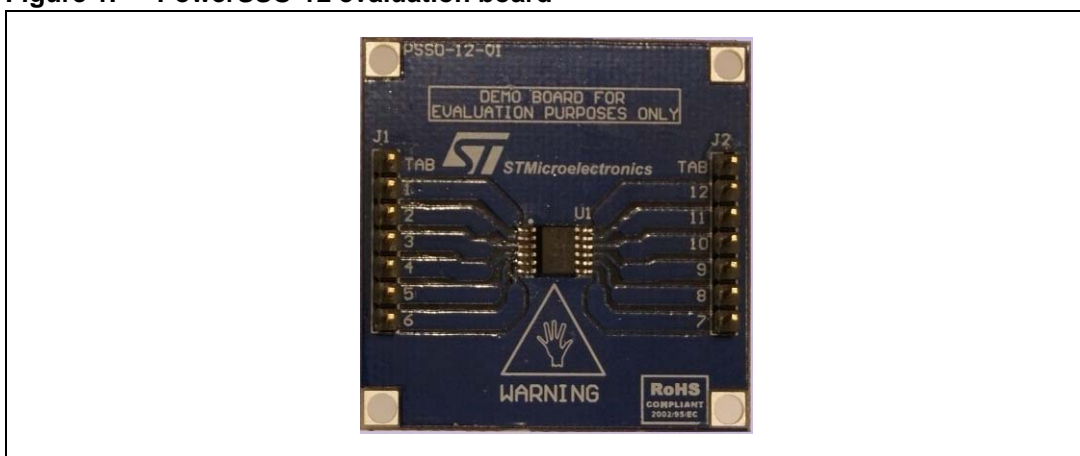


Introduction

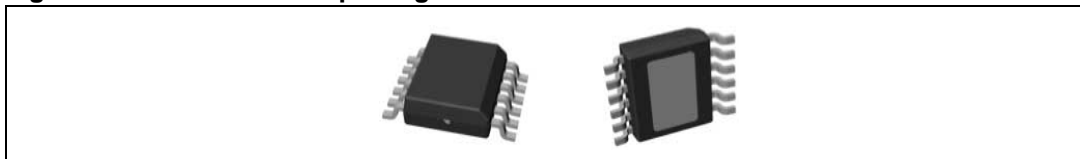
The EV board concept is intended to provide customers with an easy way to connect ST's surface mounted VIPower® drivers into their existing prototype circuitry. The EV boards come pre-assembled with one of ST's VIPower high-side drivers.

Figure 1. PowerSSO-12 evaluation board



These boards provide mounting solutions and some heat sinking capability for prototype development. There are still external components required to make these devices work in any application.

Figure 2. PowerSSO-12 package



This document provides application schematics for the following evaluation boards:

Table 1. EV board

12 V analog devices	12 V digital devices	24 V system device
EV-VN5016AJ	EV-VN5E050J	EV-VND5T100AJ
EV-VN5E025AJ	EV-VND5E050J	
EV-VN5E050AJ	EV-VND5E160J	
EV-VND5E050AJ		
EV-VND5E160AJ		

Contents

- 1 Application schematics 4**
 - 1.1 Digital feedback designs 4
 - 1.1.1 VN5E050J-E application schematic 5
 - 1.1.2 VND5E160J-E application schematic 5
 - 1.1.3 VND5E050J application schematic 6
 - 1.2 Analog feedback drivers 6
 - 1.2.1 VN5016AJ-E / VN5E025AJ application schematic 7
 - 1.2.2 VN5E050AJ application schematic 7
 - 1.2.3 VND5E160AJ application schematic 8
 - 1.2.4 VND5E050AJ application schematic 8
 - 1.3 24 V system devices 9
 - 1.3.1 VND5T100AJ application schematic 9

