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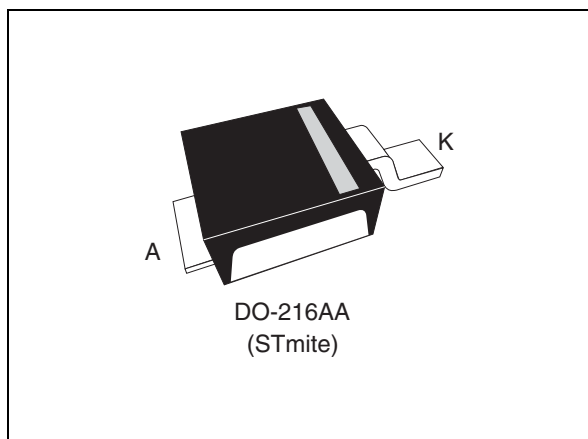
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## Description

The SM2T3V3A is a Transil diode designed specifically for portable equipment and miniaturized electronic devices subject to ESD transient overvoltages. Its low stand-off voltage makes it suitable for low voltage applications very sensitive to EOS and ESD events.

Transil diodes provide high overvoltage protection by clamping action.

## Features

- Unidirectional Transil diode
- High peak pulse power: 200 W (10/1000  $\mu$ s)
- Stand-off voltage 3.3 V
- Low clamping factor  $V_{CL}/V_{BR}$
- Fast response time
- JEDEC registered package outline

TM: Transil is a trademark of STMicroelectronics

# 1 Characteristics

**Table 1. Absolute rating (limiting value)**

Symbol	Parameter		Value	Unit
$P_{PP}$	Peak pulse power dissipation <sup>(1)</sup>	$T_j \text{ initial} = T_{amb}$	200	W
$P$	Power dissipation on infinite heatsink	$T_{amb} = 100^\circ\text{C}$	2.5	W
$I_{FSM}$	Non repetitive surge peak forward current	$t_p = 10 \text{ ms}$ $T_j \text{ initial} = T_{amb}$	25	A
$T_{stg}$ $T_j$	Storage temperature range Maximum operating junction temperature		-65 to +175 150	$^\circ\text{C}$
$T_l$	Lead solder temperature (10 seconds duration)		260	$^\circ\text{C}$

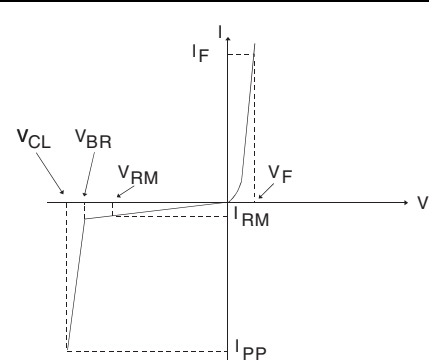
1. 10/1000  $\mu\text{s}$  pulse waveform

**Table 2. Thermal resistance**

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to leads	20	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient on PCB with recommended pad layout	250	$^\circ\text{C/W}$

**Table 3. Electrical characteristics - parameters ( $T_{amb} = 25^\circ\text{C}$ )**

Symbol	Parameter
$V_{RM}$	Stand-off voltage.
$V_{BR}$	Breakdown voltage.
$V_{CL}$	Clamping voltage.
$I_{RM}$	Leakage current @ $V_{RM}$ .
$I_{PP}$	Peak pulse current.
$\alpha T$	Voltage temperature coefficient
$V_F$	Forward voltage drop


