



## UCC2105

Preliminary

LINEAR INTEGRATED CIRCUIT

### CC/CV MODE STEP DOWN SWITCHING REGULATOR

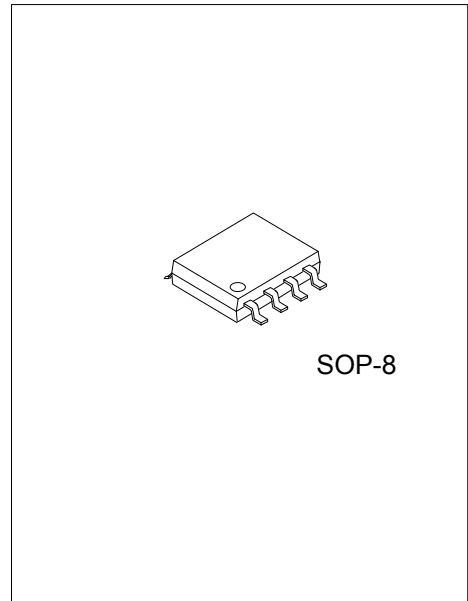
#### DESCRIPTION

The UTC **UCC2105** is a step down switching regulator, which has a built-in 40V P-channel power MOSFET for delivering output current. The UTC **UCC2105** is designed to allow for operating a wide supply voltage range from 8V to 24V and capable of delivering 2A output current.

The UTC **UCC2105** features a programmable CV/CC mode control functions.

#### FEATURES

- \* 8V~24V Input Voltage Range
- \* CC/CV Mode Control
- \* Fixed 100KHz Operating Frequency
- \* Soft Start Function for Start-up
- \* Fold back Short-Circuit Protection
- \* High Efficiency Operation
- \* Output Over-Voltage Protection
- \* Over Temperature Protection

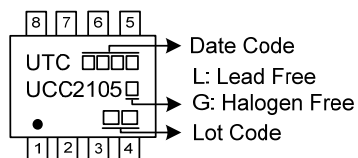


#### ORDERING INFORMATION

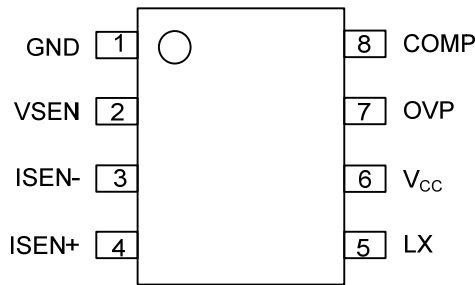
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCC2105L-S08-R	UCC2105G-S08-R	SOP-8	Tape Reel

