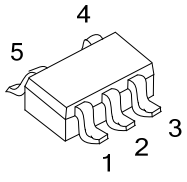
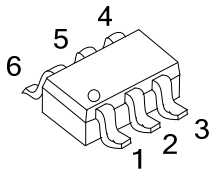
L1183A **Preliminary** ***CMOS IC***

300mA CMOS LDO



SOT-25



SOT-26

■ 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 30μA and its dropout voltage is extremely low with 300mA output current.

The internal circuit includes thermal shutdown and 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 2.2μF 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: 30μA
* Internal Over-Temperature Shutdown
* With Current Limiting
* Internal Short Circuit Current Fold-Back
* Has Power-Saving Shutdown Mode
* Very Low Temperature Coefficient
* Halogen Free

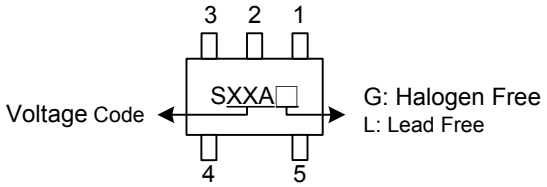
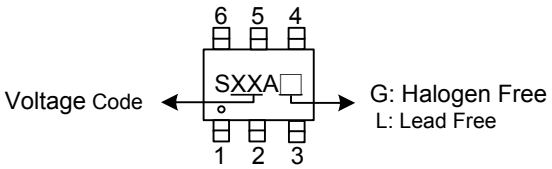
■ ORDERING INFORMATION

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

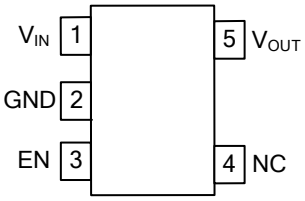
Note: xx: Output Voltage, refer to Marking Information.

L1183AL-xx-AF5-R (1) Packing Type (2) Package Type (3) Output Voltage Code (4) Lead Free	(1) R: Tape Reel (2) AF5: SOT-25, AG6: SOT-26 (3) xx: Refer to Marking Information (4) G: Halogen Free, L: Lead Free

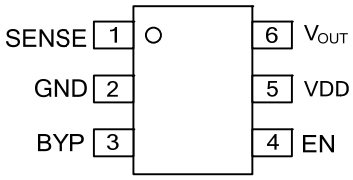
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-25	12 :1.2V 15 :1.5V 28 :2.8V 31 :3.1V 33 :3.3V	
SOT-26		

■ PIN CONFIGURATION



SOT-25

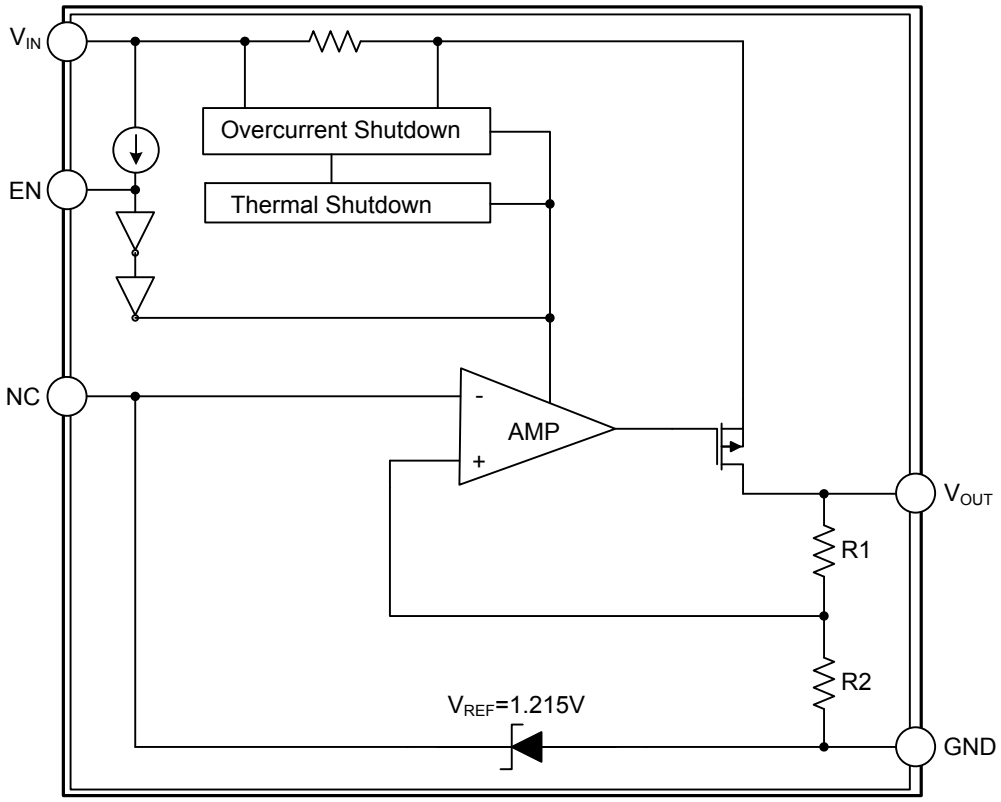


SOT-26

■ PIN DESCRIPTION

PACKAGE	PIN NO.	PIN NAME	DESCRIPTION
SOP-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 his 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 1μF or a greater value low ESR ceramic capacitor.
SOP-26	1	SENSE	Remote Sense.
	2	GND	Ground.
	3	BYP	Bypass capacitor for noise reduction.
	4	EN	Enable Input.
	5	VDD	Supply Input.
	6	V_{OUT}	Output Voltage.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	-0.3~ +8	V
Input Voltage (EN,BYP)		-0.3~ +8	V
Output Voltage	V_{OUT}	-0.3~ V_{IN}+0.3	V
Output Voltage	I_{OUT}	P_D / (V_{IN} - V_{OUT})	mA
Power Dissipation	P_D	400	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-65~ +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.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Ambient Temperature	Ta	- 40~ +85	°C
Junction Temperature	T_J	- 40~ +125	°C
Storage Temperature	T_{STG}	-65~ +125	°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	$\frac{\Delta V_{OUT}}{V_{OUT}}$	$V_{IN}=V_{OUT}+1\sim V_{OUT}+2$, 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	%
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<$V_{O(NOM)}$<3.8V			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
Over Temperature Shutdown	OTS				150		°C
Over Temperature Hysteresis	OTH				30		°C
Temperature Coefficient of Output Voltage	T_CV_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				0.1	μA
	I_{EL}	V_{EN}=0V, V_{IN}=2.7V~6.5V				0.5	μA
Shutdown Supply Current	I_{SD}	V_{IN}=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.

■ TYPICAL APPLICATION CIRCUIT