WT-LH 24C

CMS (Compact Modular Solution)

Description:

The Latchold is a complete compact solution that allows 1000 mA loads at voltages up to 24vdc to be activated at full power for three seconds before pulse width modulating the output at a pre-configured ratio. The module provides a Pulse Width Modulated sink for the load at a pre-configured ratio from 20% up to 90%. High speed switching waveforms and low Rds ensure an efficient switching transition. The device has a pre-programmed delay of approximately 100mS settling time before the switch on is initiated. The primary use of this unique devicer allows electromagnetic devices such as solenoids to operate more efficiently by maintaining only the required power to effect a hold condition, preventing heat build-up and excessive power consumption. It can also be used where thermal inertia needs to be overcome.

Features:

- Complete CMS (Compact Modular Solution) typically < 390mm^2
- On board WT 8 pin solution
- Uses no additional components *
- Low-Power Brown-out Reset (BPR)
- Low current (typically < 9ma) draw
- Built in high speed spike suppression
- Simple three wire connection.
- High current sink, separate from Vdd (if required).

Functions:

- Full power ON and pre-selected PWM holding latch of loads in sensitive electronic systems and environments. *

Operating Characteristics:

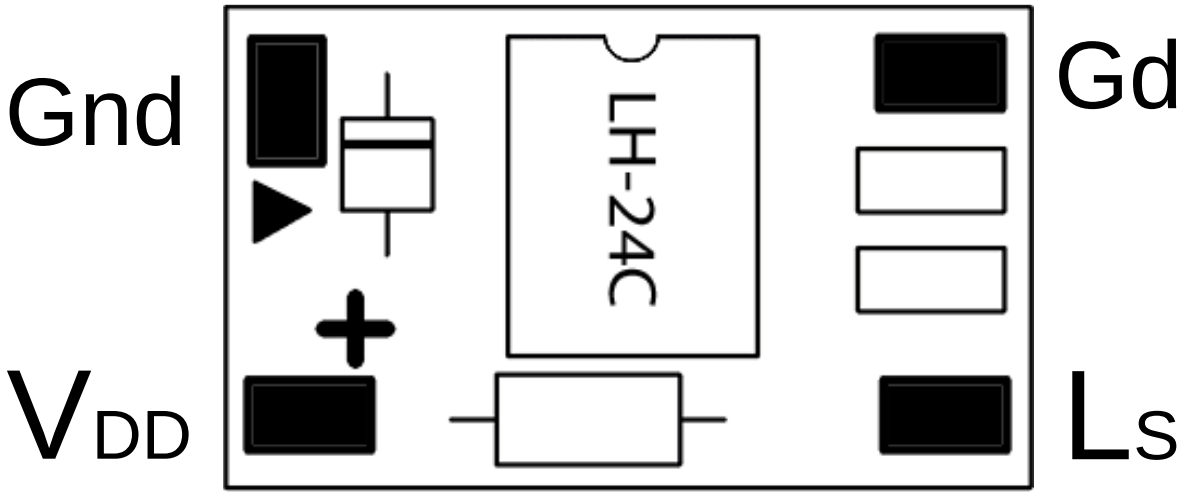
- Sink voltage :
  - 24 volts direct current (maximum.)
- Operating current :
  - 9ma, typical
- Operating voltage (typical):
  - <24 volts direct current.
- Full power period at start: (after built in 100mS delay)
  - ~ 3000 ms **
- Operating PWM ratio (typical):
  - ~20% to 90%
- Temperature Range:
  - Industrial: -40°C to +85°C
- Output sink capability 5000ma (maximum)

**Any electronic system which incorporates inductive selectors, solenoids or electromagnetics.*
***Typical full power start-up period.*

