



UPSL304

Preliminary

CMOS IC

HIGH POWER FACTOR & ACCURACY CONSTANT CURRENT LED DRIVER

DESCRIPTION

The UTC **UPSL304** is a low startup current, Transition Mode, fixed on-time PFC control and PWM controller. These functions enable the LED driver to easily meet the accuracy average LED current and high power factor requirements.

The UTC **UPSL304** improves the performance and reduces the cost of the LED driver.

FEATURES

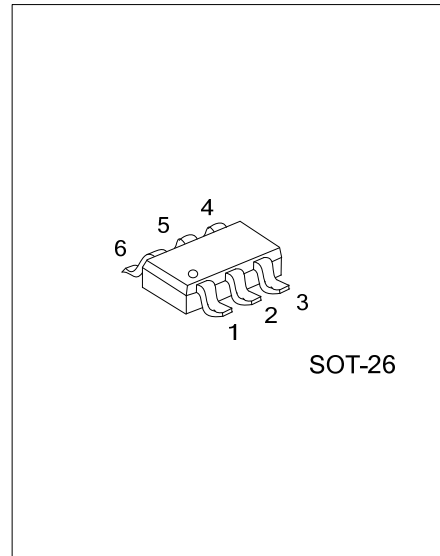
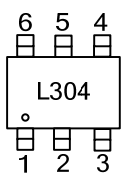
- * Transition Mode Fixed On-Time PFC Control
- * Accuracy Constant Current
- * Low BOM Cost
- * Inductor Size Reduction
- * Frequency Range Adjusted by The CT Pin
- * LED Protection: SCP, OLP, OVP
- * SOT-26 Package
- * Compatible Inductance Ballast
- * Incompatible Electronic Ballast

ORDERING INFORMATION

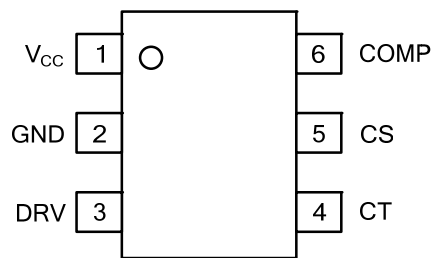
Ordering Number	Package	Packing
UPSL304G-AG6-R	SOT-26	Tape Reel

<p>UPSL304G-AG6-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free</p>
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MARKING



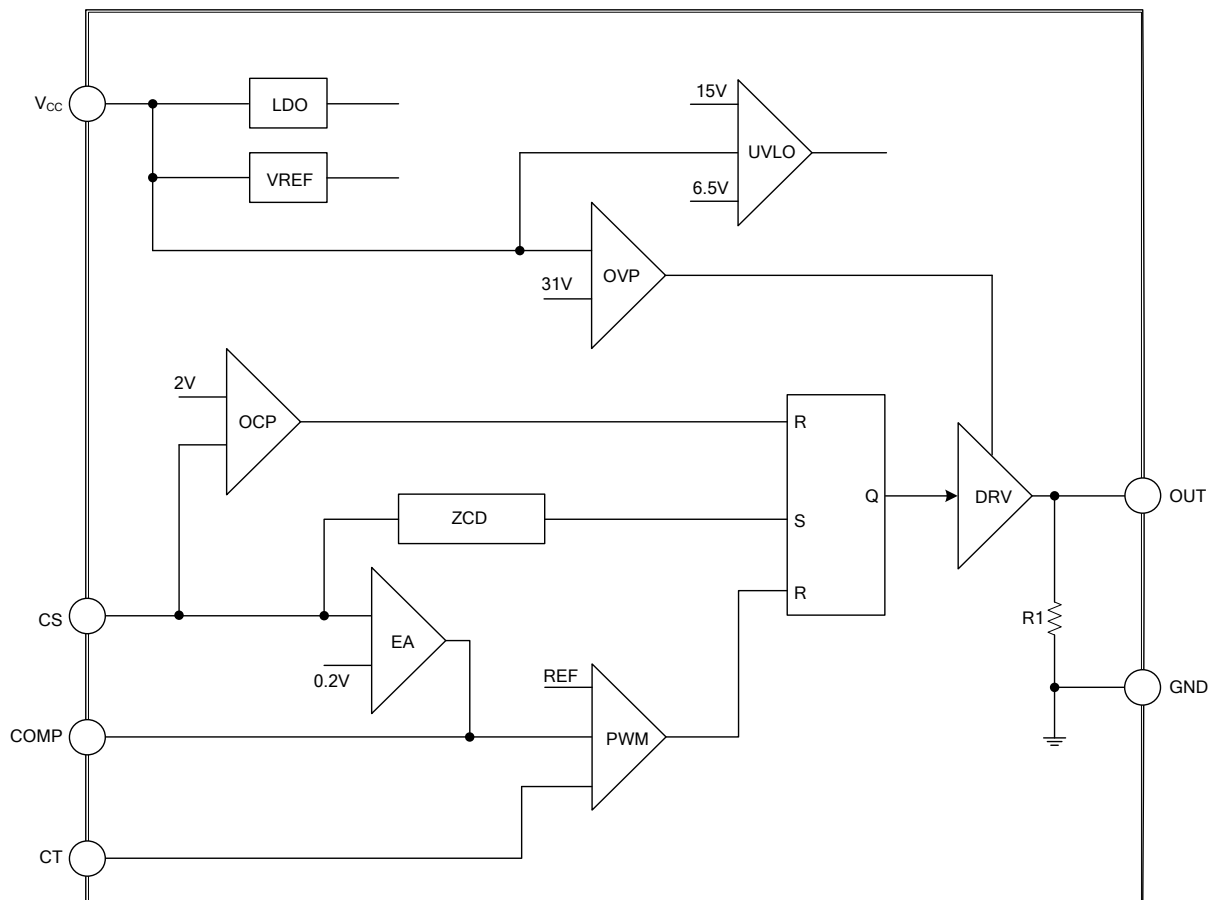
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V _{CC}	Power Supply Pin
2	GND	Ground Pin
3	DRV	The DRV pin is connected to the gate driver to drive the external power switch.
4	CT	The CT pin is connected to the current source to charge the external capacitor and compare the COMP voltage to terminate the power switch.
5	CS	Current Sense Pin
6	COMP	Feedback Compensation Network

