

Click to view price, real time Inventory,
Delivery & Lifecycle Information ;

CBTVS2A12-1F3

STMicroelectronics

ESD Suppressors / TVS Diodes PROTECTION

Any questions, please feel free to contact us.
info@kaimte.com

Circuit breaker with transient voltage suppressor

Datasheet - production data

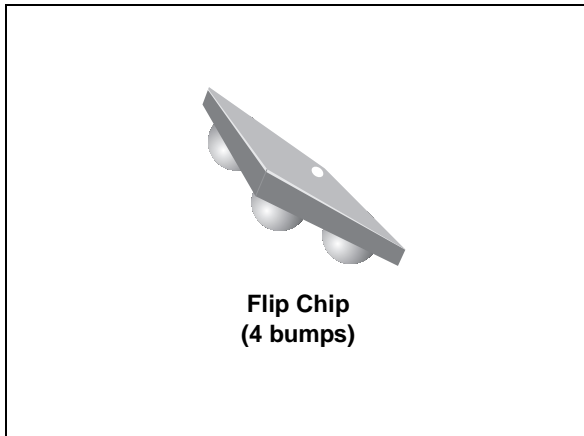


Figure 1. Pin configuration (bump side)

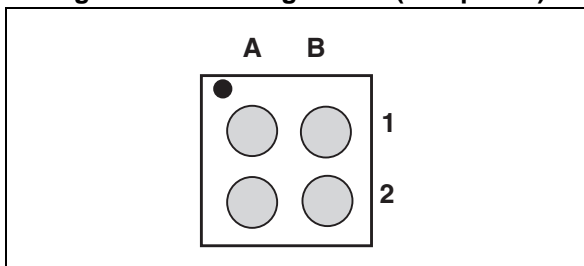
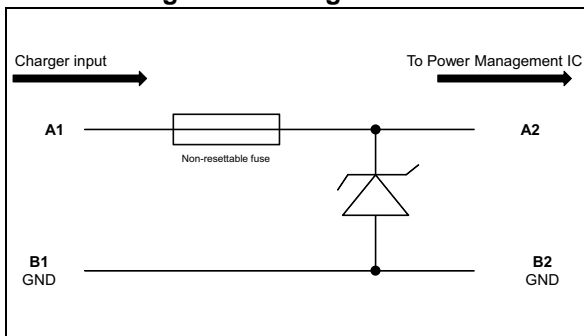


Figure 2. Configuration^(a)



- a. B1 and B2 bumps must be grounded on the PCB together.

Features

- Transient voltage suppressor (TVS)
- Non-resettable over current protection (OCP)
- Electrostatic discharge protection
- Electrical overstress protection (OVP)
- Unidirectional device
- Fast response time
- Very thin package: 0.4 mm
- High ESD protection level
- High integration
- Suitable for high density boards

Complies with the following standards:

- IEC 61000-4-2 level 4:
 - ±15 kV (air discharge)
 - ±15 kV (contact discharge)

Description

The CBTVS2A12-1F3 is a single line diode TVS integrating a fuse designed specifically for the protection of integrated circuits in portable equipment and miniaturized electronics devices subject to ESD, OVP and OCP.

1 Characteristics

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

Symbol	Parameter	Test condition	Value	Unit
V_{PP}	Peak pulse voltage	IEC 61000-4-2 contact discharge	15	kV
		IEC 61000-4-2 air discharge	15	
P_{PP}	Peak pulse power dissipation	10/1000 μs pulse, on A2-B2, $T_j = T_{amb}$	44	W
		8/20 μs pulse, on A2-B2, $T_j = T_{amb}$	350	
T_j	Maximum operating junction temperature		125	$^{\circ}\text{C}$
T_{stg}	Storage temperature range		-55 to +150	$^{\circ}\text{C}$

Figure 3. Electrical characteristics (definitions)

