



Linear Power Module

1.1.1 Object

The Linear Power Module is an electronic component, which actuates a vehicle interior blower motor depending on a specified value from the electronic climate control (ECC) system or manual controls.

I. Technical description:

The purpose of the Linear Power Module (LPM) is to control a current via DC motor, driving a fan to ventilate the passenger compartment of automobiles. The LPM perform transfer function $I_{mot} = f(U_c)$.

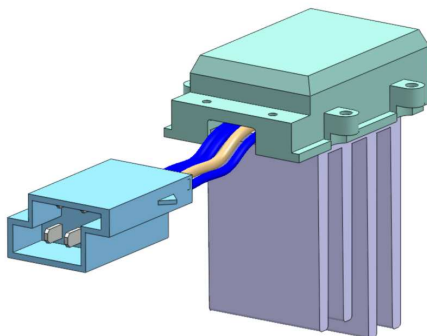
The LPM is a low side type (current sink), i.e. the fan motor is connected to ground via the LPM. The LPM is protected against damage due to thermal overload, short circuit, overcurrent and overvoltage as well. High side modification would be a subject of an optional project/design.

II. Basic features

The Linear Power Module shall incorporate following functions.

- 0-5V DC Input signal
- rated voltage 14V
- operating voltage range 9V – 16V
- Diagnostic feedback (optional)
- Current regulation
- Compensation of battery voltage fluctuations
- Temperature limitation/over temperature protection
- Power current limitation
- Supports direct battery connection or connection through relay
- Reverse voltage protection
- Stall rotor protection
- Short circuit protection
- Sleep mode(optional)
- The operating temperature shall meet Code: C $T_{min} = -40^{\circ}C$; $T_{max} = +75^{\circ}C$

III. Design sample



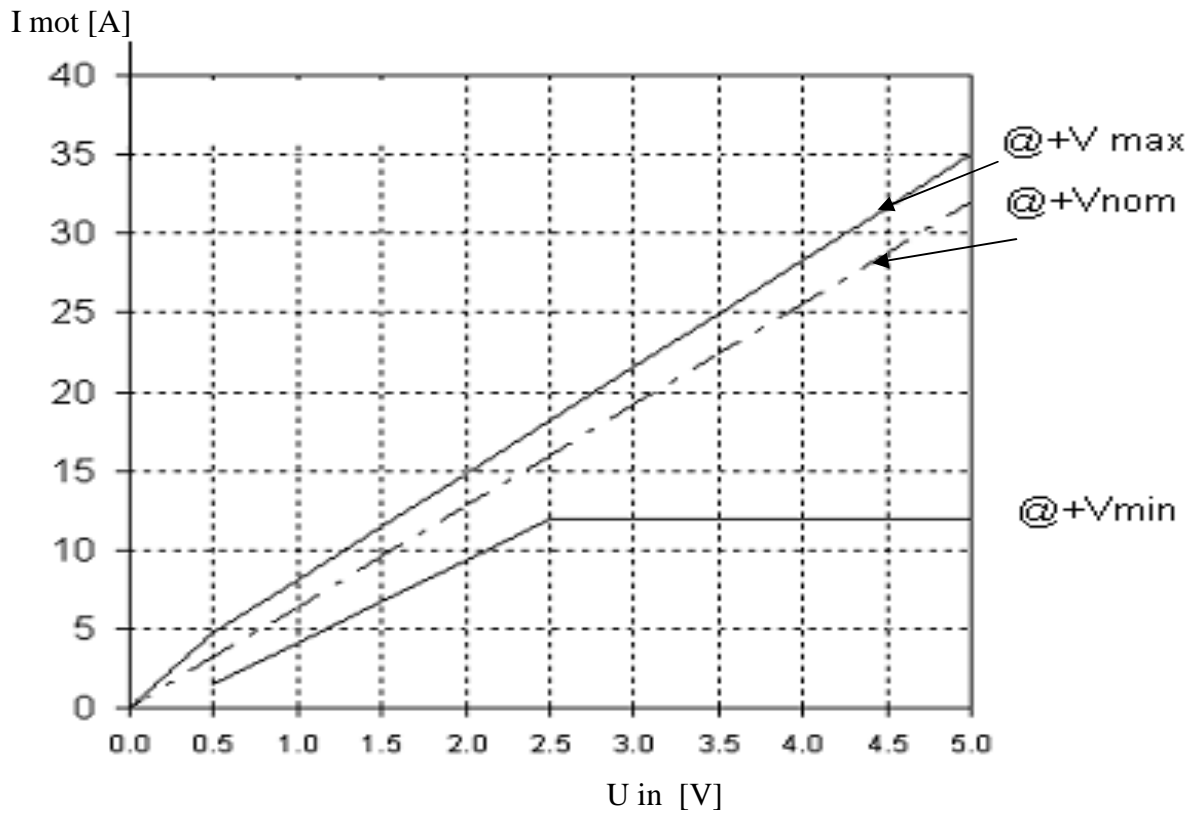
Product Description

The blower controller comprises the following main components:

- Discrete Electronic Circuit
- Power switch,- single MOSFET transistors
- Die casting/extruded profile heatsink with foam seal
- Plastic housing
- Connector on cable harness or cover integrated (optional)
- The transistor is thermally coupled to the heatsink

IV. Transfer function

The LPM has following transfer function for DC Input Signal



- Amplification factor $V_0 = 2,8$
- Voltage drop on LPM (R_{dson} and Shunt) $< 0,7$ V. Voltage drops on the motor supply lines and terminal contacts are not taken into consideration.
- LPM operating range: $0,5V \leq DC\text{-Input} \leq 5V$