

VIPower™ M0-7 H-Bridges

New fully integrated, reliable and compact drivers for DC motors



VNH7 family offers high performances and versatility for automotive DC motor control applications

VNH7 products are fully integrated H-bridges for driving DC motors. They include a double HSD and two LSDs as a power stage in addition to the control stage with a full set of diagnostics and protections. All features are optimized for DC motor applications. Thanks to their combination of VIPower™ M0-7 technology and dedicated packages, the new VNH7 family offers state-of-the-art application performance and robustness as well as cost effectiveness.



KEY FEATURES

- Cross-current protection
- Current limitation
- Over-temperature shutdown.
- Power limitation (ST IP)
- PWM operation up to 20 kHz
- Overvoltage clamp and undervoltage shutdown
- Output protected against loss of ground and loss of V_{CC}
- Output protected against short to ground and short to V_{CC}
- Very low standby power consumption
- Multisense for:
 - Motor current monitoring
 - V_{batt} monitoring (on PowerSSO-36 only)
 - T_{Chip} monitoring (on PowerSSO-36 only)
- AEC-Q100 compliant

KEY BENEFITS

- Cost-effective and space-saving solution compared to discrete multi-package approach.
- Embedded controls and protection for reduced microcontroller workload.
- Improved flexibility.
- State-of-the-art reliability thanks to self-limiting fast thermal transient (power limitation).

KEY APPLICATIONS

- Door lock
- Mirror adjust
- Rear curtain control
- Dual washer pump

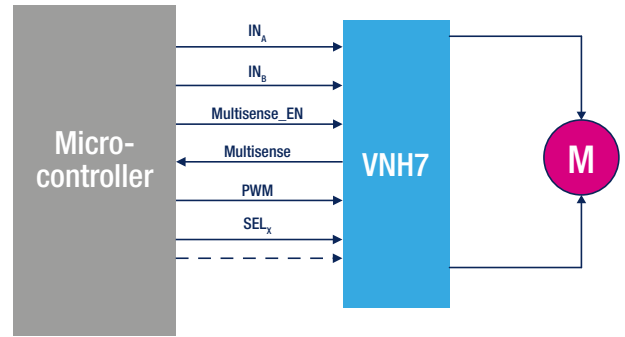


VNH7 FAMILY ALLOWS A COMPACT DESIGN

Thanks to very small packages and high integration, these devices allow the implementation of compact and reliable solutions for automotive DC motor control applications.

The SO-16N is a full plastic triple-island package and has a body size of only 38mm². VNH7070AS and VNH7100AS are housed in this package, combining small size with good thermal performance and at very reasonable price.

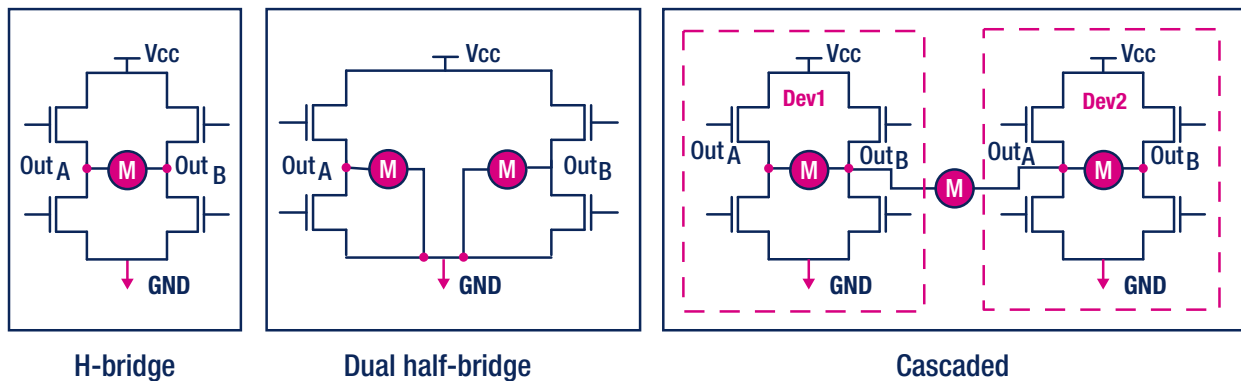
The PowerSSO-36 triple island has three exposed pads offering optimized thermal performance. This package houses the VNH7040AY, a device able to address motors operating at up to 60 W.



Typical application diagram

VNH7 FAMILY SUPPORTS AN IMPROVED FLEXIBILITY FOR DIFFERENT CONFIGURATIONS

Supported hardware configurations



VNH7 MOTOR CONTROL ICs

Part number	Package	Ron typ (per leg) [mΩ]	Limitation Current I _{Lim} typ [A]	PWM	Multi-sense Monitoring features	Comment
VNH7070AS	SO-16N	70	22	yes	Motor current	Pin to pin with VNH7100AS
VNH7100AS	SO-16N	100	18	yes	Motor current	Pin to pin with VNH7070AS
*VNH7040AY	PowerSSO-36	40	49	yes	Motor Current, Battery voltage, Chip Temperature	

Note: *In development. Engineering samples available



© STMicroelectronics - May 2015 - Printed in United Kingdom - All rights reserved
The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies
All other names are the property of their respective owners

