



LR2965A

CMOS IC

1.5A, LOW DROPOUT REGULATOR

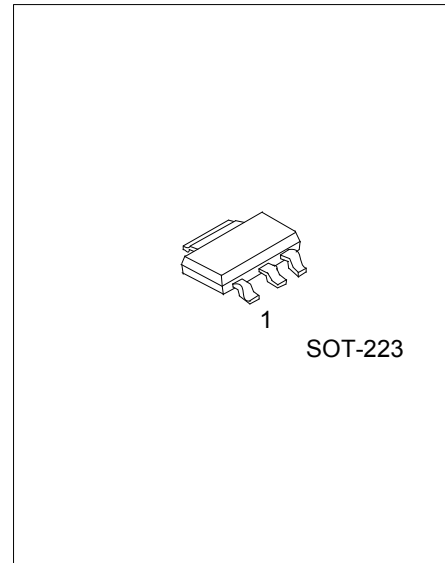
DESCRIPTION

The **UTC LR2965A** is CMOS-based positive voltage and a very low dropout regulator IC that minimum input voltage is 2.5V and is capable of delivering the continuous output load current up to 1.5A.

It has features of low dropout (maximum 300mV at 1A), a very low quiescent current (typically 300uA at 0.1A).

The output voltage has $\pm 2\%$ accuracy through all temperature ranges include the line as well as load variations. It is allowed to use a small 4.7 μ F MLCC input and output capacitor to deliver the current with the stable operation.

Built-in Soft-Start function reduces the inrush current and the other features are include over current protection (OCP), short-circuit protection (SCP), and thermal shut down protection (TSD).



FEATURES

- * Input Voltage Range: 2.5V~6.0V
- * Supply Current : (Typ.) 300uA
- * Current limit : (Min.) 1.6A
- * LR2965A: Typ 0.4V Dropout @ I_{OUT}=1.5A
- * Compatible with MLCC Capacitors
- * Built-in Soft-Start Limits Inrush Current
- * Built-in Thermal Shutdown Protection
- * Built-in Over Current & Short Circuit Protection

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
LR2965AL-xx-AA3-D-R	LR2965AG-xx-AA3-D-R	SOT-223	I	G	O	Tape Reel

Notes: 1. xx: Output Voltage, refer to Marking Information.

2. Pin Assignment: I: V_{IN} G: GND O: V_{OUT}

<p>LR2965AG-xx-AA3-D-R</p> <p>(1) Packing Type (2) Pin Code (3) Package Type (4) Output Voltage Code (5) Green Package</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AA3: SOT-223 (4) x: Refer to Marking Information (5) G: Halogen Free and Lead Free, L: Lead Free</p>
--	--

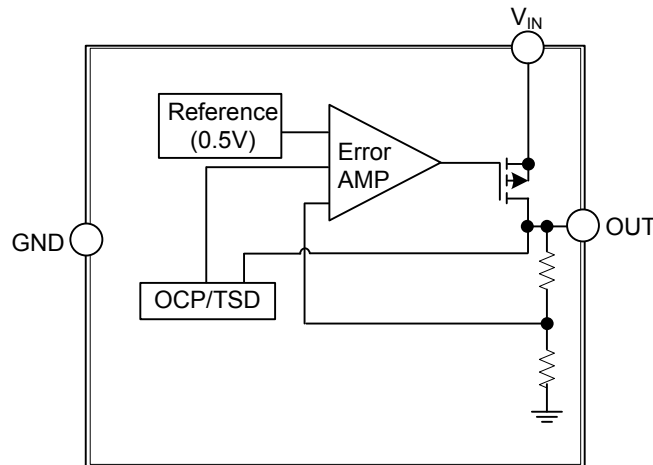
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	12: 1.2V 18: 1.8V 25: 2.5V 33: 3.3V	<p>L: Lead Free G: Halogen Free Pin Code Date Code</p>

PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V _{IN}	Input Supply Voltage Pin.
2	GND	Ground Pin
3	OUT	Voltage Regulator Output Pin

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	-0.3 ~ 7	V
Output Voltage	OUT	-0.3 ~ $V_{IN}+0.3$	V
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 ~ +150	$^\circ\text{C}$

