WT- RampStart™

CMS (Compact Modular Solution)

Description:

The RampStart is a complete miniaturised soft start system that allows high current loads at voltages up to 28vdc to be activated in environments in which spikes and brownouts cannot be tolerated. Such environments usually have sensors, transducers, amplifiers or microprocessors that should not be exposed to supply noise or droops. The module provides a ramped Pulse Width Modulated sink for the load, automatically changing the ON to OFF ratio from a few percent up to 100% over a short period. High speed switching waveforms and low Rds ensure an efficient switching transition. The device has a pre-programmed delay of approximately 300mS settling time before the ramp is initiated.

Features:

- Complete CMS (Compact Modular Solution) only 12mm x 24mm
- 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:

- Soft ramped start of loads in sensitive electronic systems and environments. *

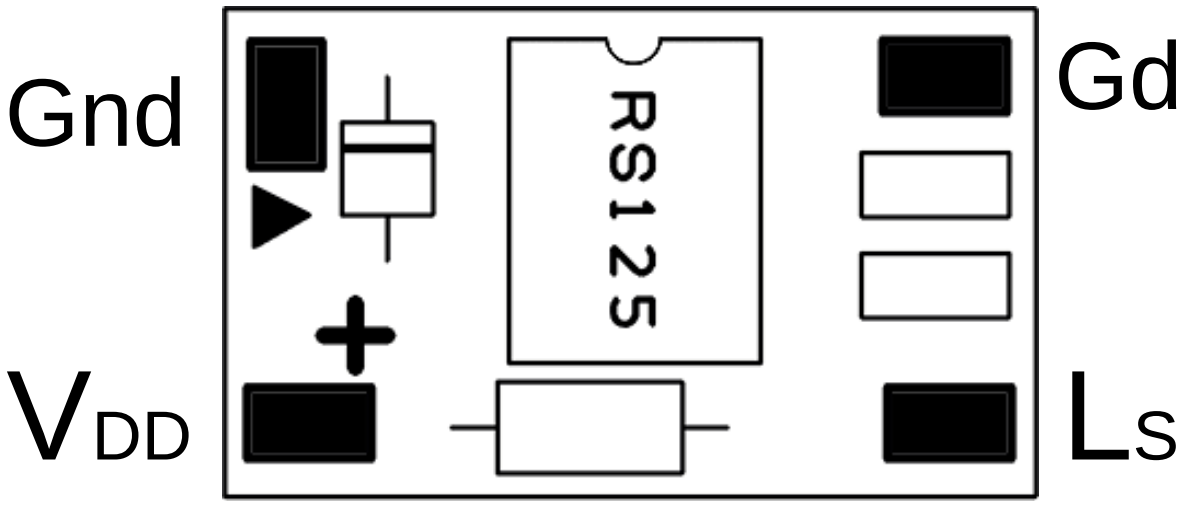
Operating Characteristics:

- Sink voltage :
  - 28 volts direct current (maximum.)
- Operating current :
  - 9ma, typical
- Operating voltage (typical):
  - 12 volts direct current.
- Ramp period from start to finish:
  - < 1000 ms **
- Temperature Range:
  - Industrial: -40°C to +85°C
- Output sink capability 5000ma (maximum)

**Any electronic system which incorporates sensors, transducers, amplifiers or microprocessors.*
***Typical ramp period.*