- Appendix A Reference documents 10**

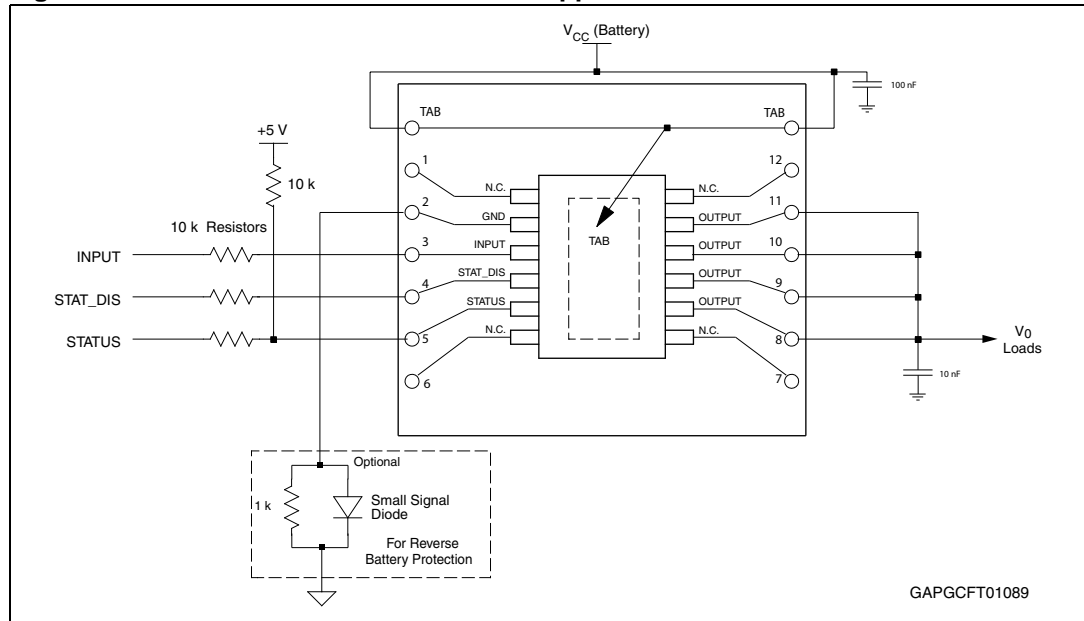
- Revision history 11**

List of figures

Figure 1.	PowerSSO-12 evaluation board	1
Figure 2.	PowerSSO-12 package	1
Figure 3.	Typical single output HSD with digital feedback block diagram	4
Figure 4.	VN5E050J-E evaluation board application schematic	5
Figure 5.	VND5E160J evaluation board application schematic	5
Figure 6.	VND5E050J evaluation board application schematic	6
Figure 7.	Typical dual output analog feedback high-side driver block diagram	6
Figure 8.	VN5016AJ or VN5E025AJ evaluation board application schematic.	7
Figure 9.	VN5E050AJ evaluation board application schematic	7
Figure 10.	VND5E160AJ evaluation board application schematic.	8
Figure 11.	VND5E050AJ evaluation board application schematic.	8
Figure 12.	VND5T100AJ evaluation board application schematic.	9

