

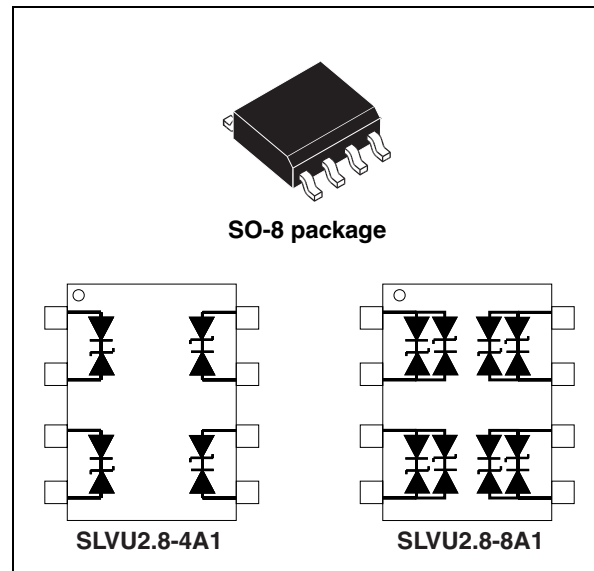
Low voltage unit for Gigabit Ethernet protection

Features

- Peak pulse current : $I_{PP} = 30 \text{ A } 8/20 \mu\text{s}$
- Low capacitance : $C_{typ} = 1.5 \text{ pF}$
- Stand-off voltage : $V_R = 2.8 \text{ V}$
- Low leakage current : $I_{Rmax} = 0.2 \mu\text{A}$
- ECOPACK[®]2 compliant component
- IEC 61000-4-5 (1kV 42 Ω 24 A) compliant at $T_j = 150 \text{ }^\circ\text{C}$

Complies with the following standards

- IEC 61000-4-2 level 4
 - 15 kV (air discharge)
 - 8 kV (contact discharge)
- IEC 61000-4-4 level 4
 - $\pm 2 \text{ kV} - 40 \text{ A } (5/50 \text{ ns})$
- IEC 61000-4-5 level 2
 - $\pm 1 \text{ kV} - 42 \Omega$
- IEEE 802.3ab and 802.3at compatible on both receiver (4 V_{max}) and driver side (3.6 V_{max})
- MIL STD 883G - Method 3015-7
 - 25 kV (human body model)



Description

The SLVU2.8 series has been designed to protect Ethernet line. Its low capacitance makes it compatible with Gigabit Ethernet.

SLVU2.8-4A1 is designed to be compatible with Gigabit Ethernet and Gigabit PoE by using two SO-8 packages and can be used on 10/100 Mbps Ethernet by using a single device.

SLVU2.8-8A1 is designed to be compatible with Gigabit Ethernet and Gigabit PoE by using a single SO-8 package.

Surge capability is compatible with IEC 61000-4-5 class 2 (1 kV, 42 Ω , 24 A).

Packaged in SO-8, the SLVU2.8 is a flow-through design in order to minimize trace inductances. Footprint is in accordance with IPC 7531 standard.

1 Characteristics

Table 1. Absolute ratings ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{PP}	Peak pulse power (8/20 μs)	600	W
I_{PP}	Peak pulse current (8/20 μs)	30	A
T_{stg}	Storage temperature range	-65 to + 150	$^{\circ}\text{C}$
T_j	Maximum junction temperature	-55 to + 150	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10 s.	260	$^{\circ}\text{C}$

Table 2. Electrical characteristics values ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Order code	$I_{RM} @ V_{RM}$				$V_{CL} @ I_{PP}$ 8/20 μs		$V_{CL} @ I_{PP}$ 8/20 μs		C I/O to I/O	
	typ.	max.	max. 85 $^{\circ}\text{C}$		max.		max.		typ.	max.
	nA	μA	μA	V	V	A	V	A	pF	pF
SLVU2.8-4A1	2	0.2	1	2.8	15	24	12	12	1.5	2.5
SLVU2.8-8A1	2	0.2	1	2.8	15	24	12	12	3	5

