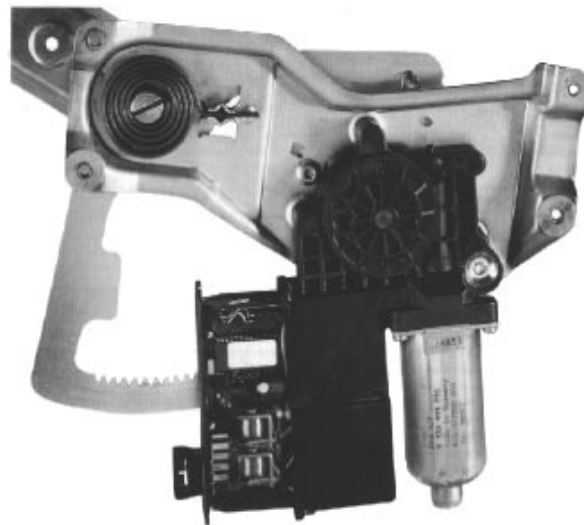


Power Window Control System

AUTOMOTIVE SOLID STATE

AP 00283



PRODUCT

Solid state sensors
SS466A and SS400 Series Hall
effect sensors

SAFETY REQUIREMENTS

One of the most important requirements for a car window control system is safety. When the window moves up or down, the force generated can reach between 200 and 300 N. Forces of 100 N can be generated in 10 ms. A hand or an arm in the window could easily be injured. Legislation has been introduced in Europe to regulate the operation of power window control systems.

Sensors detect the speed and direction of window motion and signal a microcomputer, which adjusts the movement.

SPEED AND ACCURACY

The sensors must respond within 100 μ s with 1% accuracy, and deactivate the system. The system must respond to an opening as small as 4 mm, and must operate when the gap is less than 200 mm. The sensors also monitor changes in window speed. As soon as a 10% change is detected, the computer recognizes that an obstacle is present and winds the window 40 to 50 mm downwards.

SS466 HALL EFFECT SENSORS

Two SS466A bipolar latching Hall effect sensors record the revolutions of the motor. Counting starts from the upper position, using the count-up/count-down technique.

The sensors are positioned at 90° to each other. The temperature compensated sensors counteract

the decline in the coercive force of the magnet at higher temperatures.

The system functions between 5 VDC and 20 VDC and can withstand pulse surges up to 350 V without impairing accuracy. In addition, the sensors' operate and release points are highly symmetrical.