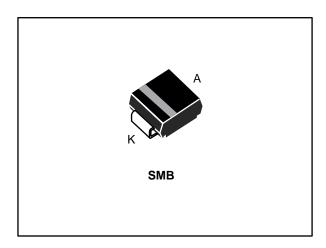




# Low voltage Transil™

Datasheet - production data



### **Features**

- Peak pulse power 600 W (10/1000 μs)
- Stand-off voltage 3.3 V
- Unidirectional type
- Low clamping factor
- Fast response time
- JEDEC registered package outline

## **Description**

This is a Transil diode designed specifically to protect sensitive 3.3 V equipment against transient overvoltages.

Transil diodes provide high overvoltage protection by clamping action. Their instantaneous response to transient overvoltages make them particularly suited to protect voltage sensitive devices such as MOS technology and low voltage supplied ICs.



TM: Transil is a trademark of STMicroelectronics

Characteristics SMLVT3V3

## 1 Characteristics

Table 1: Absolute maximum ratings (limiting values at T<sub>amb</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Value	Unit
P <sub>pp</sub>	Peak pulse power dissipation <sup>(1)</sup>	600	W
Р	Power dissipation on infinite heatsink	6	W
I <sub>FSM</sub>	Non repetitive surge peak forward current for unidirectional types	100	А
T <sub>stg</sub>	Storage temperature range	-65 to +175	°C
Tj	Junction temperature range	-55 to +175	°C
TL	Maximum lead temperature for soldering during	260	°C

#### Notes:

**Table 2: Thermal resistances** 

Symbol	Parameter	Value	Unit
R <sub>th(j-l)</sub>	Junction to leads	20	°C/W
R <sub>th(j-a)</sub>	Junction to ambient on printed circuit on recommended pad layout	100	°C/W

Figure 1: Electrical characteristics (definitions)

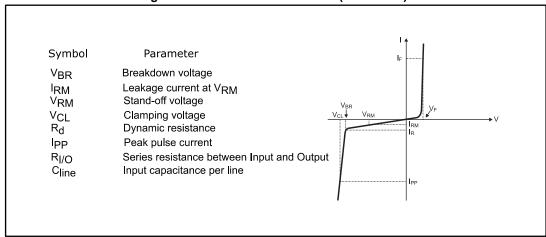


Table 3: Electrical characteristics (T<sub>amb</sub> = 25 °C)

Туре	I <sub>RM</sub> at		V <sub>BR</sub> at I <sub>R</sub> <sup>(1)</sup> Min.		V <sub>CL</sub> at I <sub>PP</sub> 10/1000 μs Max.		V <sub>CL</sub> at I <sub>PP</sub> 8/20 μs Max.		αT <sup>(2)</sup> Max.	C <sup>(3)</sup> Typ.
	μΑ	٧	V	mA	V	Α	V	Α	10 <sup>-4</sup> /°C	pF
SMLVT3V3	200	3.3	4.1	1	7.3	50	10.3	200	-5.3	5200

### Notes:

 $^{(1)}$ Pulse test :  $t_p < 50 \text{ ms}$ 

 $^{(2)}V_{BR}$  =  $\alpha T$  x ( $T_{amb}$  -25) x  $V_{BR}$  (25 °C)

 $^{(3)}V_R = 0 V, F = 1 MHz$ 

 $<sup>^{(1)}</sup>$ For a surge greater than the maximum values, the diode will fail in short-circuit.

SMLVT3V3 Characteristics

## 1.1 Characteristics (curves)

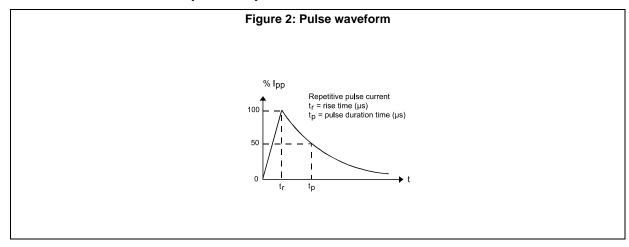
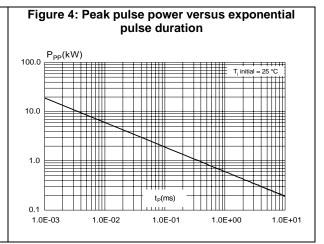
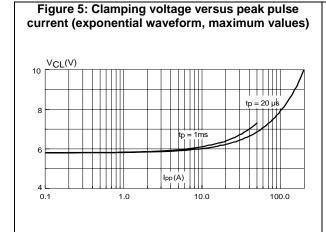
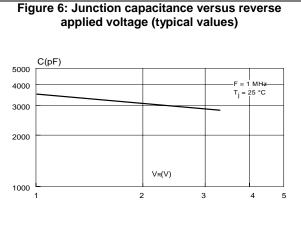