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
Input Voltage Range	V_{IN}	2.5 ~ 6.0	V
Ambient Temperature Range	T_A	-40 ~ +85	$^\circ\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	165	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	15	$^\circ\text{C/W}$

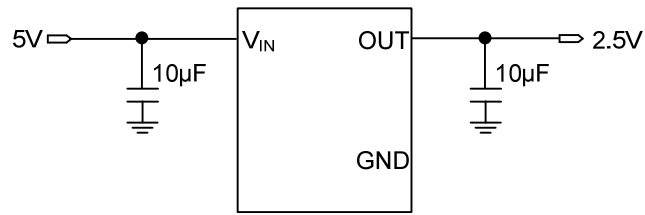
■ ELECTRICAL CHARACTERISTICS

All parameters are guaranteed over the operational supply voltage and temperature range. Operating conditions unless otherwise noted are: $V_{IN}=5\text{V}$, $\text{OUT}=2.5\text{V}$ and $T_A=25^\circ\text{C}$. Typical values are for information only.

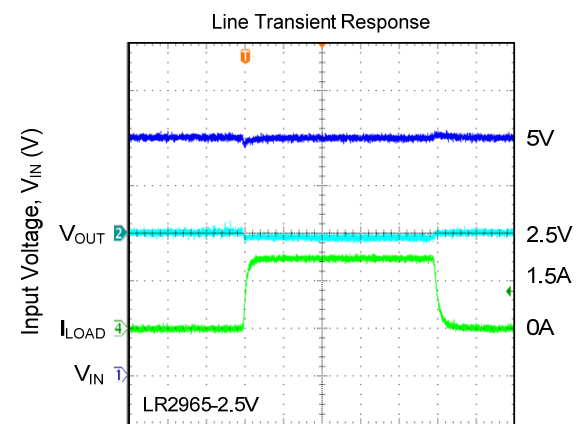
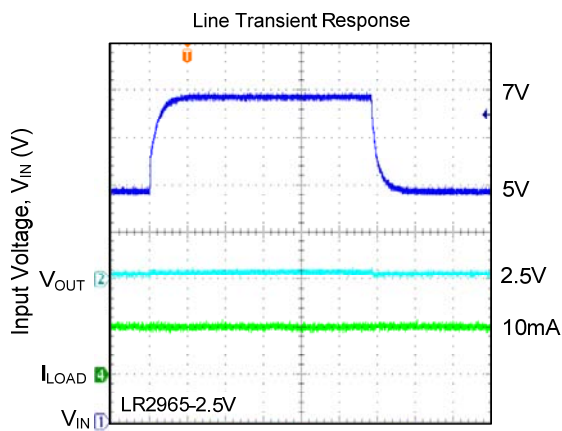
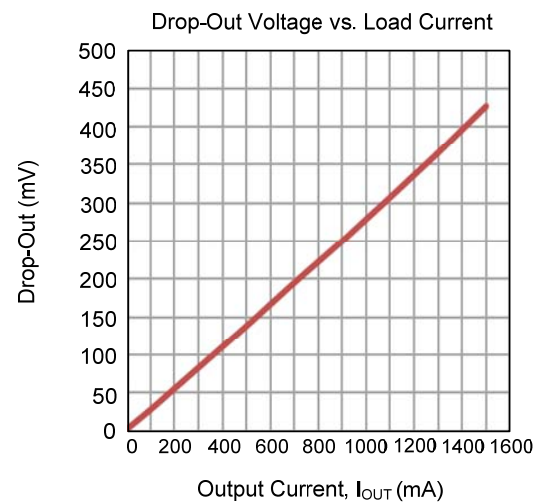
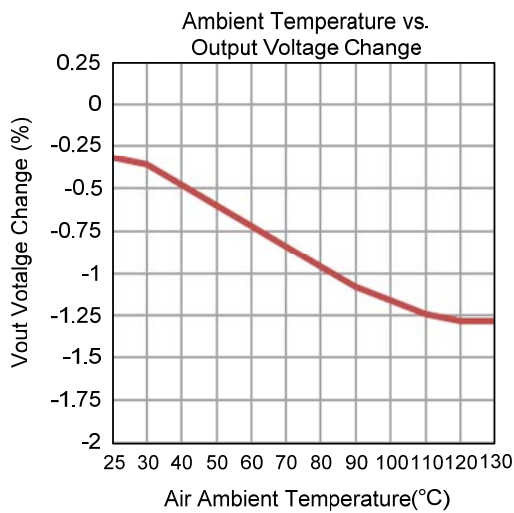
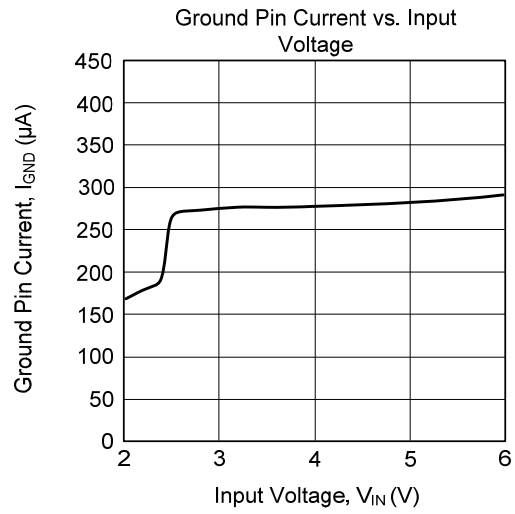
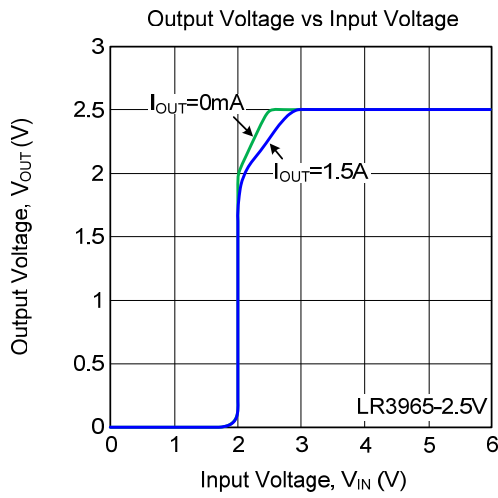
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage						
Quiescent Current	I_Q	$I_{OUT}=100\text{mA}$		300	450	μA
