

Power-Distribution Switches with Current Limit

General Description

The PN9725 is an integrated power switch for self-powered and bus-powered Universal Serial Bus (USB) applications. Several protection functions include current limit and thermal shutdown to prevent catastrophic switch failure caused by increasing power dissipation when continuous heavy load or short circuit occur.

A built-in 52 mΩ P-channel MOSFET with true shutdown function to eliminate any reversed current flowing across the switch when the device is powered off. When the output voltage is higher than input voltage, the power switch will be turned off by the internal output reverse-voltage comparator. $\overline{\text{FLG}}$ is an open-drain output, which reports over-current or over-temperature event and has a typical 8 ms deglitch timeout period. In addition, $\overline{\text{FLG}}$ also has typical 3 ms deglitch timeout period and reports output reverse-voltage condition.

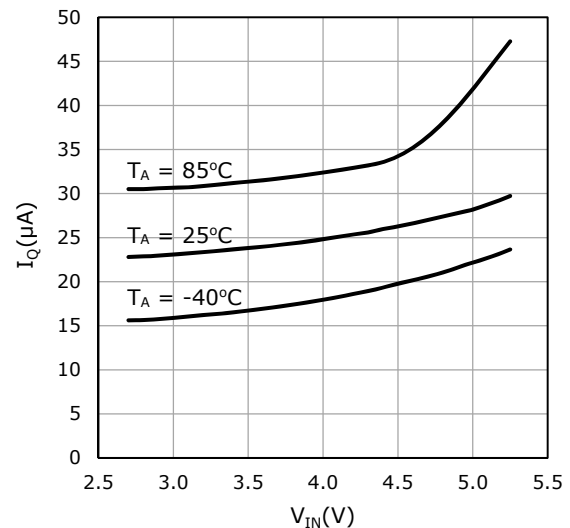
Applications

- High-Side Power Protection Switch
- USB Host and Self-Powered Hubs
- USB Bus-Powered Hubs
- Set Top Box
- Smart TV
- MID and Notebook Computer

Features

- "Best-in-Class" Quiescent Supply Current
- PN9725A: 1.5 A Continuous Current
- PN9725E: 2.1 A Continuous Current
- PN9725F: 2.5 A Continuous Current
- 52 mΩ High-side P-channel MOSFET Switch
- Available with Three Versions Built-in Current Limits
- Operating Range: 2.7 V to 5.5 V
- 0.2 ms Typical Rise Time
- Fast Over-current Response 5 μs (typ.)
- Under Voltage Lockout
- 1 μA Maximum Shutdown Supply Current
- No Reverse Current when Power Off
- Output Reverse-voltage Protection
- Deglitched Open-drain Over-current Flag Output
- Enable Logic: Active-high or Active-low Versions
- Optional Feature: Output Auto Discharge
- Available in SOT-23-5L and MSOP-8 Packages

Quiescent Supply Current



Typical Application Circuit

