



## LOW FORWARD VOLTAGE TVS: Transky™

### FEATURES AND BENEFITS

- High peak pulse power: 400W (8/20µs)
- Stand-off voltage 16V
- Low forward voltage: 0.48V @ 0.85A @ 25°C
- Low clamping factor  $V_{CL}/V_{BR}$
- Fast response time
- Very thin package (1.0mm overall component height)

### DESCRIPTION

The Transky™ is designed specifically for portable equipments and miniaturized electronics devices subject to ESD transient overvoltages.

The Transky™ combines the performance of a Transil™ or TVS (Transient Voltage Suppressor) and low forward voltage Schottky diode in a monolithic structure.

### COMPLIES WITH FOLLOWING STANDARDS

IEC 61000-4-2 Level 4:

15kV (Air discharge)

8kV (Contact discharge)

MIL Standard 883E-Method 3015-7: class 3C

Human Body Model (HBM)

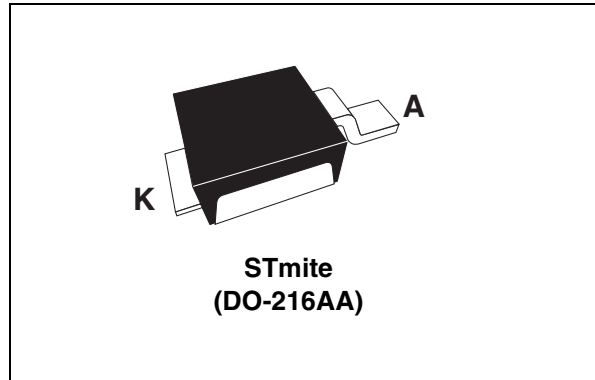


Table 1: Order Code

Part Number	Marking
SMTY18AM	Y18

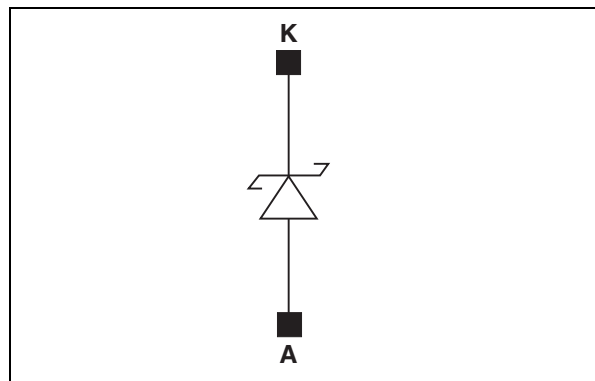


Table 2: Absolute Ratings (limiting values)

Symbol	Parameter		Value	Unit
$V_{PP}$	IEC 61000-4-2 standard	Air discharge Contact discharge	15 8	kV
$P_{PP}$	Peak pulse power dissipation (see note 1)	$T_j$ initial = $T_{amb}$	400	W
$I_{FSM}$	Non repetitive surge peak forward current	$T_p = 10$ ms $T_j = \text{initial} = T_{amb}$	25	A
$T_{stg}$	Storage temperature range		-65 to + 175	°C
$T_j$	Maximum operating junction temperature		150	°C

Note 1: 8/20µs pulse waveform

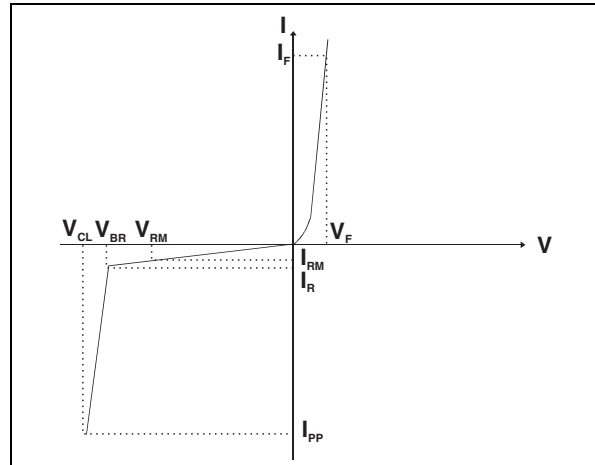
## SMTY18AM

**Table 3: Thermal Resistances**

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient on PCB with recommended pad layout	250	°C/W