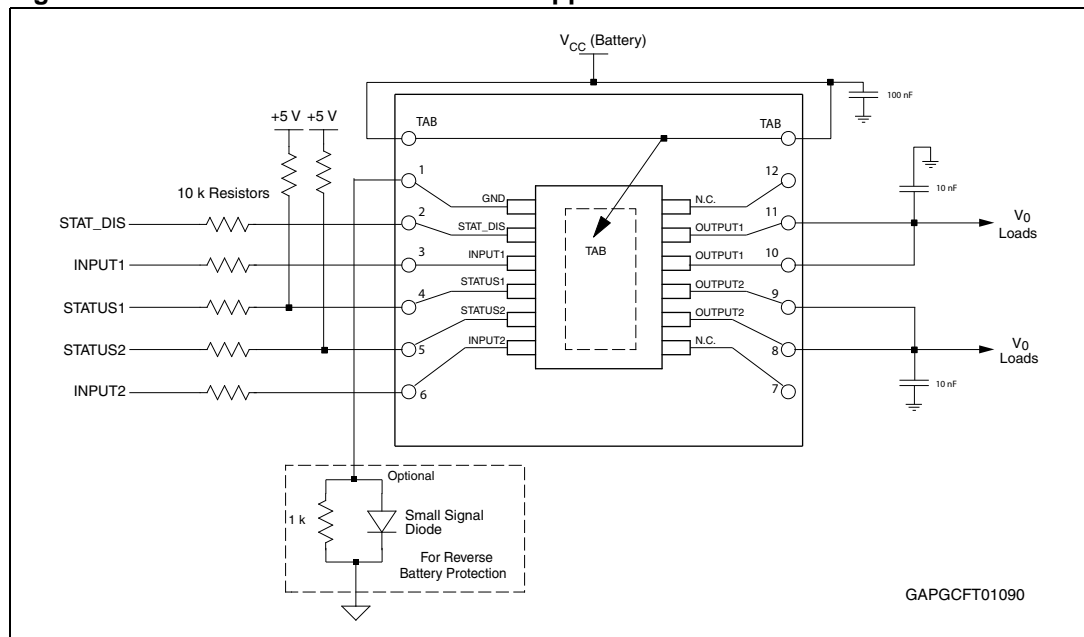
1.1.1 VN5E050J-E application schematic

Figure 4. VN5E050J-E evaluation board application schematic



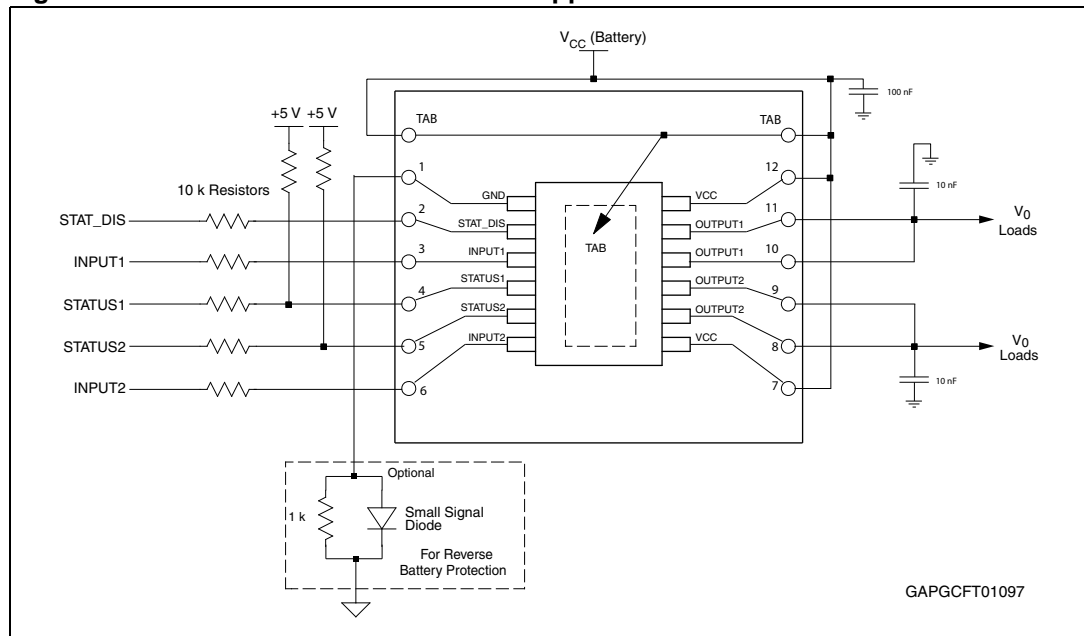
1.1.2 VND5E160J-E application schematic

Figure 5. VND5E160J evaluation board application schematic



1.1.3 VND5E050J application schematic

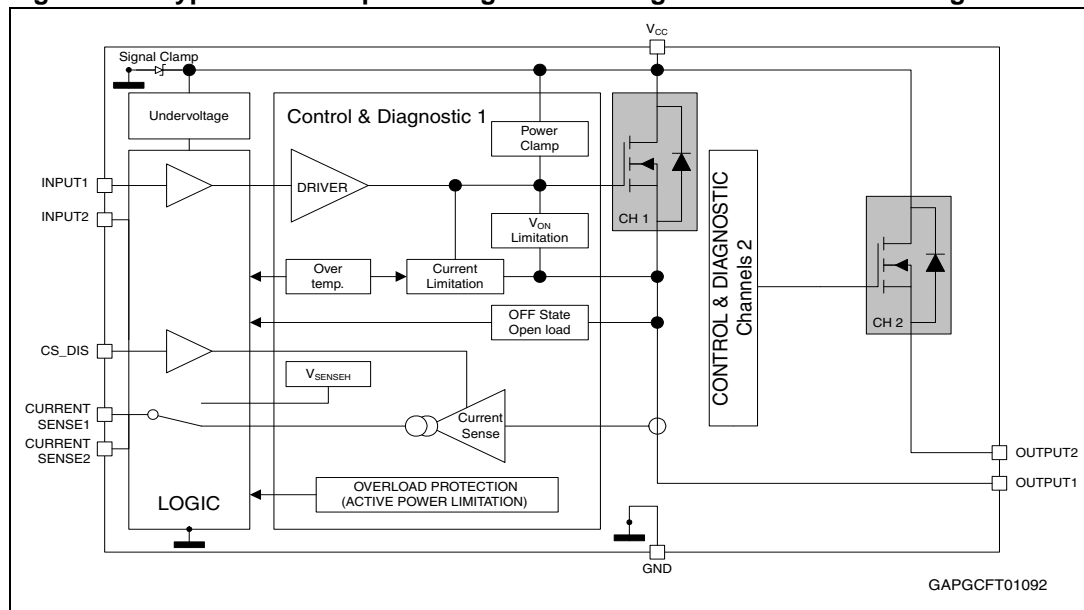
Figure 6. VND5E050J evaluation board application schematic



