.5	V
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT}}$	V _{IN} =V _{OUT} +1~V _{OUT} +2 I _{OUT} =1mA	1.2V≤V _{OUT} ≤1.4V	-0.2		0.2	%
			1.4V<V _{OUT} ≤2.0V	-0.15		0.15	%
			2.0V<V _{OUT} <4.0V	-0.1	0.02	0.1	%
		V _{IN} =V _{OUT} +1~V _{OUT} +1.5V I _{OUT} =1mA	V _{OUT} =5.0V	-0.1	0.02	0.1	%
Load Regulation	$\frac{\Delta V_{OUT}}{V_{OUT}}$	I _{OUT} =1mA~300mA		-1	0.2	1	%
Output Voltage Accuracy		I _{OUT} =1mA		-1.5		1.5	%
		I _{OUT} =300mA		-2.5		2.5	%
Quiescent Current	I _Q	I _{OUT} =0mA			30	50	μA
Dropout Voltage	V _D	I _{OUT} =300mA V _{OUT} =V _{O(NOM)} -2.0%	1.2V≤V _{O(NOM)} ≤2.0V			1300	mV
			2.4V<V _{O(NOM)} ≤2.8V			400	
			2.8V<V _{O(NOM)} ≤5.0V			300	
Power Supply Ripple Rejection	PSRR	I _{OUT} =100mA C _{OUT} =2.2μF	f=100Hz		60		dB
			f=1kHz		50		dB
			f=10kHz		20		dB
Output Voltage Noise	eN	I _{OUT} =10mA, C _{OUT} =2.2μF, f=10Hz~100kHz			30		μV _{RMS}
Output Current	I _{OUT}	V _{OUT} >1.2V		300			mA
Current Limit	I _{LIMIT}	V _{OUT} >1.2V		300	450		mA
Short Circuit Current (Note2)	I _{SC}	V _{OUT} <0.8V			150	300	mA
Ground Pin Current	I _{GND}	I _{OUT} =1mA ~300mA			35		μA
Temperature Coefficient of Output Voltage	T _C V _O				30		ppm/°C
EN Input Threshold	V _{EH}	V _{IN} =2.7V~6.5V		2.0		V _{IN}	V
	V _{EL}	V _{IN} =2.7V~6.5V		0		0.4	V
EN Input Bias Current	I _{EH}	V _{EN} =V _{IN} , V _{IN} =2.7V~6.5V				2.0	μA
	I _{EL}	V _{EN} =0V, V _{IN} =2.7V~6.5V				0.5	μA
Shutdown Supply Current	I _{SD}	V _{IN} =6.5V, V _O =0V, V _{EN} <V _{EL}			0.5	1	μA
Shutdown Output Voltage	V _{SD}	I _O =0.4mA, V _{EN} <V _{EL}		0		0.4	V

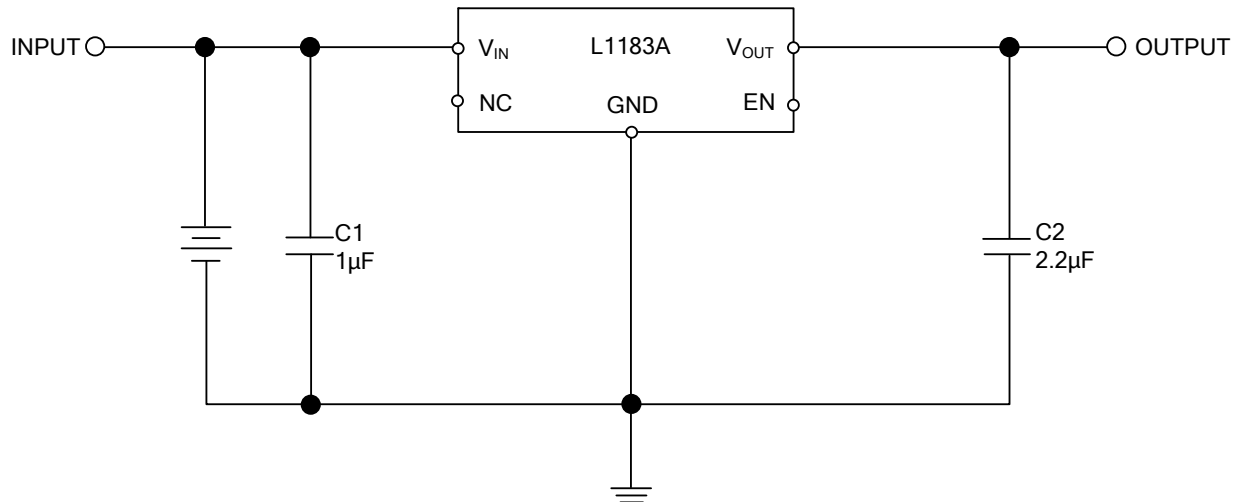
Notes: 1. V_{IN(MIN)} = V_{OUT} + V_D

2. To prevent the short circuit current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

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■ TYPICAL APPLICATION CIRCUIT



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