Figure 1. Pulse waveform

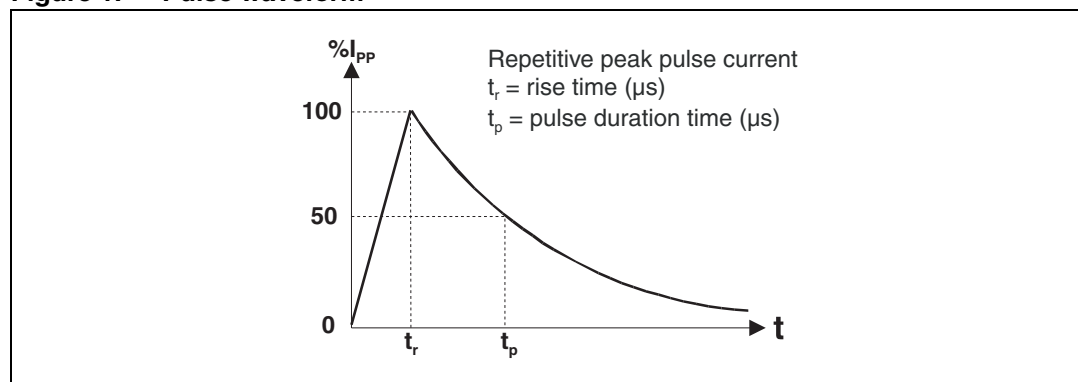


Figure 2. Relative peak pulse power versus initial junction temperature

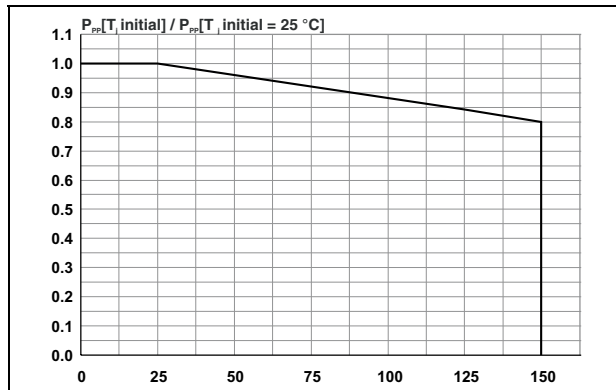


Figure 3. Junction capacitance versus frequency (SLVU2.8-4A1)

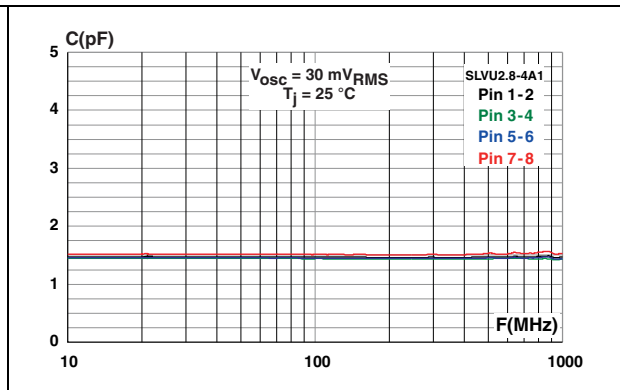


Figure 4. Junction capacitance versus frequency (SLVU2.8-8A1)

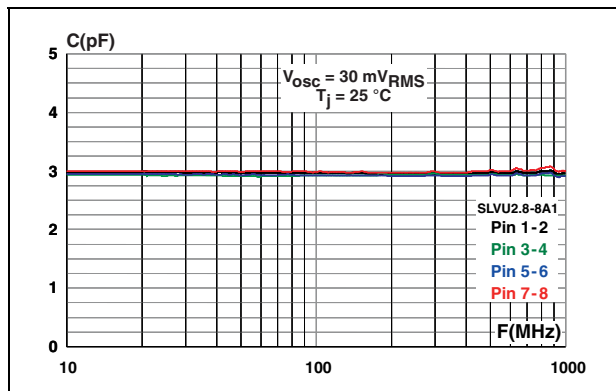


Figure 5. Junction capacitance versus reverse applied voltage (typical values)