MODULE DIAGRAM

Connection Diagram – 4-Pad CMS

Fig 1



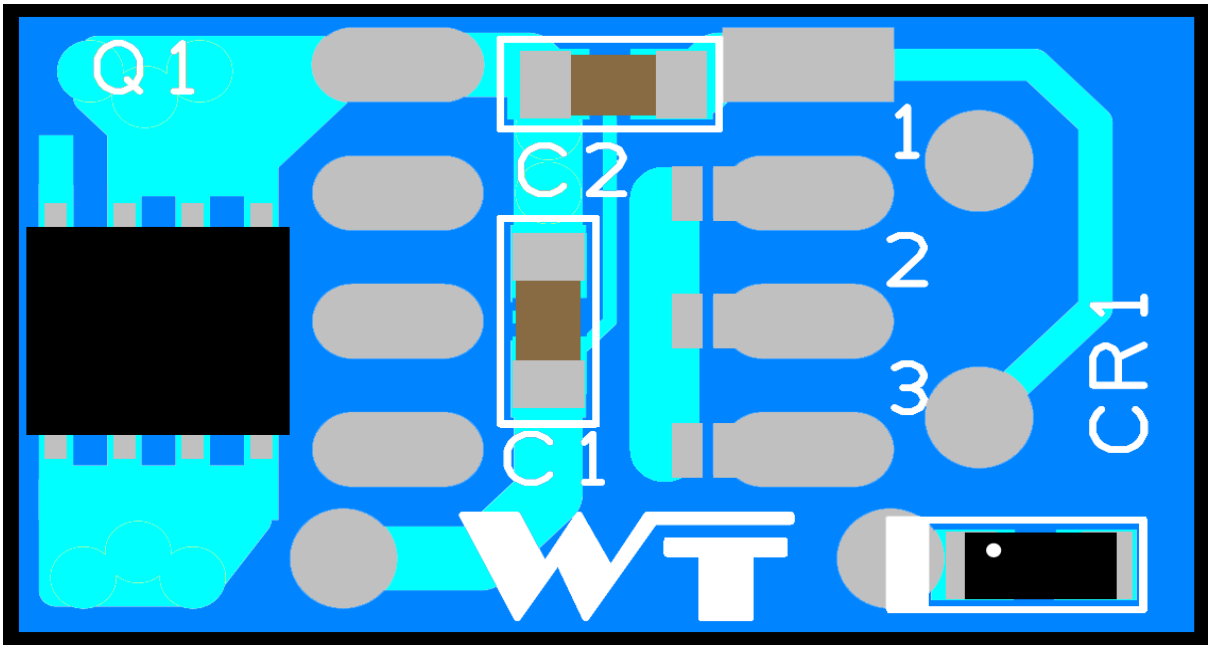
PAD	Direction	NAME	FUNCTION
1	output	Gnd	Supply ground
2	Output	Gd	Secondary ground
3	output	Ls	Load sink
4	input	Vdd	Module supply

Pad number one is indicated by a triangle, orientation is such that this pad is positioned in the upper left. Pad numbering goes clockwise from 1 through to 4.

JUMPER DIAGRAM

PWM selection links 1,2 and 3.

Fig 2



Link number one is the first oblong pad below the rectangular pad in the top right. The table in figure 3 below shows the link selection to achieve the desired pre-set.

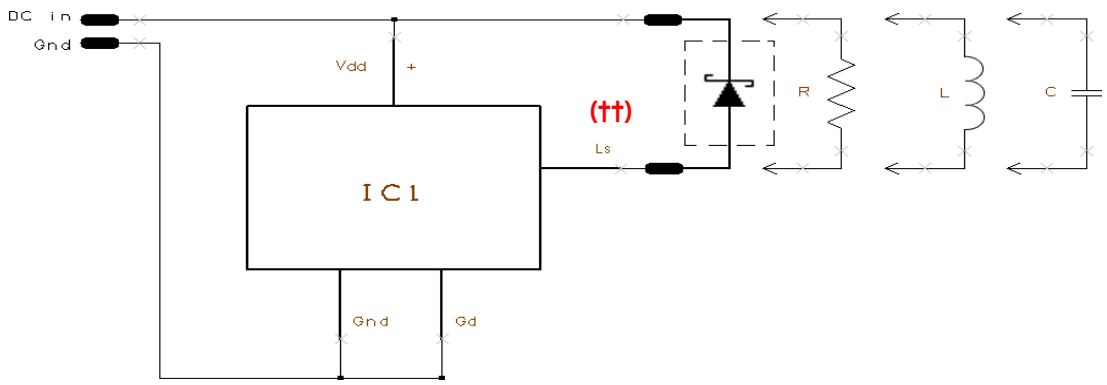
Fig 3

1	2	3	PWM ratio
OPEN	OPEN	OPEN	90 %
CLOSED	OPEN	OPEN	80 %
OPEN	CLOSED	OPEN	70 %
OPEN	OPEN	CLOSED	60 %
CLOSED	CLOSED	OPEN	50 %
CLOSED	OPEN	CLOSED	40 %
OPEN	CLOSED	CLOSED	30%
CLOSED	CLOSED	CLOSED	20%

Application notes

The recommended application schematic is shown below, note that no decoupling capacitor is required. The schematic in figure 2 shows the recommended minimum configuration for this device.

Fig 4



The device is considered to be OPEN COLLECTOR output, therefore it is not necessary to ensure that the load and device is powered from the same source, however the ground must remain common to both sides**(†)**. It is important that you ensure that the device is not forced to operate in conditions outside of the absolute maximums stipulated in the ELECTRICAL SPECIFICATIONS section within this document. As is impossible to cater for the configuration in terms of the selected load source an external schottky barrier diode must be connected across the load in all instances.

IMPORTANT NOTE **(†)**

To ensure correct operation of this device the ground potential of the device and the load MUST be the same.

IMPORTANT NOTE (††)

A shottky barrier diode MUST always be added to the device as shown. This will ensure that spikes generated by the load do not impact the system.

ELECTRICAL SPECIFICATIONS

† IMPORTANT NOTICE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operation listings of this specification is not implied. Exposure of the module above maximum rating conditions will affect device reliability.

