

GENERIC · POWERTRAIN

P0A39

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A39

Generator Temperature Sensor Circuit High

P0A39 indicates that the generator temperature sensor circuit is reporting a voltage higher than the expected range, which the powertrain control module interprets as an excessively hot or open circuit condition. The computer has detected a signal voltage above the calibrated threshold for the generator temperature sensor, which is used to protect the alternator from overheating.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the battery/charging system warning light or check engine light
- Reduced charging system performance, possibly leading to a discharged battery
- In some vehicles, the engine may enter a reduced power mode or limit electrical loads
- Intermittent charging system fluctuations or voltage drops
- Often no symptoms besides the warning light, especially if the sensor fault does not immediately affect charging

Common causes, most likely first

- 1 Faulty generator temperature sensor (internal short or open circuit)
- 2 Damaged or corroded wiring harness or connector at the generator
- 3 Open circuit in the sensor signal circuit (broken wire, poor terminal tension)
- 4 Short to voltage in the sensor signal circuit
- 5 Failed generator assembly (if sensor is integrated and not serviceable separately)
- 6 Poor ground connection for the generator or sensor circuit
- 7 Powertrain control module (PCM) internal fault (rare)



How to diagnose and fix it

- 1 Perform a visual inspection of the generator, sensor connector, and wiring for damage or corrosion
- 2 Check for technical service bulletins (TSBs) related to the generator temperature sensor circuit for the specific vehicle
- 3 Measure resistance of the generator temperature sensor and compare to specifications; replace if out of range
- 4 Backprobe the sensor signal circuit at the PCM and check voltage with key on, engine off; compare to expected values
- 5 Check continuity and resistance of the signal and ground circuits between the sensor and PCM; repair open or short as needed
- 6 If wiring and sensor are good, test the generator output and consider replacing the generator if the sensor is integral and faulty
- 7 Clear codes and verify repair by running the engine and monitoring live data for the generator temperature sensor

Generator temperature sensor circuit quirks

- A high voltage reading on the generator temperature sensor circuit often indicates an open circuit rather than an actual overheating condition, so do not assume the alternator is overheating.
- Some vehicles use the generator temperature sensor to control charging voltage, and a fault may cause the charging system to default to a fixed voltage, leading to under- or overcharging.
- The sensor may be integrated into the generator assembly on certain models, making replacement of the entire generator necessary if the sensor fails.
- Corrosion at the generator connector is a common cause that can mimic a failed sensor, so always inspect and clean terminals before replacing parts.
- A faulty generator temperature sensor can set this code without affecting drivability, but ignoring it may lead to premature alternator failure if the PCM cannot properly manage charging.

Can I keep driving with P0A39?

It is generally safe to drive with this code as long as the charging system warning light is not on and battery voltage remains normal. Avoid long trips or heavy electrical loads until the fault is repaired, and monitor for signs of a discharged battery.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Socket set and basic hand tools
- Terminal pick and contact cleaner



Reading P0A39

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- A** Hybrid propulsion.
- 39** The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0563** System Voltage High · **P0620** Generator Control Circuit Malfunction · **P0A38** Generator Temperature Sensor Circuit Low · **P0A3A** Generator Temperature Sensor Circuit Intermittent

See it working

Watch the animated explainer [Car Relay Test Bench: Test 4-Pin and 5-Pin Relays](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0a39/>

