

Product Overview

NCV51705: Automotive SiC MOSFET Driver, Low-Side, Single 6 A High-Speed

For complete documentation, see the data sheet.

The NCV51705 driver is designed to primarily drive SiC MOSFET transistors. To achieve the lowest possible conduction losses, the driver is capable of delivering the maximum allowable gate voltage to the SiC MOSFET device. By providing high peak current during turn-on and turn-off, switching losses are also minimized. For improved reliability, dV/dt immunity and even faster turn-off, the NCV51705 can utilize its on-board charge pump to generate a user-selectable negative voltage rail. For isolated applications, the NCV51705 also provides an externally accessible 5 V rail to power the secondary side of digital or high-speed opto-isolators.

Features

- High Peak Output Current with Split Output Stages
- Extended Positive Voltage Rating up to 28 V Max
- User-adjustable Built-in Negative Charge Pump (-3.3 V to -8 V)
- Accessible 5 V Reference / Bias Rail
- Adjustable Under-Voltage Lockout
- Fast Desaturation Function
- QFN24 Package 4 x 4 mm
- AEC-Qualified

Applications

- High Performance Inverters
- High Power PFC
- High Power SiC Modules

Benefits

- Allow independent Turn-ON/Turn-OFF Adjustment
- Efficient SiC MOSFET Operation during the Conduction Period
- Fast Turn-off and Robust dV/dt Immunity
- Minimize complexity of bias supply in isolated gate drive applications
- Sufficient VGS amplitude to match SiC best performance
- Self-protection of the design
- Small & Low Parasitic Inductance package
- For SiC high power modules in HEV/EV

End Products

- On Board Chargers
- Traction Inverters
- High Power DC/DC converters

Part Electrical Specifications

| Product | Pricing (\$/Unit) | Compliance | Status | Power Switch | Number of Outputs | Topology | Isolation Type | V _{in} Max (V) | V _{CC} Max (V) | Drive Source / Sink Typ (mA) | Rise Time (ns) | Fall Time (ns) | t _o Max (ns) | Package Type |
|---------------|-------------------|---|--------|--------------|-------------------|----------|----------------|-------------------------|-------------------------|------------------------------|----------------|----------------|-------------------------|--------------|
| NCV51705MNTWG | 1.6666 | AEC Qualified PPAP Capable Pb-free Halide free | Active | SiC MOSFET | 1 | Single | Non-Isolated | | | | | | | QFNW-24 |

For more information please contact your local sales support at www.onsemi.com.

Created on: 3/8/2021