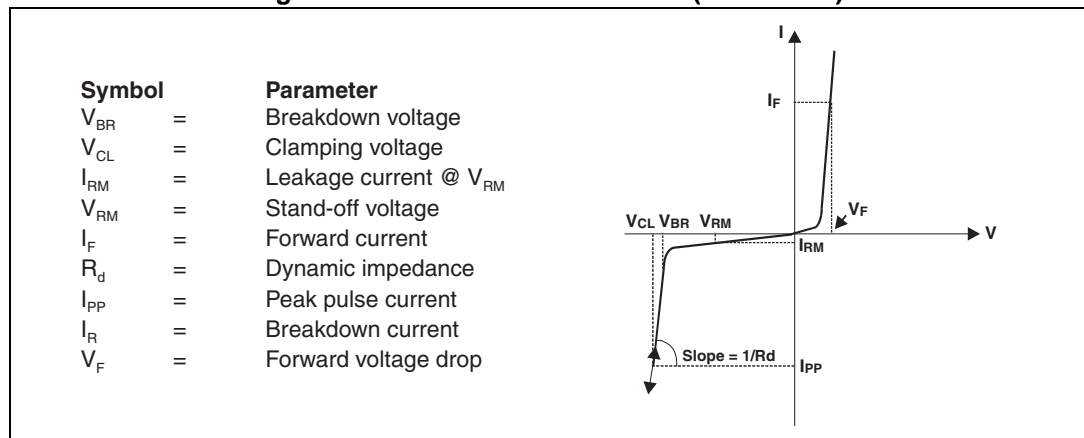


Table 2. Electrical characteristics (at operating temperature: $T_{op} = -30\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$, unless otherwise specified)

Symbol	Test conditions	Min.	Typ.	Max.	Unit
V_{BR}	$I_R = 1\text{ mA}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$	12			V
I_{RM}	$V_{RM} = 10\text{ V}$, at $T_{amb} = 25\text{ }^{\circ}\text{C}$			100	nA
V_{CL}	$I_{PP} = 1\text{ A}$, 8/20 μs pulse waveform, between A1-B1 at $T_{amb} = 25\text{ }^{\circ}\text{C}$			15	V
V_F	$I_F = 850\text{ mA}$, between A1-B1			1.4	V
C_{line}	$V_R = 0\text{ V}$, $V_{OSC} = 30\text{ mV}$, $F = 1\text{ MHz}$		180		pF
R_{A1-A2}	At $T_{amb} = 25\text{ }^{\circ}\text{C}$ at 100 mA			50	$\text{m}\Omega$
R_{A1-A2}	After fused	1			$\text{M}\Omega$
T_{Fuse}	At 5 A (maximum opening time) A1-A2, A2-A1			100	ms
T_{Fuse2}	At 3.2 A, A1-A2, A2-A1			24	hours
$T_{fuse\text{ Lifetime}}$	$I_{DC} = 2\text{ A}$ (continuous current) at $T_{amb} = 25\text{ }^{\circ}\text{C}$	500			hours

Figure 4. Clamping voltage versus peak pulse current (typical values)

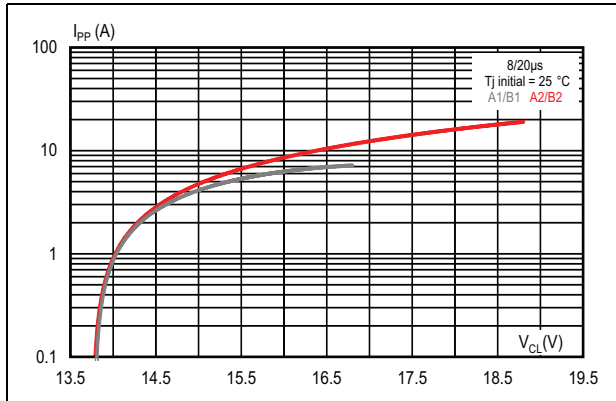


Figure 5. Forward voltage drop versus peak forward current (typical values)