1.2 Analog feedback drivers

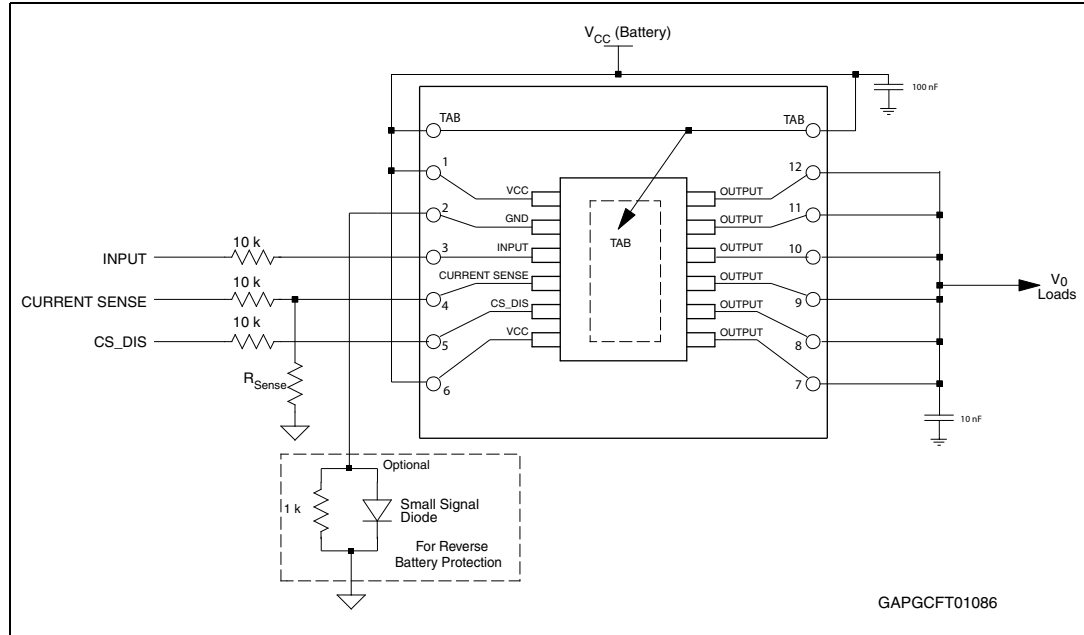
Analog feedback devices have a sense resistor that, when properly scaled, provides a reasonable representation of the output current in terms of voltage that can be measured as well as its diagnostic information. How to properly scale that resistor can be found in the user manual UM1556 (see [Appendix A: Reference documents](#)).

