



### Description

The ELM327 “OBD to RS232 Interpreter” IC introduced a new feature with v1.3 - the ability for a user to store a unique 12 character identifier code. This identifier can be read at any time, but it can not be changed once it has been set.

Software developers will have difficulty proving their code with this “write once, read many” feature, so we have introduced the ELM328 integrated circuit as a development tool for them.

The ELM328 is a special version of the ELM327 - it is identical electrically, but the firmware has one new command (AT @0) that resets the @2 identifier lock.

### Features

- Based on the latest version of the ELM327
- Allows testing of the @2 and @3 functions

### Applications

- ELM327 code development only (not suitable for OBD scan tools)

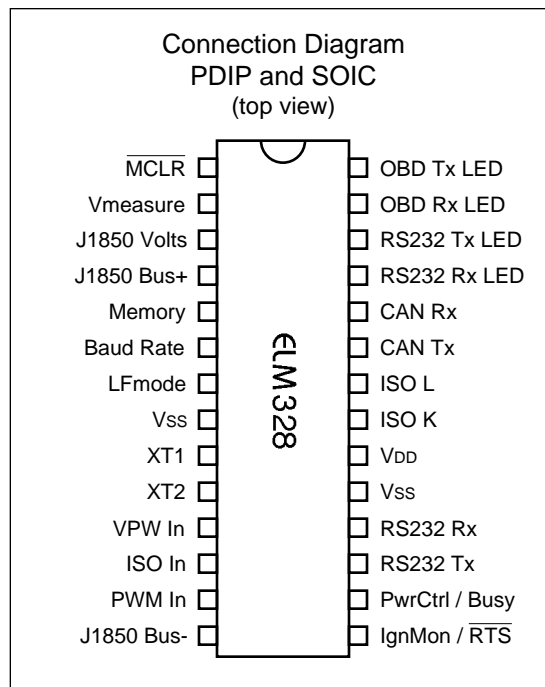
### Usage Notes

1. The ELM328 electrical connections and characteristics are identical to the ELM327 integrated circuit, so that it can be directly substituted into an ELM327 circuit.
2. The ID string sent at power up, or in response to AT I is “ELM328 v1.4” and not “ELM327 v1.4”.
3. The ELM328 offers one new AT command - the @0 command, which unlocks the @2 identifier, restoring it to the factory new condition. ELM327 software developers may repeatedly experiment with the @2 and @3 commands, using AT @0 to reset the identifier as required.
4. The ability to send OBD commands has been removed from the ELM328. If you try to send an OBD command, the ELM328 will always act as if no ECU is connected, and no data will be transmitted.

### Ordering Information

These integrated circuits are 28 pin devices, available in either a 300 mil wide plastic (‘skinny’) DIP format or in a 300 mil SOIC surface mount type of package. To order, add the appropriate suffix to the part number:

300 mil 28 pin Plastic DIP.....ELM328P      300 mil 28 pin SOIC..... ELM328SM





**Absolute Maximum Ratings**

Storage Temperature..... -65°C to +150°C

Ambient Temperature with  
Power Applied..... -40°C to +85°C

Voltage on V<sub>DD</sub> with respect to V<sub>SS</sub>..... -0.3V to +7.5V

Voltage on any other pin with  
respect to V<sub>SS</sub>..... -0.3V to (V<sub>DD</sub> + 0.3V)

Note:  
These values are given as a design guideline only. The ability to operate to these levels is neither inferred nor recommended, and stresses beyond those listed here will likely damage the device.

**Electrical Characteristics**

All values are for operation at 25°C and a 5V supply, unless otherwise noted. The ELM328 is electrically identical to the ELM327 in all respects. For further information, refer to the ELM327 data sheet, and to note 1 below.

Characteristic	Minimum	Typical	Maximum	Units	Conditions
Supply voltage, V <sub>DD</sub>	4.5	5.0	5.5	V	
V <sub>DD</sub> rate of rise	0.05			V/ms	see note 2
Average supply current, I <sub>DD</sub>		12		mA	see note 3
Brown-out reset voltage	4.11	4.33	4.55	V	

- Notes:
1. This integrated circuit is based on Microchip Technology Inc.'s PIC18F2480 device. For further device specifications, and clarification of those given, please refer to the appropriate Microchip documentation (available at <http://www.microchip.com/>).
  2. This spec must be met in order to ensure that a correct power on reset occurs. It is quite easily achieved using most common types of supplies, but may be violated if one uses a slowly varying supply voltage, as may be obtained through direct connection to solar cells or some charge pump circuits.
  3. Device only. Does not include any load currents.

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