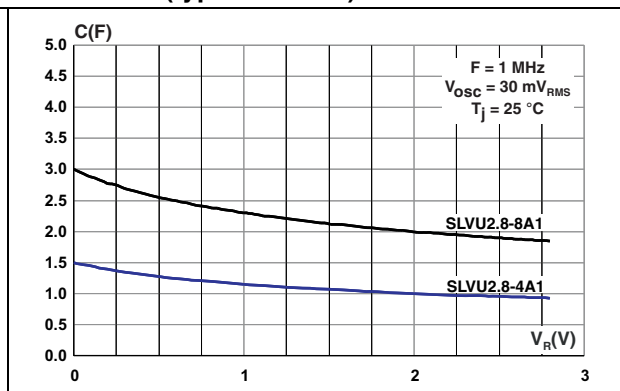


Figure 6. Leakage current versus junction temperature (typical values)

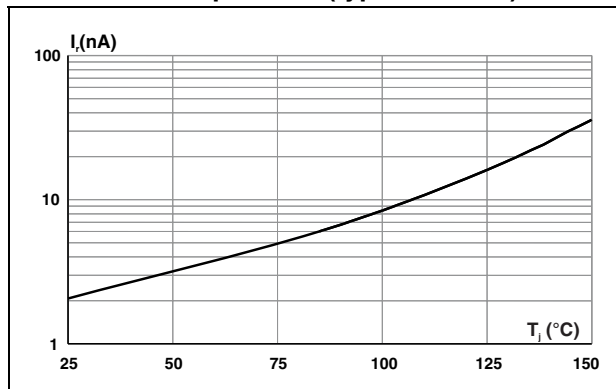


Figure 7. S21 attenuation (typical value)