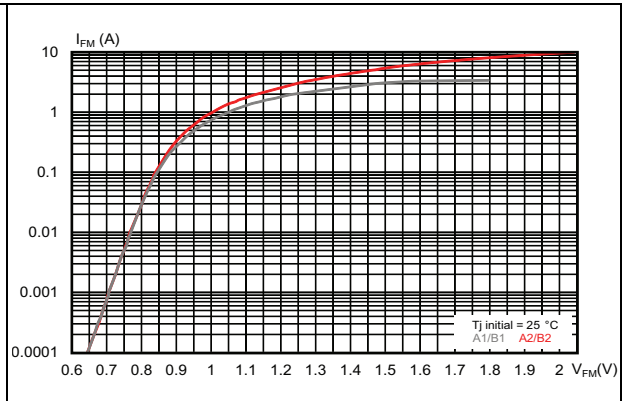


Figure 6. Frequency response

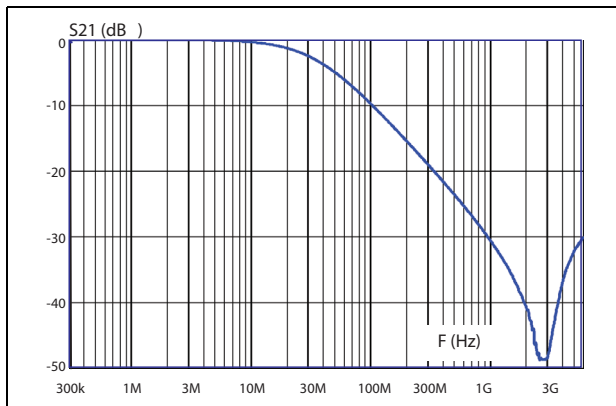


Figure 7. Junction capacitance versus reverse applied voltage (typical values)

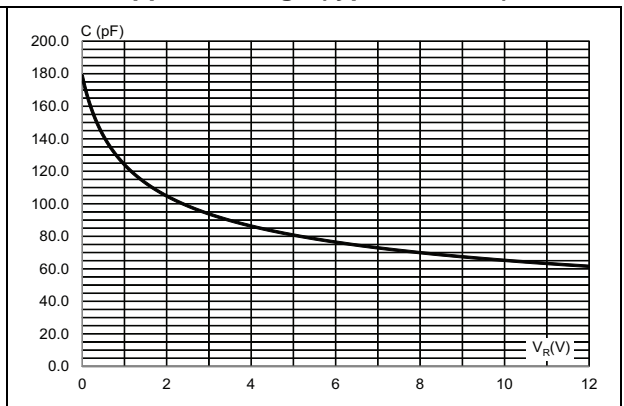


Figure 8. ESD response to IEC 61000-4-2 (+8 kV contact discharge)

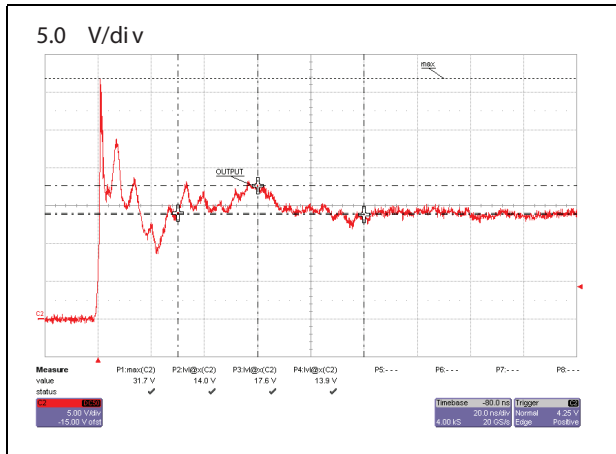
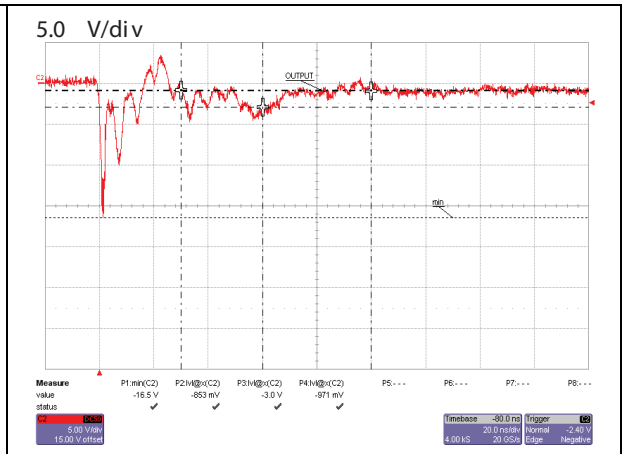
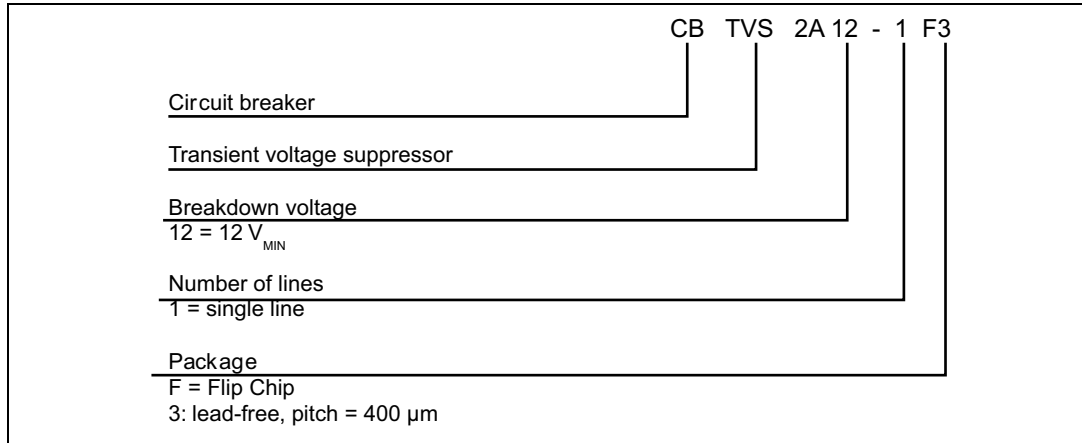