Figure 7. Typical dual output analog feedback high-side driver block diagram



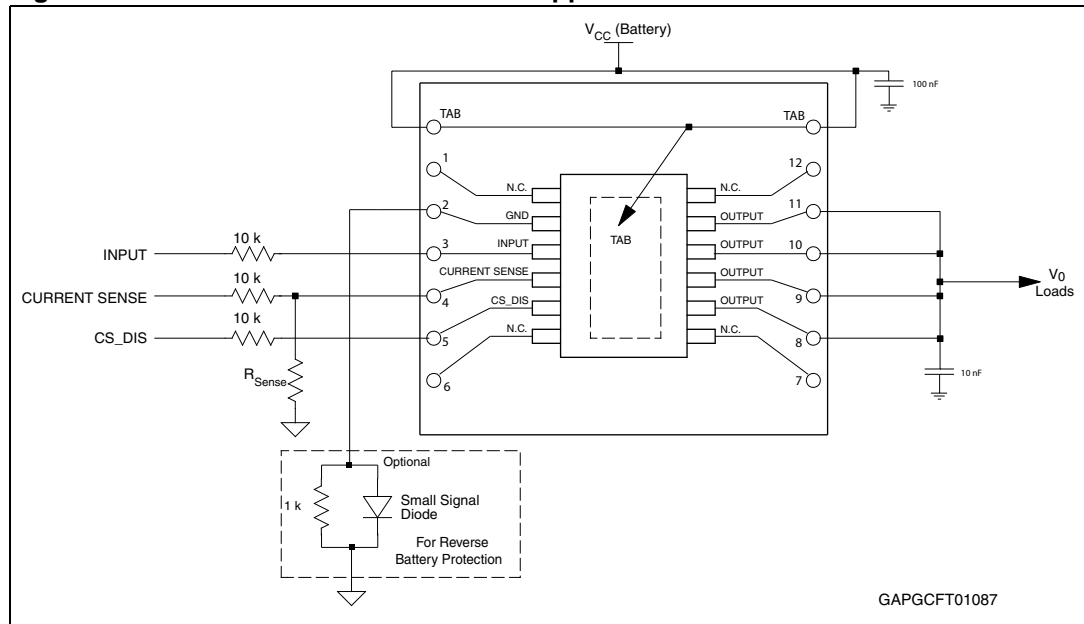
1.2.1 VN5016AJ-E / VN5E025AJ application schematic

