Technical Information

Siemens VDO

PASE/RKE Module

GM Easy Key 295 ECU

General Product Information

Design Location:

Siemens VDO Automotive
4685 Investment Drive
Troy, MI 48098

Manufactured Location:

Siemens VDO S.A. de C.V.
Camino a la Tijera # 3
Km 3.5 Carretera Guadalajara-Morelia
C.P. 45640 Mpio. Tlajomulco de Zúñiga, Jalisco
Mexico

Device ID:

GM Easy Key 295 ECU ID: 5WY7280
GM Easy Key Active Antenna ID: 5WY7155

General Description

The Easy Key PASE system consists of a CID (Customer Identification Device), an ECU (Electronic Control Unit), 7 passive ferrite antennas, and an Active Antenna. The ECU transmits information to the CID through a 125kHz ASK carrier and the CID transmits information to the ECU through a 315MHz ASK carrier. The passive antennas are used to transmit the 125kHz.
The system allows for PASE (Passive Start and Entry) and well as RKE (Remote Keyless Entry). Passive entry is initiated by lifting the door handle. The ECU will then generate a 125kHz field, which the CID will read and respond back to the ECU via 315MHz. The keypad on the CID can be used for RKE, where pushing a button transmits a command at 315MHz. Passive start is initiated by pressing the start button inside the vehicle. As with passive entry, the ECU generates a 125kHz signal and the CID responds back with a 315MHz signal.
A backup for instances where RF is not possible is through limphome mode with the CID. In this case, the CID is placed near the Active Antenna (certified under different FCC/IC grant application). The ECU sends a command to the Active Antenna to generate a 125kHz field. The CID will respond back by dampening the field through absorption modulation.

Power Supply

The ECU is powered by the vehicle battery.

Typical Usage Pattern

110 PASE operations in 24 hours with a total transmission length of 5.5 seconds

Transmitter ON	0.23	seconds/hour
Transmitter OFF	3599.77	seconds/hour

Duty Cycle: $T_{ON} / T_{(ON+OFF)}$ X100% = 0.23/3599.77X100% = 0.006%

Immobilizer Protection

The immobilizer section of the ECU is powered by a regulated 5-volt supply. This supply has an absolute maximum current capability of 500mA, with a typical maximum capability of 200mA. The supply can operate up to 45V maximum and has a thermal shut-off should the power dissipation exceed the device's limits. Therefore the immobilizer is limited to a 5V supply with a maximum of 500mA (200mA typical maximum). The immobilizer IC performs antenna diagnostics each time the antenna is activated. These diagnostics check for an open or shorted antenna. The ECU will shut down the antenna driver should a continuous open or short exist.