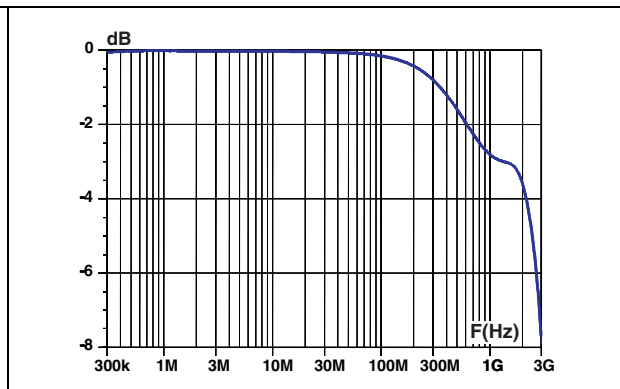


Figure 8. Connection for 10/100 Mbps Ethernet with SLVU2.8-4A1

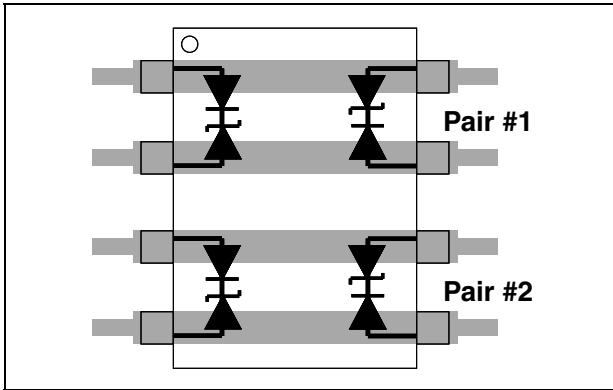


Figure 9. Connection for 1G Ethernet with SLVU2.8-8A1

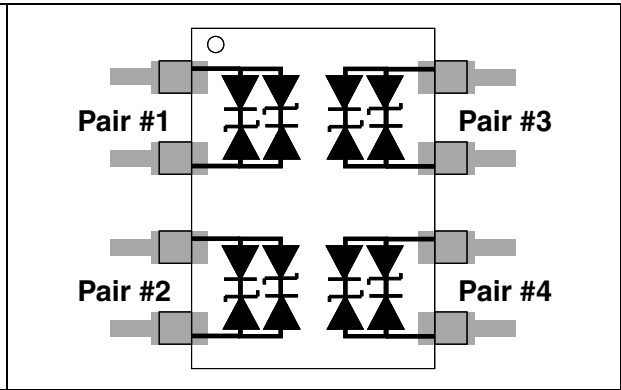


Figure 10. Schematic for 10/100 Mbps Ethernet

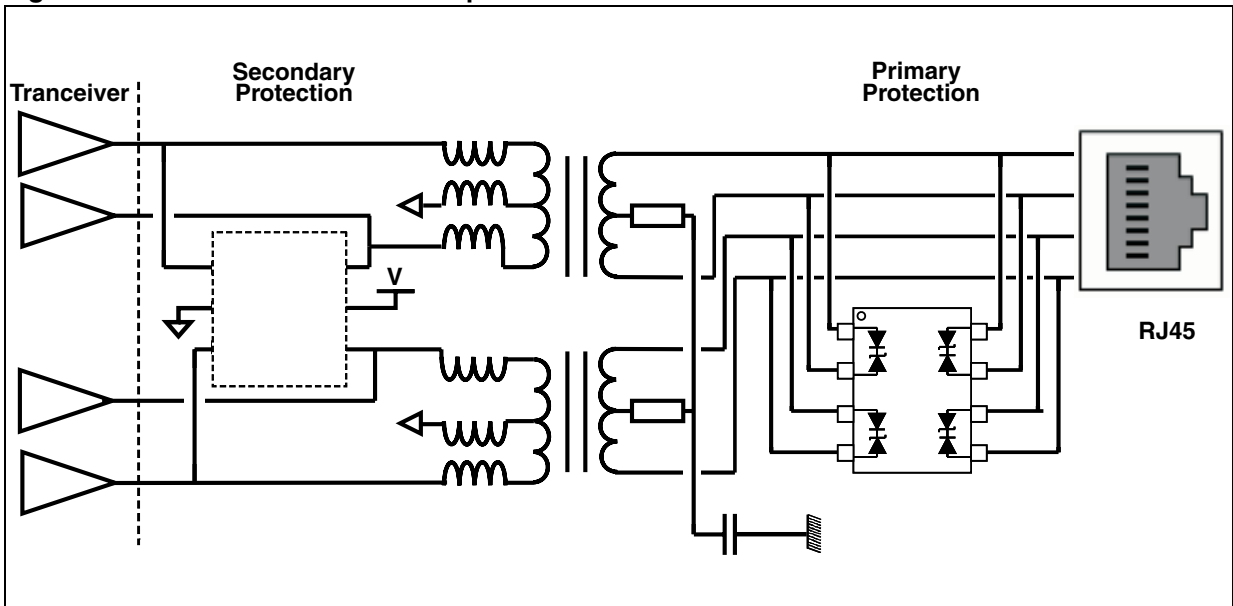
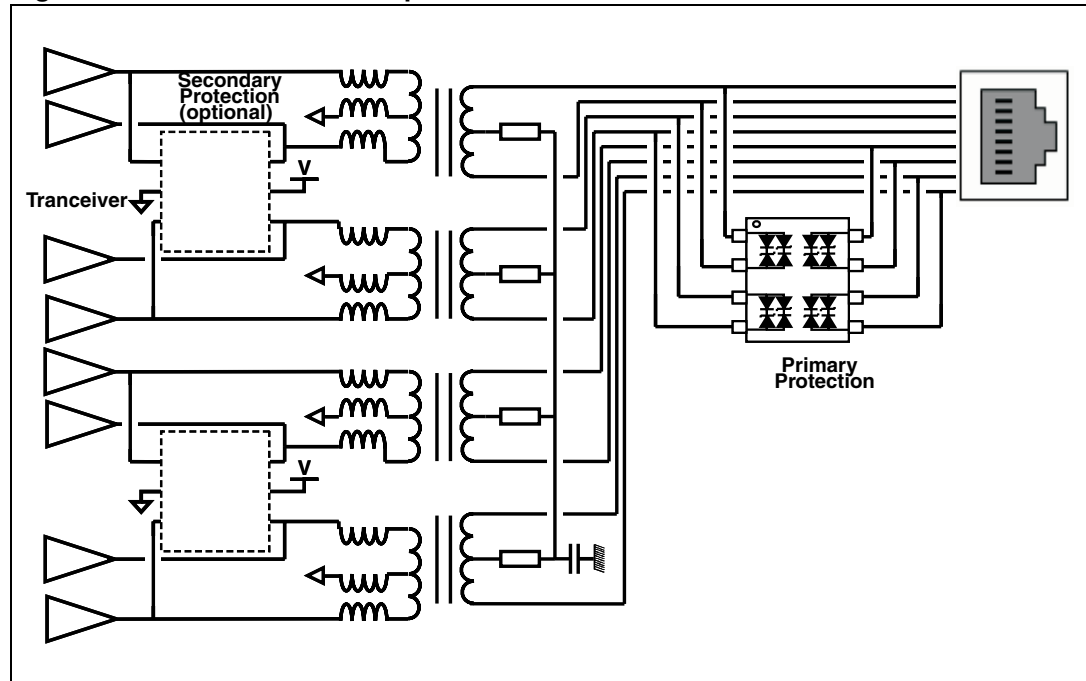