**Table 4. Electrical characteristics - values ( $T_{amb} = 25^\circ\text{C}$ )**

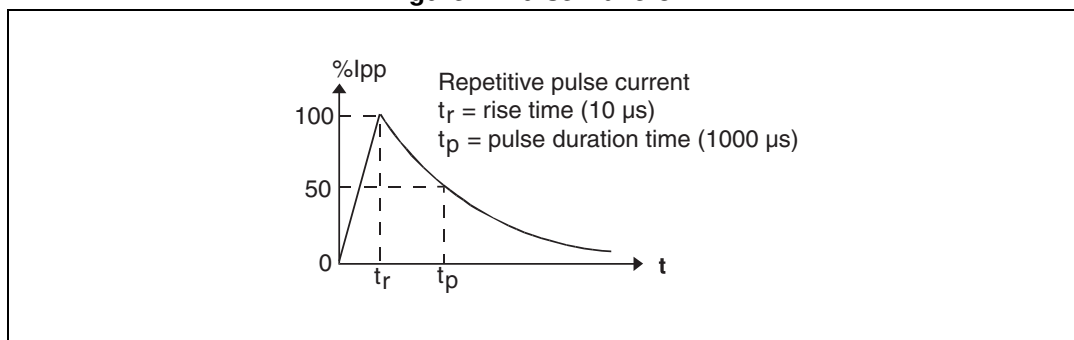
Order code	$I_{RM} \text{ max @ } V_{RM}$		$V_{BR} \text{ min @ } I_R^{(1)}$		$V_{CL} \text{ max @ } I_{PP} \text{ 10/1000 } \mu\text{s}$		$V_{CL} \text{ max @ } I_{PP} \text{ 10/1000 } \mu\text{s}$		$\alpha T \text{ max}^{(2)}$	$C \text{ max}^{(3)}$
	$\mu\text{A}$	V	V	mA	V	A	V	A	$10^{-4}/^\circ\text{C}$	pF
SM2T3V3A	500	3.3	3.6	1	6.5	25	6.8	30	-5.3	2500

1. Pulse test  $t_p < 50 \text{ ms}$

2.  $\Delta V_{BR} = \alpha T * (T_{amb} - 25) * V_{BR} (25^\circ\text{C})$

3.  $V_R = 0 \text{ V}$ ,  $F = 1 \text{ MHz}$

Figure 1. Pulse waveform



## 2 Package information

- Epoxy meets ul94, v0
- Band indicates cathode

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](http://www.st.com). ECOPACK® is an ST trademark.