**Table 4: Static Electrical Characteristics**  
( $T_{amb} = 25^{\circ}\text{C}$ )

Symbol	Parameter
$V_{BR}$	Breakdown voltage
$I_{RM}$	Leakage current @ $V_{RM}$
$V_{RM}$	Stand-off voltage
$V_{CL}$	Clamping voltage
$R_d$	Dynamic impedance
$I_{PP}$	Peak pulse current
C	Capacitance



$I_{RM}$ max @ $V_{RM}$ Note 2		$V_{CL}$ max @ $I_{PP}$ Note 3		$V_F$ max @ 0.85A Note 4	$\alpha T$ max	C typ @ 0V
mA	V	V	A	V	$10^{-4}/^{\circ}\text{C}$	pF
4	16	20	1	0.48	8.8	500

**Note 2:**  $T_{amb} = 85^{\circ}\text{C}$

**Note 3:** 8/20 $\mu\text{s}$  pulse waveform

**Note 4:** Pulse test  $t_p = 500\mu\text{s}$ ,  $d < 2\%$

Figure 1: Peak pulse power versus exponential pulse duration

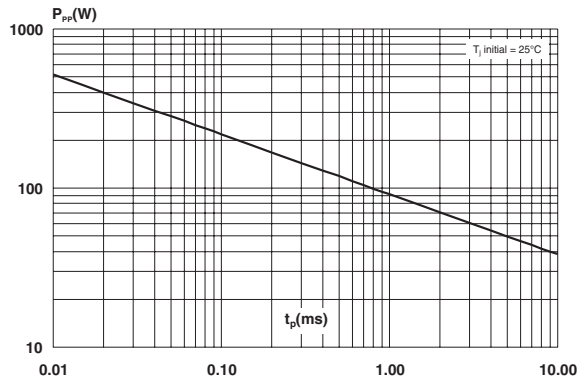


Figure 2: Relative variation of peak pulse power versus initial junction temperature

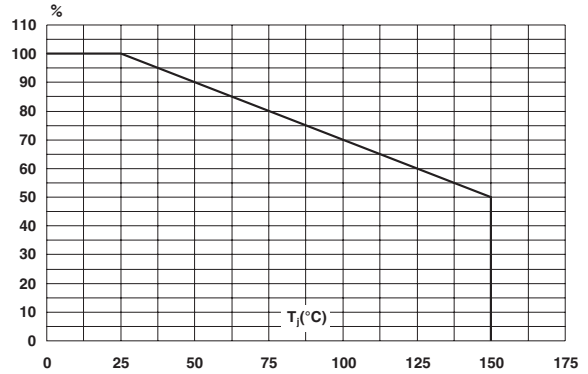


Figure 3: Average power dissipation versus ambient temperature

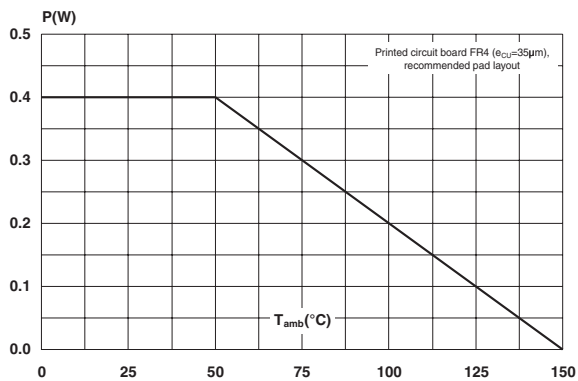


Figure 4: Variation of thermal impedance junction to ambient versus pulse duration (Epoxy FR4, e<sub>cu</sub>=35µm)

