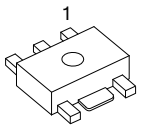
L4120

CMOS IC

40V/1.2A INTEGRATED POWER LED DRIVER



SOT-89-5

■ DESCRIPTION

The UTC **L4120** is a continuous conduction mode inductive step-down converter, designed for driving single or multiple series connected LEDs. Using a few external components.

The UTC **L4120** has a build-in power switch, based on different input voltage, The UTC **L4120** can drive several 1W or 3W LEDs. The device has the function of thermal shutdown protection and LED short-circuit/open-circuit protection.

■ FEATURES

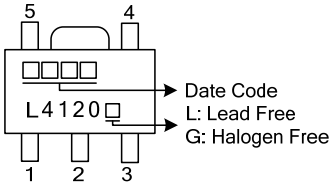
* Up to 1.2A output current
* High efficiency (up to 97%)
* Wide input voltage range: 5V~30V
* Typical ±5% output current accuracy
* Single DIM pin on/off and brightness control using DC voltage or PWM signal
* Internal thermal shutdown protection.
* Adjustable Constant LED Current

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
L4120L-AB5-R	L4120G-AB5-R	SOT-89-5	Tape Reel

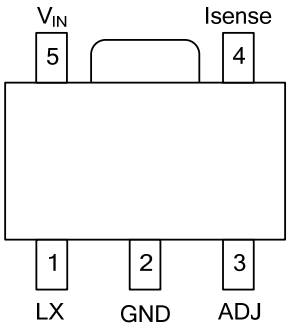
L4120G-AB5-R (1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel (2) AB5: SOT-89-5 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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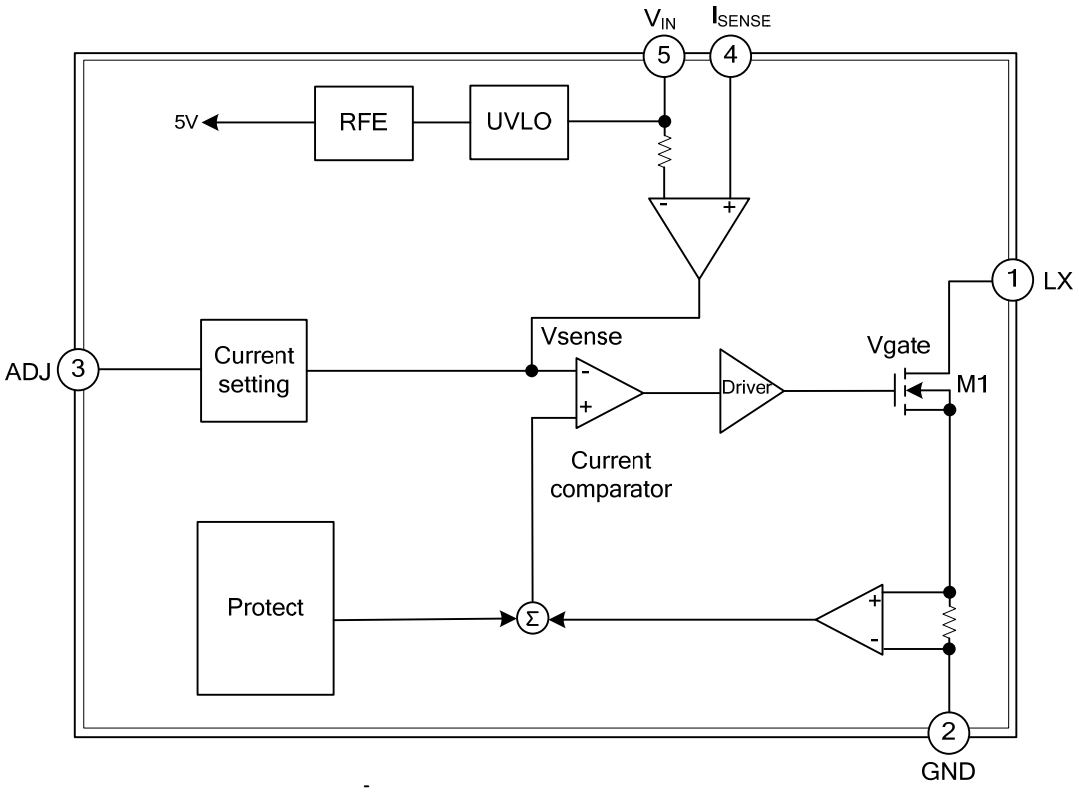
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	LX	Switch pin
2	GND	Ground
3	ADJ	Multi-function On/Off and brightness control pin
4	I_{SENSE}	Current sense input
5	V_{IN}	Input voltage

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{IN}	-0.3~+40	V
I_{SENSE} Voltage	V_{IN}≥5V	V_{ISENSE}	V_{IN}+0.3~V_{IN}-5	V
	V_{IN}<5V		V_{IN}+0.3~ -0.3	V
LX Output Voltage		V_{LX}	-0.3~+40	V
Adjust Pin Input Voltage		V_{ADJ}	-0.3~+6	V
Switch Output Current		I_{LX}	1.5	A
Power Dissipation		P_D	0.5	W
Junction Temperature		T_J	150	°C
Operating Temperature		T_{OP}	-40~105	°C
Storage Temperature		T_{STG}	-55~150	°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.