MODULE DIAGRAM

Connection Diagram – 4-Pad CMS



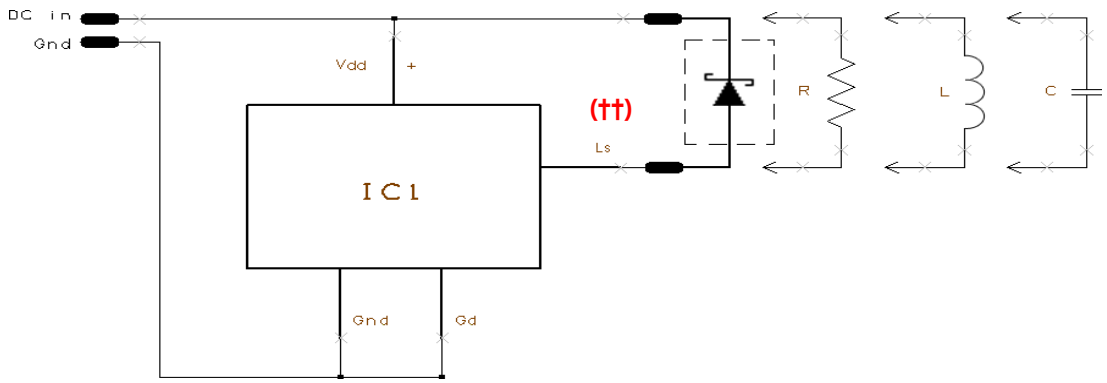
PAD	Direction	NAME	FUNCTION
1	output	Gnd	Supply ground
2	Output	Gd	Secondary ground
3	output	Ls	Load sink
4	input	Vdd	Module supply

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.

Application notes

The recommended application schematic is shown below, note that no decoupling capacitor is required. The schematic in figure 1 shows the recommended minimum configuration for this device.

Fig 1



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

Absolute Maximum Ratings (†)

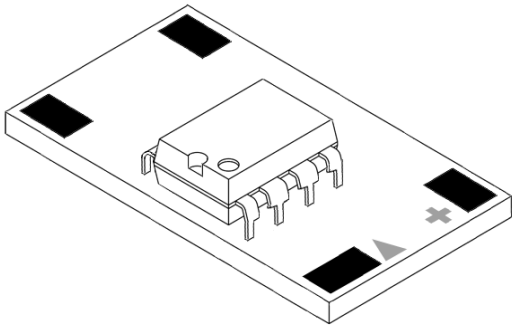
Ambient temperature under bias..... -40°C to +125°C
Storage temperature ..... -65°C to +150°C
Maximum voltage On V_{DD} pin.....+15.0 vdc
Maximum voltage On Ls pin.....+28.0 vdc
Minimum operating voltage.....+5.0 vdc
Diode reverse recovery time (maximum)..... 20nS
Diode forward voltage.....+1.2 vdc
Diode source current (maximum)..... 2.5 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..... 5000 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 ramp duration……...< 1200 mS
Settling delay at turn on…….. < 310 mS

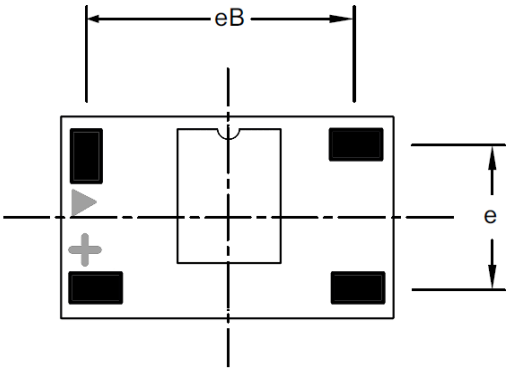
Note 1: Maximum current rating requires a low impedance path to Gnd. Maximum current draw for this device at 12vdc is typically 92mA.

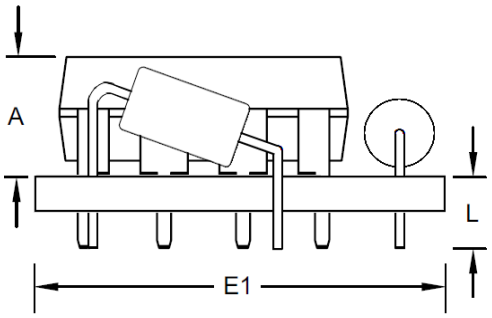
† IMPORTANT NOTICE: Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operation listings of this specification is not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

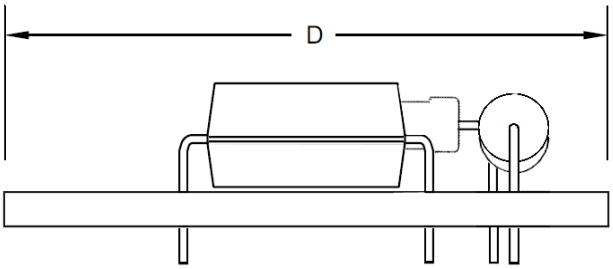
Package information

4 pad CMS









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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