Absolute Maximum Ratings (†)

Ambient temperature under bias..... -40°C to +125°C
Storage temperature ..... -65°C to +150°C
Maximum voltage On V_{DD} pin.....+24.0 vdc
Maximum voltage On Ls pin.....+24.0 vdc
Minimum operating voltage.....+5.0 vdc
Diode reverse recovery time (maximum)..... 20nS
Diode forward voltage.....+1.2 vdc
Diode source current (maximum)..... 1.0 A
Maximum device current draw @ 12 vdc:
On V_{DD} pin **(1)**
$-40°C \leq T_A \leq +85°C$..... < 100 mA
Sunk by output pin Ls..... 1000 mA
Clamp current, I_K ($V_{PIN} < 0$ or $V_{PIN} > V_{DD}$) ..... ±20 mA
Total power dissipation.....400 mW
Output low condition……..0.3V
Output OFF condition…….. > 500 kΩ
Minimum to maximum PWM setting……....20% to 90%
Settling delay at turn on…….. < 3100 mS

Note 1: Maximum current rating requires a low impedance path to Gnd. Maximum current draw for this device at 12vdc is typically 92mA.

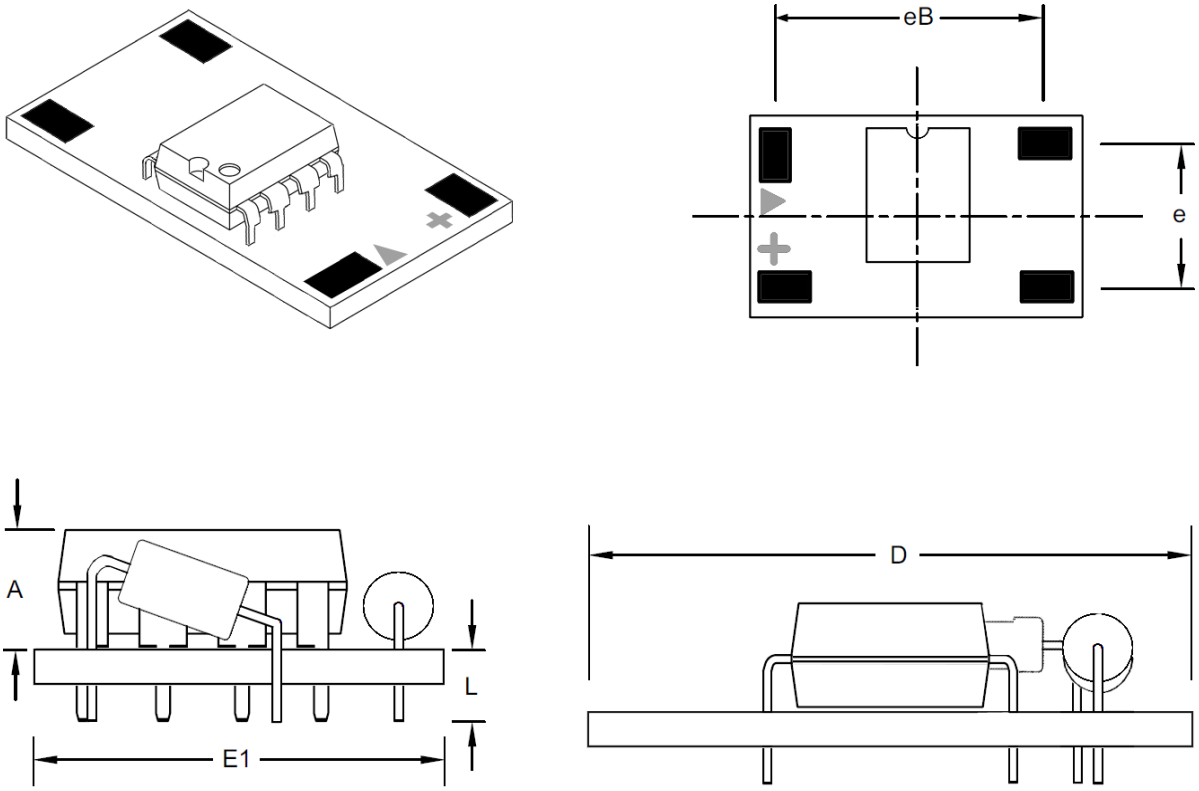
Document Revisions

1.0 – First release for LH-24C

Package information

4 pad CMS

Fig 2



Datum	Dimension specifics	imperial inches		
Identifier		Min	Nom	Max
D	Overall Length	-	.860	.880
E1	Overall Width	-	.530	.550
A	Top to PCB	-	-	.220
L	PCB top to lead tip	.130	.140	.160
eB	PAD Spacing	-	.680	.700
e	PAD spacing	.340	.360	.380

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• **General Technical Support** – Frequently Asked Questions (FAQ), technical support via web mail form.

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