Output (OUT)						
Output Accuracy	V_{OUT}		-2		2	%
Load Regulation	R_{LO}	$I_{OUT}=1\text{mA}$ to 1.5A		0.1	2	%/A
Line Regulation	R_{LN}	$V_{IN}=2.2\sim 6\text{V}$, $V_{OUT}=1.225\text{V}$, $I_{OUT}=1\text{mA}$	-0.2		0.2	%/V
Dropout Voltage	V_D	$I_{OUT}=1.5\text{A}$, $V_{FB}=480\text{mV}$		400		mV
		$I_{OUT}=1\text{A}$, $V_{FB}=480\text{mV}$		140	280	
		$I_{OUT}=0.5\text{A}$, $V_{FB}=480\text{mV}$			200	
Current Limit	I_C		1.6			A
Load transient (Note 1)	L_{OT}	$I_{OUT}=20\text{mA}$ to 1.5A,		3		%
Line Transient (Note 1)	R_{NT}	$\Delta V_{IN}=0.5\text{V}$		3		%
Under Voltage Lockout	UVLO			2		V
Under Voltage Hysteresis				0.4		V
Thermal Shutdown (TSD) (Note 1)						
TSD Threshold	T_{SDON}	TSD On		165		$^\circ\text{C}$
	T_{SDOFF}	TSD Off		145		$^\circ\text{C}$

Note: Guaranteed by design but not production tested.

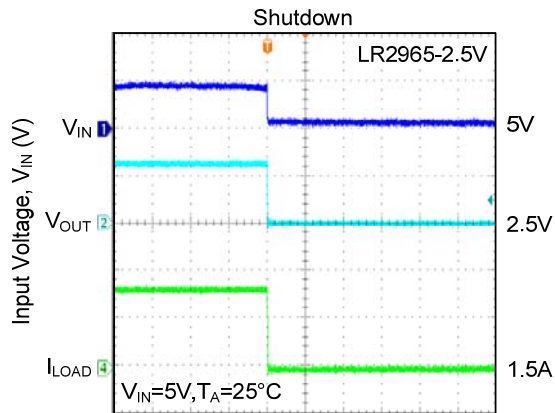
■ TYPICAL APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.