Figure 3: Peak pulse power dissipation versus initial junction temperature (printed circuit board) Ppp[Tj initial]
Ppp[Tj initial = 25° C] 1.0 0.9 0.8 0.7 0.5 0.3 0.2 0.1 0.0 50 75 100 125 150







Characteristics SMLVT3V3

forward current (typical values)

50.0 IFM (A)

10.0 Tj=175°C

0.1 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4

VFM (V)

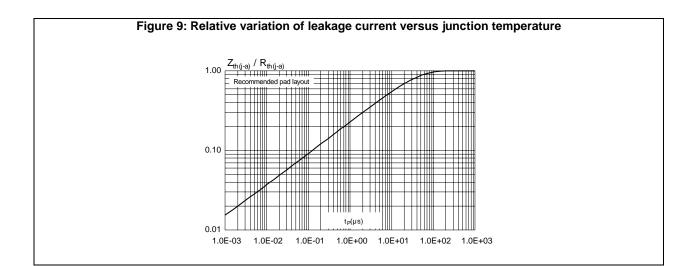
1.0

Figure 7: Peak forward voltage drop versus peak

ambient, versus pulse duration (PCB - FR4)

1R(Tj)
1R(Tj = 25 °C)
2.0
1.0
1.0
0.1
0 25 50 75 100 125 150

Figure 8: Transient thermal impedance, junction to



SMLVT3V3 Package information

## 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: **www.st.com**. ECOPACK® is an ST trademark.

- Case: JEDEC DO-214AA molded plastic over Planar junction
- Epoxy meets UL94, V0
- RoHS compliant package

### 2.1 SMB package information

Figure 10: SMB package outline

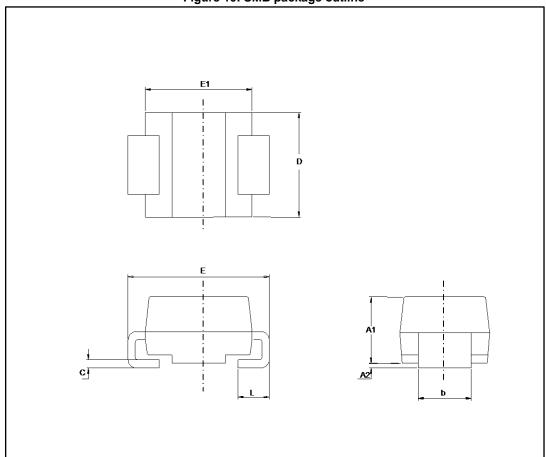
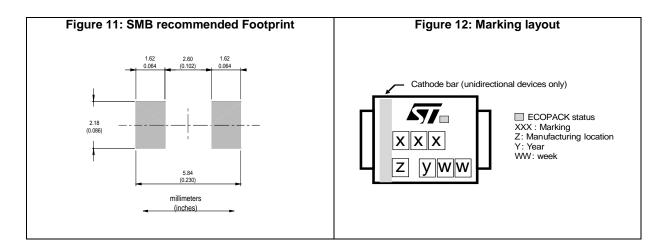


Table 4: SMB package mechanical data

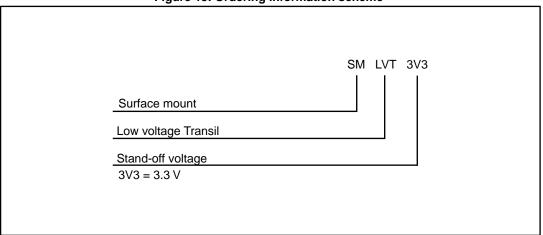
rabio ii oiii paoliago inconamoar aata							
	Dimensions						
Ref.	Millim	eters	Inches				
	Min.	Max.	Min.	Max.			
A1	1.90	2.45	0.0748	0.0965			
A2	0.05	0.20	0.0020	0.0079			
b	1.95	2.20	0.0768	0.0867			
С	0.15	0.40	0.0059	0.0157			
D	3.30	3.95	0.1299	0.1556			
Е	5.10	5.60	0.2008	0.2205			
E1	4.05	4.60	0.1594	0.1811			
L	0.75	1.50	0.0295	0.0591			



SMLVT3V3 Ordering information

# 3 Ordering information

Figure 13: Ordering information scheme



**Table 5: Ordering information** 

Order code	Marking	Package	Weight	Base qty.	Delivery mode
SMLVT3V3	CD	SMB	0.12 g	2500	Tape and reel

# 4 Revision history

**Table 6: Document revision history** 

Date	Revision	Changes		
Aug-2001	2	Previous issue		
25-Apr-2007	3	Reformatted to current standards. Added cathode bar marker in cover page graphics and <i>Figure 11</i> .		
14-Sep-2011	4	Updated Junction temperature range in Table 1.		
06-Apr-2017	5	Updated Table 1: "Absolute maximum ratings (limiting values at Tamb = 25 °C unless otherwise specified)".		

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