Figure 2. Package dimensions - parameters

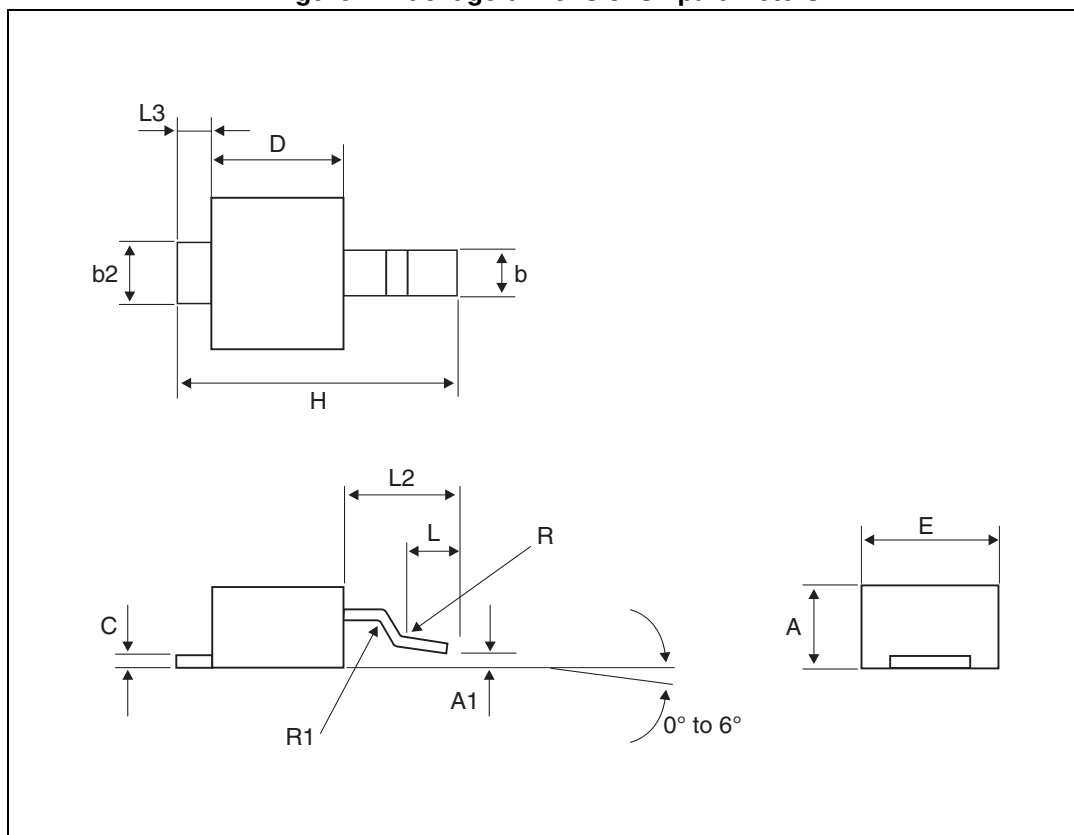
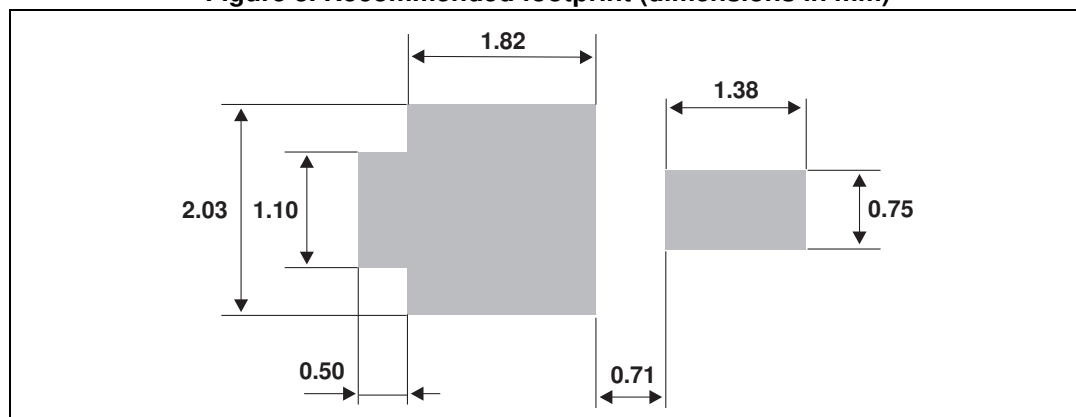


Table 5. Package dimensions - values

Ref.	Dimensions					
	Millimetres			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.85	1.00	1.15	0.033	0.039	0.045
A1	-0.05		0.105	-0.002		0.002
b	0.40		0.65	0.016		0.025
b2	0.70		1.00	0.027		0.039
c	0.10		0.25	0.004		0.010
D	1.75	1.90	2.05	0.069	0.007	0.081
E	1.75	1.90	2.05	0.069	0.007	0.081
H	3.60	3.75	3.90	0.142	0.148	0.154
L	0.50	0.63	0.80	0.047	0.025	0.031
L2	1.20	1.35	1.50	0.047	0.053	0.059
L3		0.50 ref			0.019 ref	
R	0.07			0.003		
R1	0.07			0.003		

Figure 3. Recommended footprint (dimensions in mm)



### 3 Ordering information

**Table 6. Ordering information**

Order code	Marking	Package	Weight	Base quantity	Delivery mode
SM2T3V3A	MUL	STmite	15.5 mg	12000	Tape and reel

### 4 Revision history

**Table 7. Document revision history**

Date	Revision	Changes
10-Oct-2005	1	First Issue
09-Dec-2010	2	Cathode band added to package illustration.
10-Aug-2015	3	Updated features on cover page. Minor text changes



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