

## White LED Light Converter

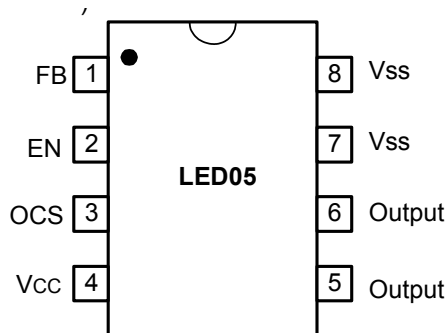
### ■ Features

- Input voltage: 3.6V to 18V.
- Oscillation frequency: 300KHz typ.
- Soft-start, Current Limit, Enable function
- Thermal Shutdown function
- Built-in internal SW P-channel MOS
- SOP-8L **Pb-Free** Package.

### ■ Applications

- White LED Emergency Light
- White LED Step Light
- White LED Torch Light

### ■ Pin Assignments



### ■ General Description

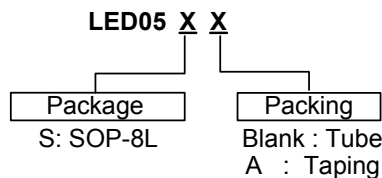
The LED05 design for a white LED light controller and own the ability of driving 3A Load without additional MOSFET component.

With the addition of an internal P-channel Power MOS, a coil, capacitors, and a diode connected externally, these ICs can function as step-down switching regulators. They serve as ideal power supply units for portable devices when coupled with the SOP-8L mini-package, providing such outstanding features as low current consumption. Since this converter can accommodate an input voltage up to 18V, it is also suitable for the operation via an AC adapter.

### ■ Pin Descriptions

Name	Pin	Description
FB	1	Feedback pin.
EN	2	Power-off pin H: Normal operation L: Operation stopped
OCS	3	Add an external resistor to set max output current.
Vcc	4	IC power supply pin
Output	5 · 6	Switch Pin. Connect external inductor/diode here. Minimize trace area at this pin to reduce EMI.
Vss	7 · 8	GND Pin

### ■ Ordering Information



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### ■ Absolute Maximum Ratings

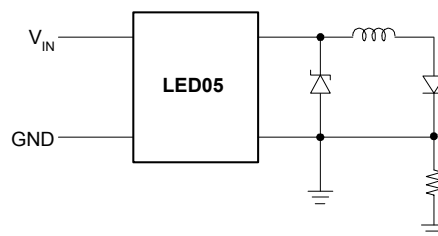
Symbol	Parameter	Rating	Unit
$V_{CC}^{*1}$	V <sub>CC</sub> Pin Voltage	$V_{SS} - 0.3$ to $V_{SS} + 20$	V
$V_{FB}$	Feedback Pin Voltage	$V_{SS} - 0.3$ to $V_{CC}$	V
$V_{ON/OFF}^{*1}$	ON/OFF Pin Voltage	$V_{SS} - 0.3$ to $V_{IN} + 0.3$	V
$V_{OUTPUT}$	Switch Pin Voltage	$V_{SS} - 0.3$ to $V_{IN} + 0.3$	V
$P_D$	Power Dissipation	Internally limited	mW
$T_{OPR}$	Operating Temperature Range	-20 to +125	°C
$T_{STG}$	Storage Temperature Range	-40 to +150	°C

Caution: The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

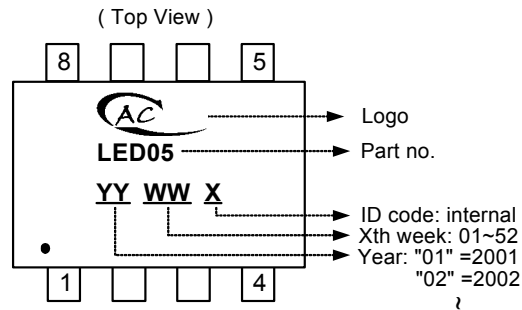
### ■ Electrical Characteristics ( $V_{IN} = 12V$ , $T_a = 25^\circ C$ , unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{IN}$	Input Voltage	--	3.6	-	18	V
$V_{FB}$	Feedback Voltage	$I_{OUT} = 0.1A$	0.784	0.8	0.816	V
$I_{FB}$	Feedback Bias Current	$I_{OUT} = 0.1A$	-	0.1	0.5	μA
ISW	Switch Current	--	3.5	-	-	A
$I_{SSS}$	Current Consumption During Power Off	$V_{ON/OFF} = 0V$	-	10	-	μA
$f_{OSC}$	Oscillation Frequency	Measure waveform at SW pin	240	300	360	KHz
$V_{SH}$	EN Pin Input Voltage	Evaluate oscillation at SW pin	2.0	-	-	V
$V_{SL}$		Evaluate oscillation stop at SW pin	-	-	0.8	
$I_{SH}$	EN Pin Input Leakage Current	--	-	20	-	μA
$I_{SL}$	Current	--	-	-10	-	μA
$I_{OCSET}$	OCSET Pin Bias Current	--	75	90	105	μA
$T_{SS}$	Soft-Start Time	--	0.3	2	5	ms
$R_{DSON}$	Internal MOSFET Rdson	$V_{IN} = 5V, V_{FB} = 0V$	-	110	150	mΩ
		$V_{IN} = 12V, V_{FB} = 0V$	-	70	100	
EFFI	Efficiency	$V_{IN} = 12V, V_{OUT} = 5V$ $I_{OUT} = 3A$	-	92	-	%
$\theta_{JA}$	Thermal Resistance Junction-to-Ambient		-	65	-	°C/W

### ■ Typical Application Circuit

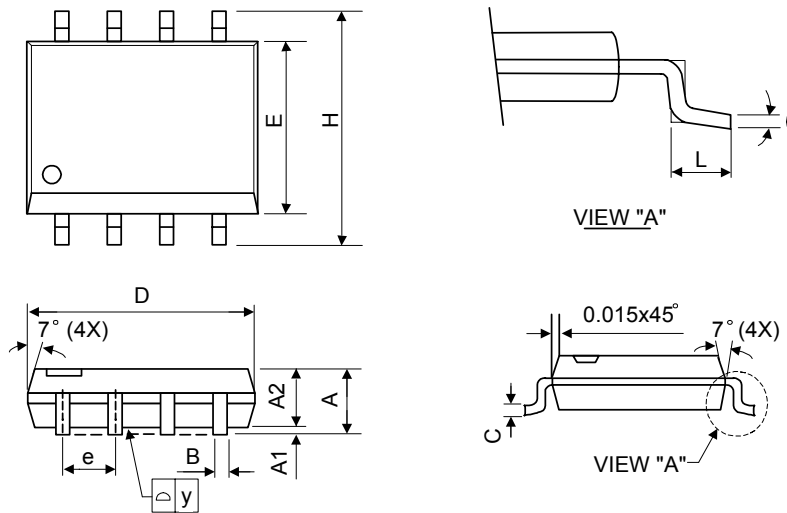


■ Marking Information



■ Package Information

Package Type: SOP-8L



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.40	1.60	1.75	0.055	0.063	0.069
A1	0.10	-	0.25	0.040	-	0.100
A2	1.30	1.45	1.50	0.051	0.057	0.059
B	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.010
D	4.80	5.05	5.30	0.189	0.199	0.209
E	3.70	3.90	4.10	0.146	0.154	0.161
e	-	1.27	-	-	0.050	-
H	5.79	5.99	6.20	0.228	0.236	0.244
L	0.38	0.71	1.27	0.015	0.028	0.050
y	-	-	0.10	-	-	0.004
θ	0°	-	8°	0°	-	8°