Figure 9. ESD response to IEC 61000-4-2 (-8 kV contact discharge)



2 Ordering information scheme

Figure 10. Ordering information scheme



3 Package information

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.

Figure 11. Package dimensions

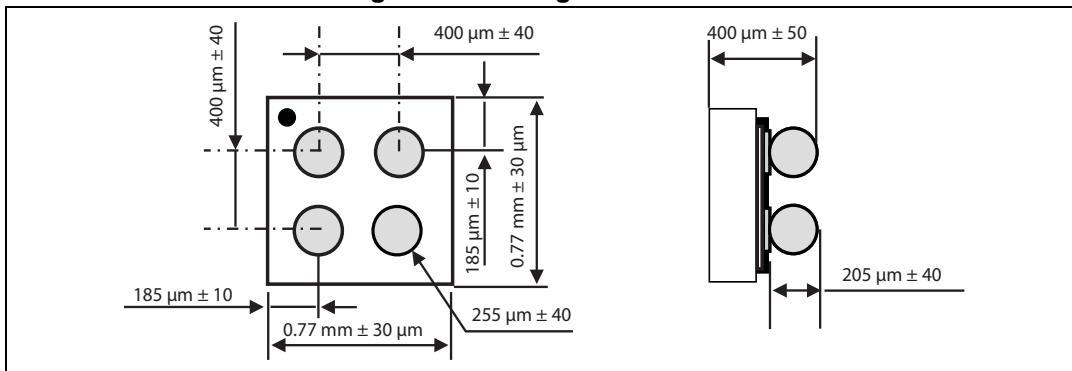


Figure 12. Foot print recommendations

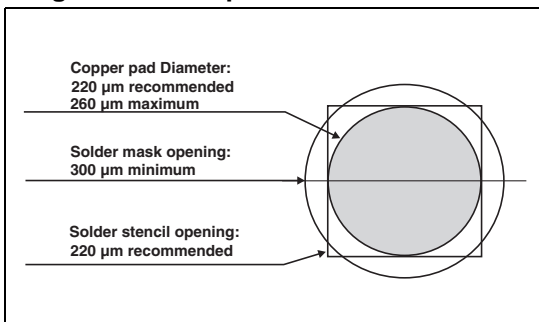


Figure 13. Marking

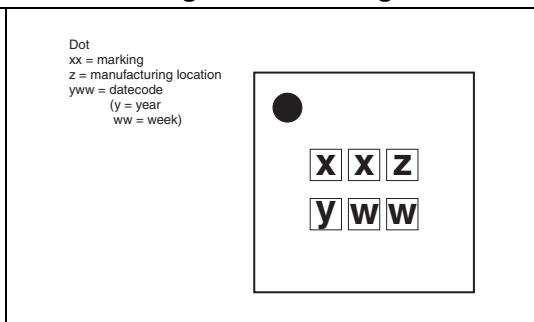
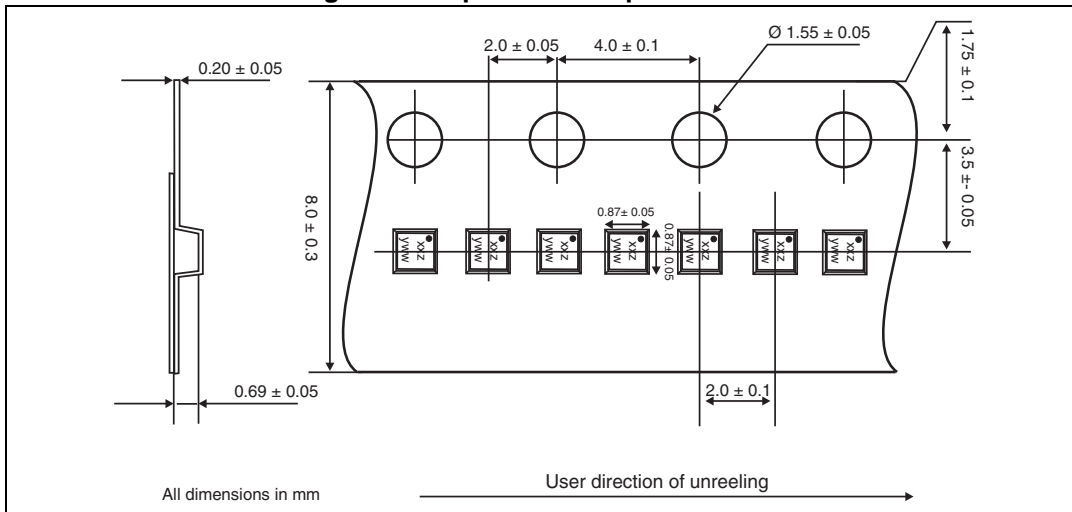


Figure 14. Tape and reel specifications



Note: More information is available in the application notes:
AN2348: "400 μ m Flip Chip: Package description and recommendations for use"
AN1751: "EMI Filters: Recommendations and measurements"

4 Ordering information

Table 3. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
CBTVS2A12-1F3	EB	Flip Chip	0.659 mg	10 000	Tape and reel (7")

5 Revision history

Table 4. Document revision history

Date	Revision	Changes
19-May-2014	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.