Figure 8. VN5016AJ or VN5E025AJ evaluation board application schematic



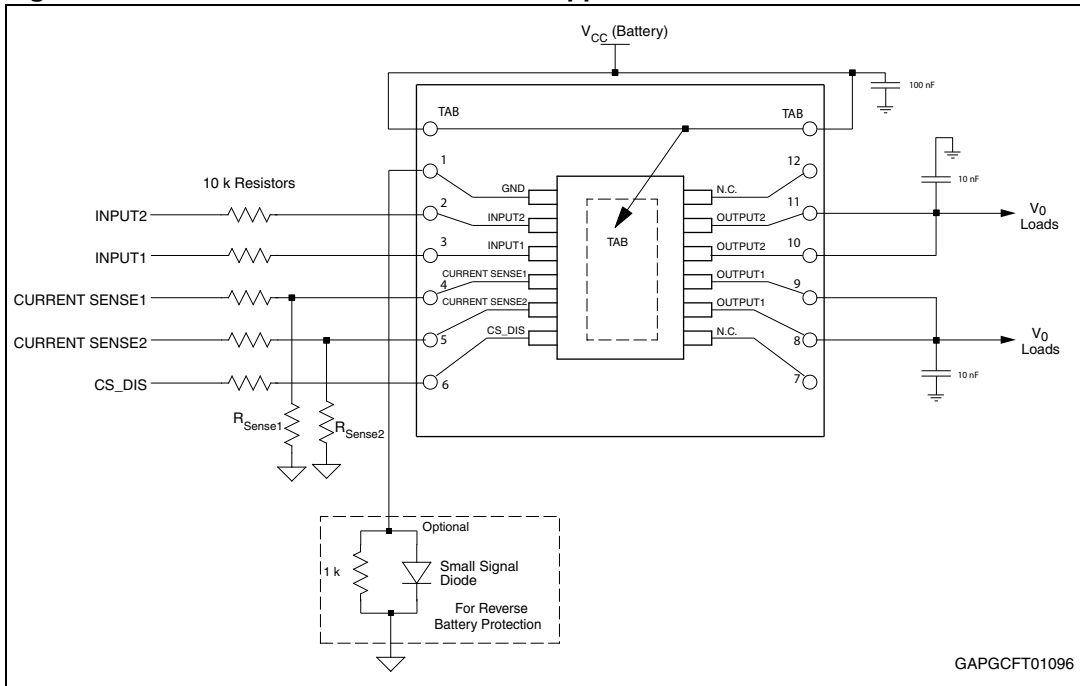
1.2.2 VN5E050AJ application schematic

Figure 9. VN5E050AJ evaluation board application schematic



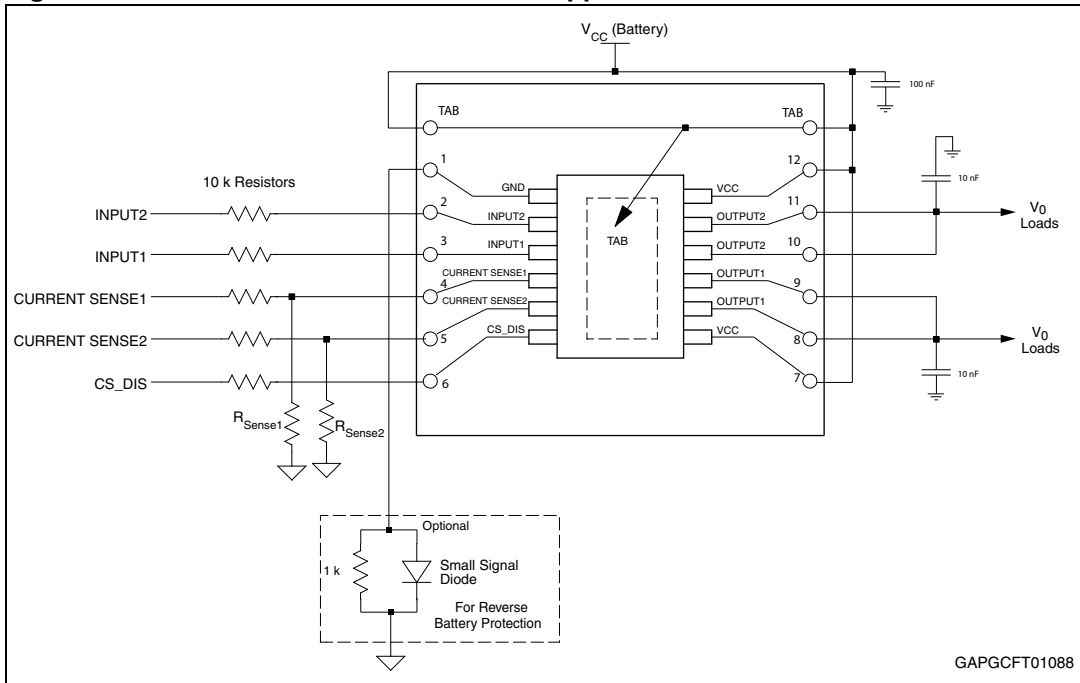
1.2.3 VND5E160AJ application schematic

Figure 10. VND5E160AJ evaluation board application schematic



1.2.4 VND5E050AJ application schematic

Figure 11. VND5E050AJ evaluation board application schematic

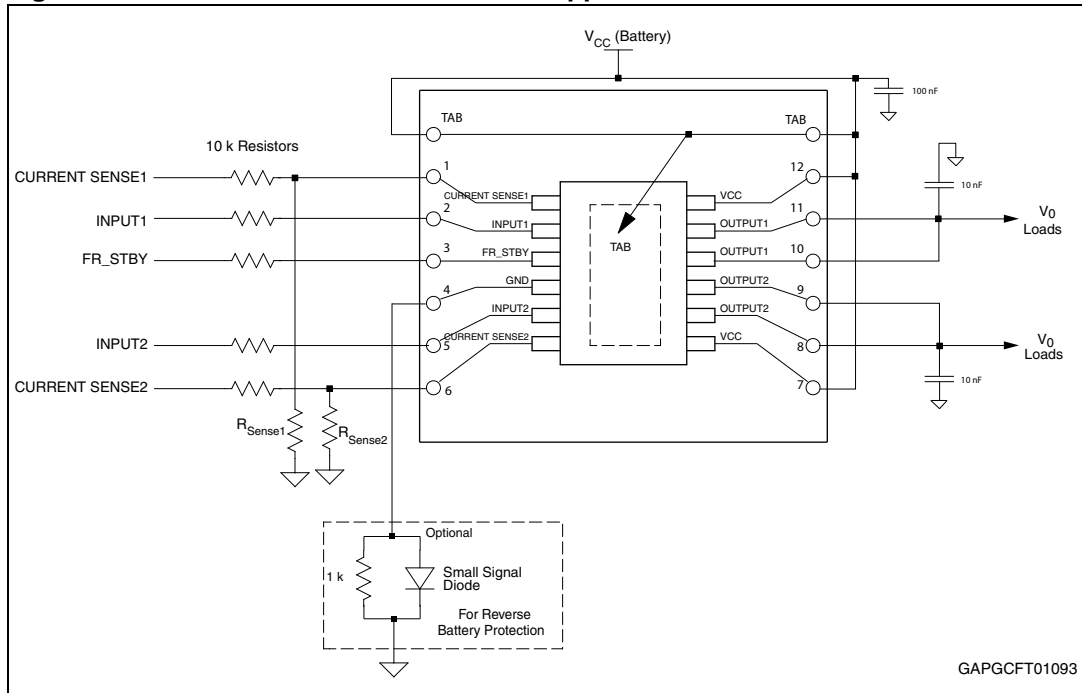


1.3 24 V system devices

1.3.1 VND5T100AJ application schematic

The VND5T100AJ is a 24 V system device. The maximum voltage rating for this device is elevated from the standard 41 V to 58 V. 24 V products are equipped with a latch-off feature keeping the device switched-off once power limitation or thermal shutdown is triggered. This latch can be activated by holding the FR_STBY pin high. Resetting the device to retry the load requires pulling the FR_STBY pin low. Leaving the FR_STBY pin low disables the latch off feature and lets the part automatically retry shorted loads. More details can be found in the user manual UM1557 (see [Appendix A: Reference documents](#)).