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	30	V
CT, COMP, CS		-0.3 ~ +7.0	V
DRV		15	V
Power Dissipation ($T_A=85^\circ\text{C}$)	P_D	250	mW
Junction Temperature	T_J	+150	$^\circ\text{C}$
Operating Ambient Temperature		-20 ~ +85	$^\circ\text{C}$
Storage Temperature Range	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.

■ THERMAL DATA

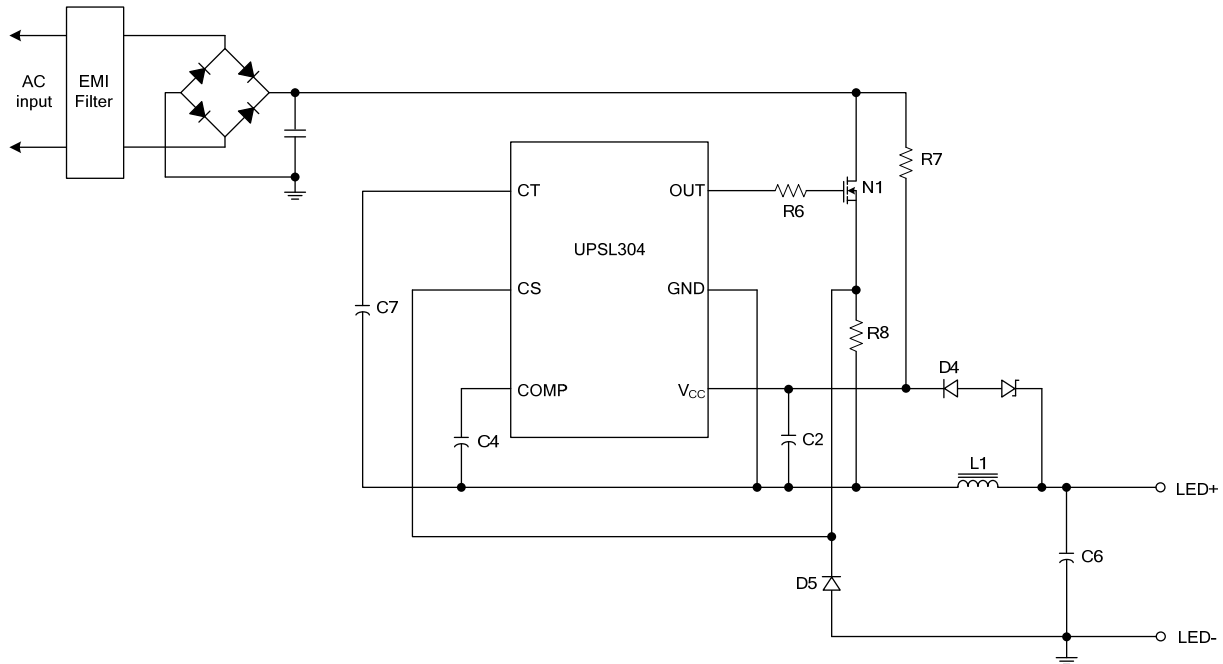
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	500	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

($V_{CC}=15.0\text{V}$ & $T_A=+25^\circ\text{C}$, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Startup Current	I_{ST}	$V_{CC}=\text{UVLO on-1V}$		10	50	μA
Operating Current	I_{CC}	with 1nF load on OUT pin, $V_{COMP}=2.5\text{V}$		2.5	3.2	mA
Operating Current	I_{QC}	with 1nF load on OUT pin, Protection Tripped (OVP, SCP)		1.6	2.5	mA
UVLO (off)	V_{MIN}		5.5	6.5	7.5	V
UVLO (on)	V_{ST}		14	15	16	V
OVP Level on VCC Pin	V_{OVP}		29.5	31.5	33.5	V
OVP De-Bounce Time				40		μS
Feedback Reference Voltage	V_{FB}		0.195	0.200	0.205	V
Tran-Conductance				300		μS
Output Sink Current	I_{SINK}			300		μA
Output Source Current	I_{SOURCE}			60		μA
Input Over Voltage Protection	V_{OCP}		1.8	2.0	2.2	V
Open Loop Voltage, CS Pin Open	V_{CS}			5		V
Leading-Edge Blanking Time	T_{LEB}			450		nS
Delay to Output	T_{DELAY}			130	220	nS
Rising Time	T_R	Load Capacitance=1000pF		280	500	nS
Falling Time	T_F	Load Capacitance=1000pF		80	150	nS
VGATE-Clamp	V_{CLAMP}	$V_{CC}=25\text{V}$		12.5	15	V
CT Pin Current			130	150	170	μA

■ TYPICAL APPLICATION CIRCUIT



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