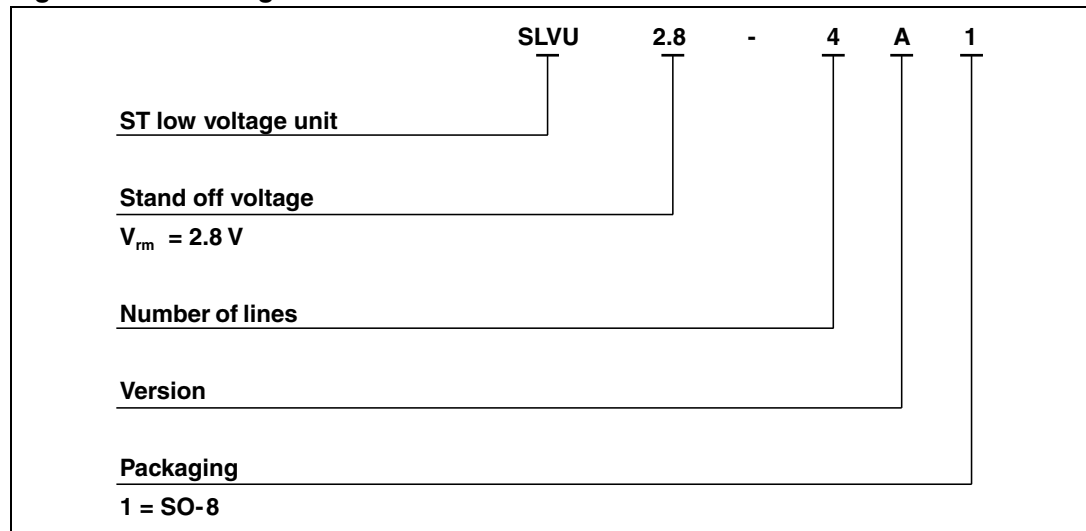
Figure 11. Schematic for 1 Gbps Ethernet