Figure 12. VND5T100AJ evaluation board application schematic



Appendix A Reference documents

1. VN5016AJ evaluation board (EV-VN5016AJ, DocID 023957)
2. VN5E025AJ evaluation board (EV-VN5E025AJ, DocID 023956)
3. VN5E050AJ evaluation board (EV-VN5E050AJ, DocID 023952)
4. VND5E050AJ evaluation board (EV-VND5E050AJ, DocID 023958)
5. VND5E160AJ evaluation board (EV-VND5E160AJ, DocID 023959)
6. VN5E050J evaluation board (EV-VN5E050J, DocID 023960)
7. VND5E050J evaluation board (EV-VND5E050J, DocID 023961)
8. VND5E160J evaluation board (EV-VND5E160J, DocID 023962)
9. VND5T100AJ evaluation board (EV-VND5T100AJ, DocID 023967)
10. VIPower M0-5 and M0-5Enhanced high-side drivers (UM1556, DocID 023520)
11. VIPower MO-5T: high-side switches for 24V systems (UM1557, DocID 023521)
12. Evaluation Product Licence Agreement on www.st.com

Revision history

Table 2. Document revision history

Date	Revision	Changes
03-Dec-2012	1	Initial release.

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY TWO AUTHORIZED ST REPRESENTATIVES, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2012 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com