

CBTVS2A16-1F3

Circuit breaker with transient voltage suppressor

Datasheet - production data



Features

- Transient voltage suppressor (TVS)
- Non-resettable over current protection (OCP)
- Electrostatic discharge protection
- Electrical overstressed protection (OVP)
- Unidirectional device
- Low clamping factor V_{CL} / V_{BR}
- Fast response time
- Very thin package: 0.5 mm

Complies with the following standards:

- IEC 61000-4-2 level 4:
 - ±15 kV (air discharge)
 - ±8 kV (contact discharge)

Description

The CBTVS2A16-1F3 is a single line diode TVS integrating a fuse designed specifically for the protection of integrated circuits in portable equipment and miniaturized electronic devices subject to ESD, OVP and OCP.

Figure 1. Pin configuration (bump side)



Figure 2. Configuration



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

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This is information on a product in full production.

1 Characteristics

Symbol	Parameter Test condition		Value	Unit	
D	Peak pulse power dissipation (10/1000 μs pulse) on A2-B2	T initial – T	70	10/	
ГРР	Peak pulse power dissipation (8/20 μs pulse) on A2-B2		350	vv	
Тj	Maximum operating junction temperature		125	°C	
T _{stg}	Storage temperature range	-55 to +150	°C		

Table 1.	Absolute	maximum	ratings	(Tamb =	25 °C)
	Absolute	maximum	ratings	\'amh -	23 0)

Figure 3. Electrical characteristics (definitions)



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

Symbol	Test conditions	Min.	Тур.	Max.	Unit
V_{BR}	I _R = 20 mA	16			V
I _{RM}	V _{RM} = 12 V			100	nA
V _{CL}	I_{PP} = 1 A, 8/20 µs pulse waveform, between A1-B1			19	V
V _F	I _F = 850 mA, between A1-B1			1.4	V
T _{fuse2}	At 3.2 A, A ₁ -A ₂ , A ₂ -A ₁			24	hours
C _{line}	$V_R = 0 V$, $V_{OSC} = 30 mV$, $F = 1 MHz$		125		рF
R _{A1-A2}	At T _{amb} = 25 °C at 100 mA			50	mΩ
R _{A1-A2}	After fused	1			MΩ
T _{Fuse}	At 5 A (maximum opening time) A_2 - A_1 , A_1 - A_2			100	ms
T _{fuse Lifetime}	$I_{DC} = 2 \text{ A}$ (continuous current) at $T_{amb} = 25 \text{ °C}$	1000			hours

current (typical values) (A) 100.0 8/20us A1/B1 A2/B2 10.0 1.0 Vci (V) 0.1 24 14 16 18 20 22 26 28 30 32 34 36 38 40

Figure 4. Clamping voltage versus peak pulse





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



Figure 5. Forward voltage drop versus peak

forward current (typical values)



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



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





2 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: <u>www.st.com</u>. ECOPACK[®] is an ST trademark.



Figure 11. Foot print recommendations

Figure 12. Marking







Note:

More information is available in the application notes:

AN2348: "400 μm Flip Chip: Package description and recommendations for use" AN1751: "EMI Filters: Recommendations and measurements"

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3 Ordering information



Table 3. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
CBTVS2A16-1F3	ET	Flip Chip	0.659 mg	10 000	Tape and reel (7")

4 Revision history

Table 4. Document revision history

Date	Revision	Changes
01-Apr-2015	1	Initial release.



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