<p>UCC2105G-S08-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



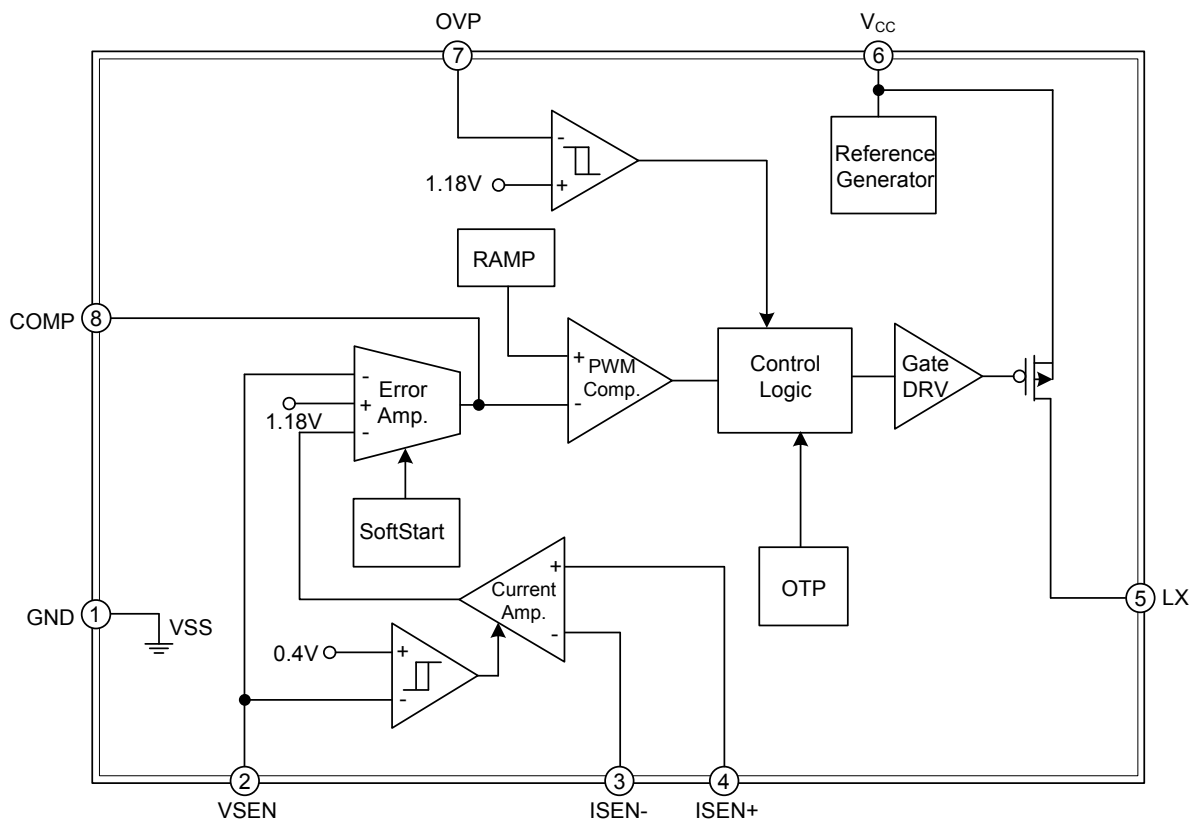
### PIN CONFIGURATION



### PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	GND	Ground pin
2	VSEN	The voltage sense input pin.
3	ISEN-	The current sense negative input pin.
4	ISEN+	The current sense positive input pin.
5	LX	Regulator output pin.
6	V <sub>CC</sub>	The input supply voltage pin
7	OVP	The over-voltage sense input pin.
8	COMP	Compensation pin.

### BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
V <sub>CC</sub> to GND	V <sub>CC</sub>	24	V
LX to V <sub>CC</sub>	LX	40	V
VSEN to GND	VSEN	7	V
ISEN+ to GND	ISEN+	7	V
ISEN- to GND	ISEN-	7	V
OVP to GND	OVP	7	V
COMP to GND	COMP	7	V
Maximum Output Current	I <sub>CC</sub>	2	A
Maximum Junction Temperature	T <sub>J</sub>	+125	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +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.

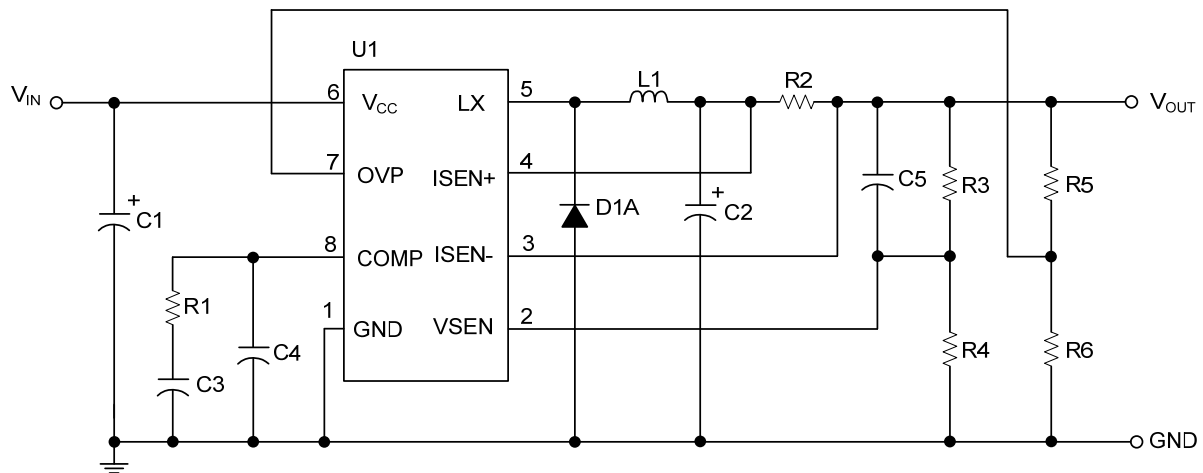
### ■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Ambient	$\theta_{JA}$	100	°C/W

### ■ ELECTRICAL CHARACTERISTICS (V<sub>IN</sub>=12V, T<sub>A</sub>=25°C, I<sub>O</sub>=1.0A, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>Input Voltage Section</b>						
Input Voltage	V <sub>IN</sub>		8		24	V
Input Voltage Surge	V <sub>IN, SURGE</sub>				40	V
Input No Load Current	I <sub>no-load</sub>	I <sub>O</sub> =0A			10	mA
<b>Oscillator Section</b>						
Operating Frequency	F <sub>OSC</sub>		85		115	KHz
		T <sub>J</sub> =-25~125°C	80		120	KHz
Duty Cycle Range					95	%
<b>Error Amplifier Section</b>						
Reference Voltage of the Voltage Error Amplifier	V <sub>VSEN</sub>		1.168	1.18	1.192	V
Reference Voltage of the Current Error Amplifier	V <sub>ISEN</sub>		105.5	112	118.5	mV
<b>Output Over Voltage Protection Section</b>						
Reference Voltage of the Over Voltage Comparator	V <sub>OVP</sub>		1.145	1.18	1.215	V
<b>Output Short Circuit Protection Section</b>						
Reference Voltage of the Short Circuit Fold back Comparator	V <sub>SCP</sub>			0.4		V

■ TYPICAL APPLICATION CIRCUIT



**BOM**

Reference	Component	Reference	Component
C1	330uF	R1	300K
C2	220uF	R2	0.045R
C3	47nF	R3	390K
C4	option	R4	118K
C5	option	R5	470R
		R6	120R
		L1	100uH
		U1	UTC <b>UCC2105</b>

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