■ THERMAL DATA

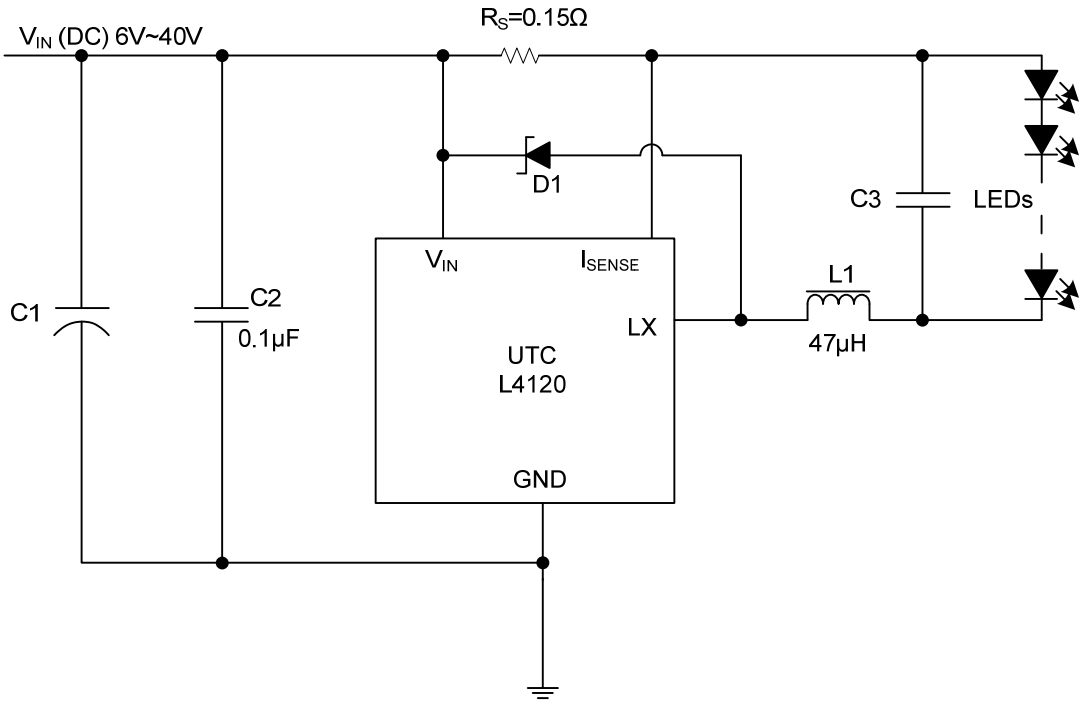
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	180	°C/W

■ ELECTRICAL CHARACTERISTICS (V_{IN}=12V, T_{AMB}=25°C unless otherwise stated) (Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		6		40	V
Quiescent Supply Current with Output Off	I_{INQoff}	ADJ Pin Grounded			400	μA
Quiescent Supply Current with Output Switching	I_{INQon}	ADJ Pin Floating			1000	μA
Mean Current Sense Threshold Voltage	V_{SENSE}			115		mV
Sense Threshold Hysteresis	$V_{SENSEHYS}$			±15		%
External Control Voltage Range On ADJ Pin for DC Brightness Control	V_{ADJ}		0.3		1.2	V
DC Voltage On ADJ Pin to Switch Chip from Active (On) State to Quiescent (Off) State	V_{ADJoff}	V_{ADJ} Falling	0.15	0.2	0.25	V
DC Voltage On ADJ Pin to Switch Chip from Quiescent (Off) State to Active (On) State	V_{ADJon}	V_{ADJ} Rising	0.2	0.25	0.3	V
Resistance Between ADJ Pin and V_{REF}	R_{ADJ}			500		KΩ
Continuous LX Switch Current	I_{LXmean}			1.2		A
LX Switch “On” Resistance	R_{LX}			0.4		Ω
LX Switch Leakage Current	$I_{LX(leak)}$				1	μA
Minimum Switch “ON” Time	T_{ONmin}	LX Switch “ON”		200		ns
Minimum Switch “OFF” Time	T_{OFFmin}	LX Switch “OFF”		200		ns
Typical Dimming Ratio	Ddim	F=100Hz, V_{IN}=15V, 1LED, L=27μH		1200:1		
Recommended Maximum Operating Frequency	f_{LXmax}				1	MHz
Recommended Duty Cycle Range of Output Switch at f_{LXmax}	D_{LX}		0.3	0.7	0.9	
Internal Comparator Propagation Delay	T_{PD}			50		ns
Thermal Shutdown Temperature	T_{SD}			150		°C
Thermal Shutdown Hysteresis	T_{SD-HYS}			20		°C

Note: Production testing of the chip is performed at 25°C. Functional operation of the chip and parameters specified are guaranteed by design, characterization and process control in other temperature.

■ TYPICAL APPLICATION CIRCUIT



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. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.