ST PRODUCTS ARE NOT DESIGNED OR AUTHORIZED FOR USE IN: (A) SAFETY CRITICAL APPLICATIONS SUCH AS LIFE SUPPORTING, ACTIVE IMPLANTED DEVICES OR SYSTEMS WITH PRODUCT FUNCTIONAL SAFETY REQUIREMENTS; (B) AERONAUTIC APPLICATIONS; (C) AUTOMOTIVE APPLICATIONS OR ENVIRONMENTS, AND/OR (D) AEROSPACE APPLICATIONS OR ENVIRONMENTS. WHERE ST PRODUCTS ARE NOT DESIGNED FOR SUCH USE, THE PURCHASER SHALL USE PRODUCTS AT PURCHASER'S SOLE RISK, EVEN IF ST HAS BEEN INFORMED IN WRITING OF SUCH USAGE, UNLESS A PRODUCT IS EXPRESSLY DESIGNATED BY ST AS BEING INTENDED FOR "AUTOMOTIVE, AUTOMOTIVE SAFETY OR MEDICAL" INDUSTRY DOMAINS ACCORDING TO ST PRODUCT DESIGN SPECIFICATIONS. PRODUCTS FORMALLY ESCC, QML OR JAN QUALIFIED ARE DEEMED SUITABLE FOR USE IN AEROSPACE BY THE CORRESPONDING GOVERNMENTAL AGENCY.

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.

© 2014 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



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[CBTVS2A12-1F3](#)