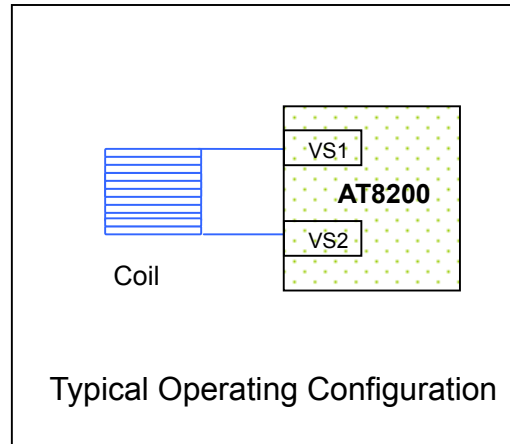


Feature

1. Batteryless transponder
2. Embedded 64-bit poly fuse ROM
3. On chip supply buffer capacitor
4. On chip voltage limiter
5. Full wave voltage regulator
6. Operating frequency: $128\text{k}\pm 5\text{kHz}$
7. Fixed data rate: 8K Hz
7. Die size : 1mmx1mm



Descriptions

The AT8200 is a read-only transponder for identification purpose. The AT8200 is a CMOS process IC. It is batteryless because it gets the energy as its power from an external coil in an electromagnetic field. It gets the clock from the electromagnetic field and read the data from internal pre-programmed poly fuse ROM. By turning On/Off the modulation circuit, the AT8200 send the back scattering data to a read device.

The poly fuse is programmed at the factory and has been well verified. The code is unique in each die.

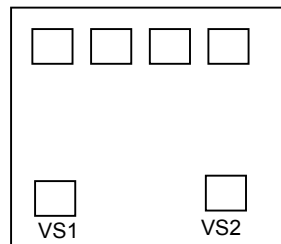
The AT8200 has a build-in resonance capacitor and it needs only an external coil to obtain the required energy. The supply buffer capacitor is also build-in. The code type is PSK and the data rate is fixed at 16 periods of carrier frequency.

Aimtron reserves the right without notice to change this circuitry and specifications.

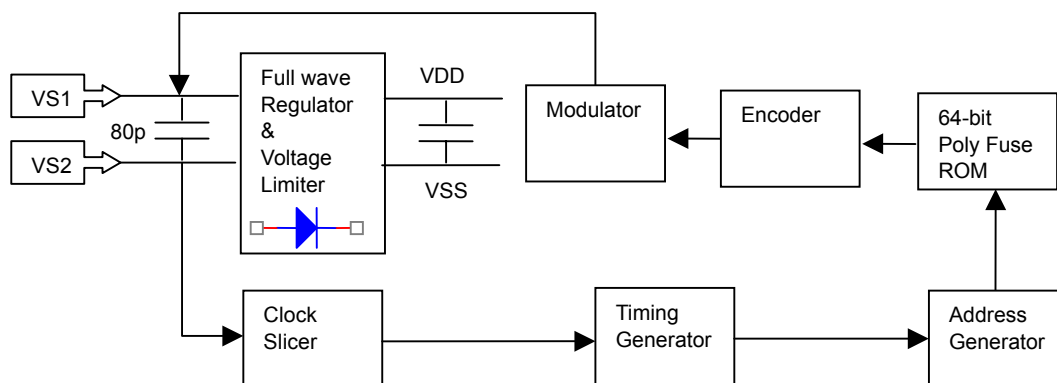
Pin Description

VS1: coil terminal

VS2: coil terminal/clock input



Functional Block Diagram



Functional Description

Full Wave Regulator and Voltage Limiter

The power supply of the AT8200 is got from the external electromagnetic field induced by an external coil. The induced AC voltage is full wave rectified to get the DC power supply. If the induced AC voltage is too large, the chip will be damaged. A voltage limiter is required to protect the AT8200 from malfunction.

Clock Slicer

The system clock of the AT8200 is got from pin VS2. It must be sliced and level-shifted to drive the internal logic circuit.

Timing Generator and Address Generator

The internal logic to get the necessary timing control signal to sequentially read the data from the pre-programmed poly-fuse ROM. The data is repeatedly read from the ROM at 64-bit period.

Encoder and Modulator

The data read from the ROM is encoded to PSK data format. The PSK data is used to control the modulation circuit to let the internal switch to on/off. The on/off operation will affect the back scattering signal read by the reader device.

Poly Fuse ROM

**The "1" means fuse is broken by laser beam*

PC0	PC1	PC2	PC3	PC4	PC5	PC6	PC7
DA0	DA1	DA2	PA	DB0	DB1	DB2	PB
D80	D81	D82	P8	D90	D91	D92	P9
D60	D61	D62	P6	D70	D71	D72	P7
D40	D41	D42	P4	D50	D51	D52	P5
D20	D21	D22	P2	D30	D31	D32	P3
D00	D01	D02	P0	D10	D11	D12	P1
1	0	0	0	0	0	0	0

Maximum Rating

1. Operating Temperature :0~70
2. Storage Temperature :-20~150
3. RF input voltage (VS1-VS2) : 20Vpp

Electrical Characteristics

Test conditions: temperature=25°C

1. Supply voltage (VS1-VS2): min. 3.6Vpp max: 20Vpp
2. Supply current: tbd
3. Power supply capacitor: 100-130p
4. Resonance capacitor: 70-90p
5. Modulation Index: >40% when VS1-VS2=10Vpp
6. Carrier frequency: 128k±5kHz
7. Data rate: carrier frequency /16