1. For further information, refer to application note : AN3007

2 Ordering information scheme

Figure 12. Ordering information scheme

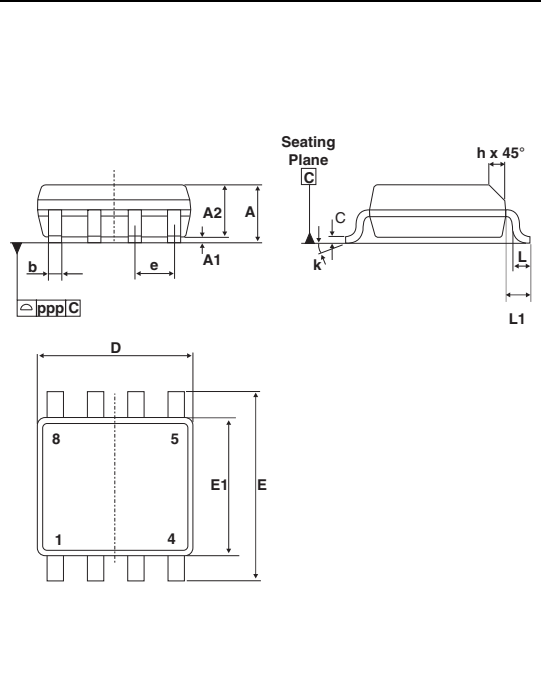


3 Package information

- Case: JEDEC SO-8 molded plastic over planar junction
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Flammability: Epoxy is rated UL94V-0
- RoHS package

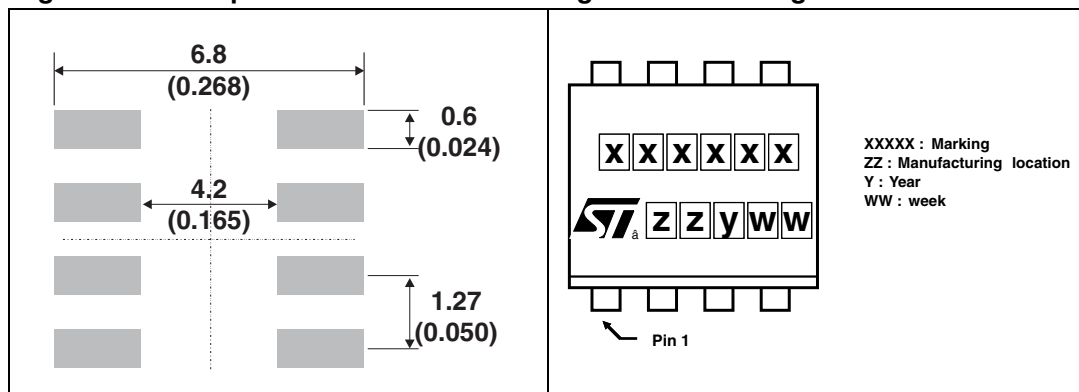
In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

Table 3. SO-8 dimensions



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
A1	0.1		0.25	0.004		0.010
A2	1.25			0.049		
b	0.28		0.48	0.011		0.019
C	0.17		0.23	0.007		0.009
D	4.80	4.90	5.00	0.189	0.193	0.197
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e		1.27			0.050	
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
L1		1.04			0.041	
k	0°		8°	0°		8°
ppp			0.10			0.004

Figure 13. Foot print recommendations **Figure 14. Marking**



4 Ordering information

Table 4. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
SLVU2.8-4A1	SLVU284	SO-8	78 mg	2500	Tape and reel
SLVU2.8-8A1	SLVU288	SO-8	78 mg	2500	Tape and reel

5 Revision history

Table 5. Document revision history

Date	Revision	Changes
01-Sep-2009	1	Initial release.
31-May-2011	2	Updated Ethernet standard compatibility on the cover page.

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 AN AUTHORIZED ST REPRESENTATIVE, 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.

© 2011 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