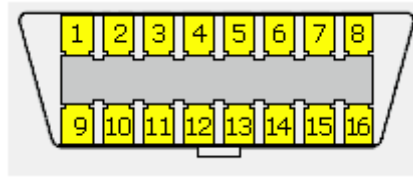
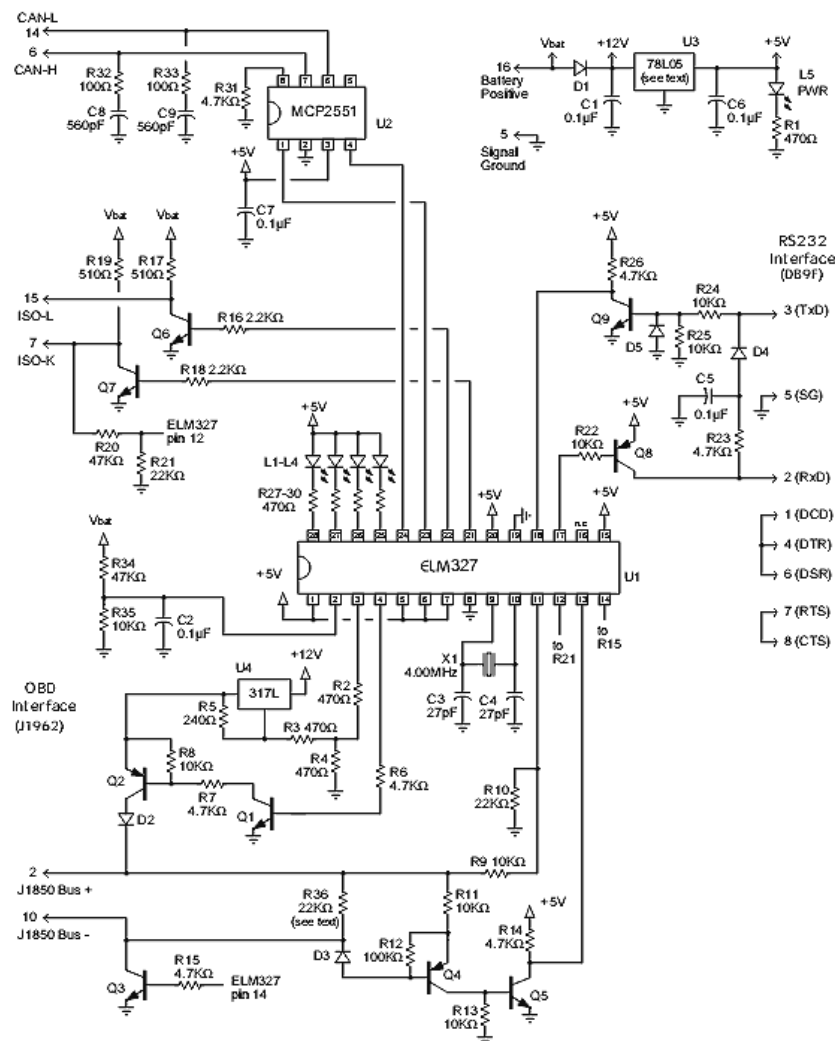


# OBD-2 universal diagnostic cable scheme for ISO 15765-4 CAN, SAE J1850 PWM, SAE J1850 VPW, ISO 9141-2, ISO 14230-4 and SAE J1939 pinout



*PWM, VPW, ISO 9141-2 and CAN are supported*

This device is a microcontroller which is designed to interface a personal computer or laptop with a vehicle's On Board Diagnostic (OBD II) interface. It is intended to function with all protocols used by vehicle manufacturers to implement the OBD II system as defined by SAE and ISO specifications. The OBD II system became mandatory for 1996 and up vehicles, but some vehicles were already fully or partially compatible with OBD II requirements prior to 1996. The chip is not suitable for the earlier vehicles such as OBD I. The device is intended to function as a simple scan tool and is capable of sending and receiving any OBD II message defined in SAE J1979 for any of the three types of OBDII bus implementations (PWM, VPW, ISO 9141-2). It can also be used as an inexpensive interface for custom instrumentation monitoring various vehicle parameters such as speed, RPM, coolant or intake air temperature, engine load, intake air flow rate, etc.



## Components:

D1=1N4001

D2,S3,D4,D5=1N4148

L1,L2,L3,L4=Yellow LED

L5=Green LED

Q1,Q3,Q5,Q6,Q7,Q9=2N3904(NPN)

Q2,Q4,Q8=2N3906(PNP)

U1=ELM327

U2=MCP2551

U3=78L05(5V, 100mA regulator)

U4=317L (adj. 100 mA regulator)

C1,C2,C5,C6,C7=0.1uF 16V

C3,C4=27p

C8,C9=560pF

R32,R33=100 Ohm

R5=240 Ohm

R1,R2,R3,R4,R27,R28,R29,R30=470 Ohm

R17,R19=510 Ohm 1/2W

R16,R18=2.2 KOhm

R6,R7,R14,R15,R23,R26,R31=4.7 KOhm

R8,R9,R11,R13,R22,R24,R25,R35=10 KOhm

R10,R21,R36=22 KOhm

R20,R34=47 KOhm

R12=100 KOhm

X1=4.000MHz crystal

RS232 conn=DB-9 female

IC Socket=28 pin 0.3 (or 2x14 pin)