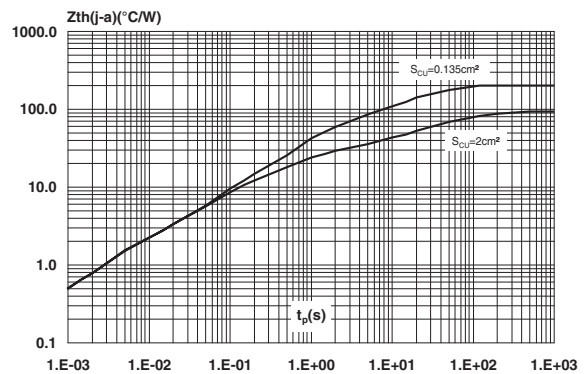


Figure 5: Thermal resistance junction to ambient versus copper surface under tab

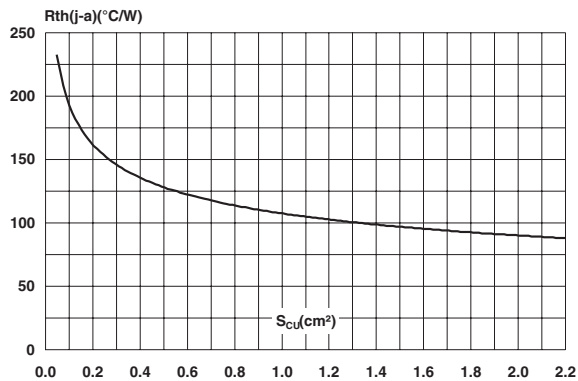
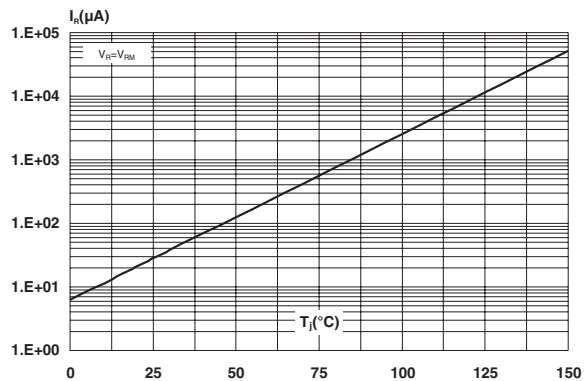
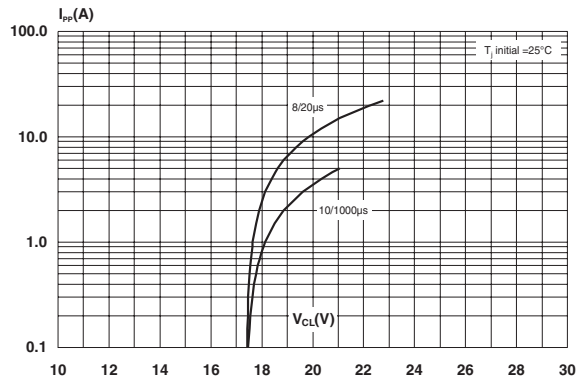


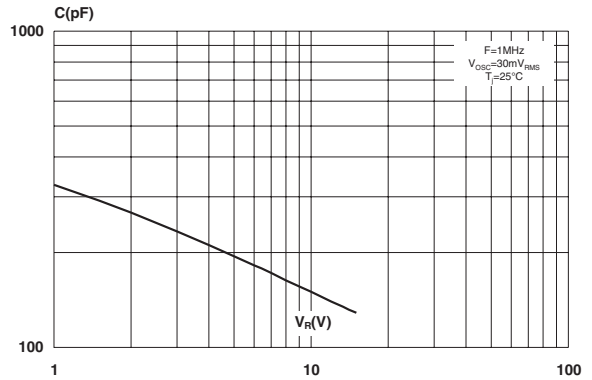
Figure 6: Reverse leakage current versus junction temperature (typical values)



**Figure 7: Clamping voltage versus peak pulse current (typical values)**



**Figure 8: Junction capacitance versus reverse voltage applied (typical values)**



**Figure 9: Forward voltage drop versus forward current (typical values)**

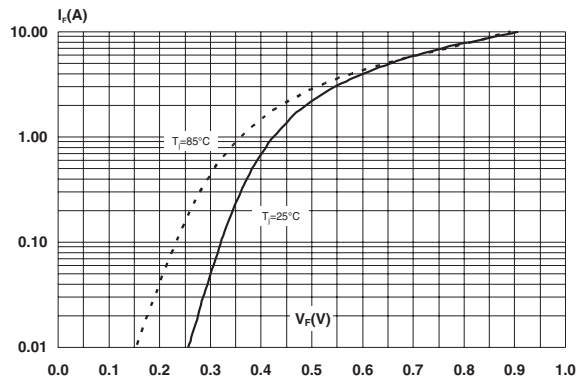


Figure 10: STmite Package Mechanical Data

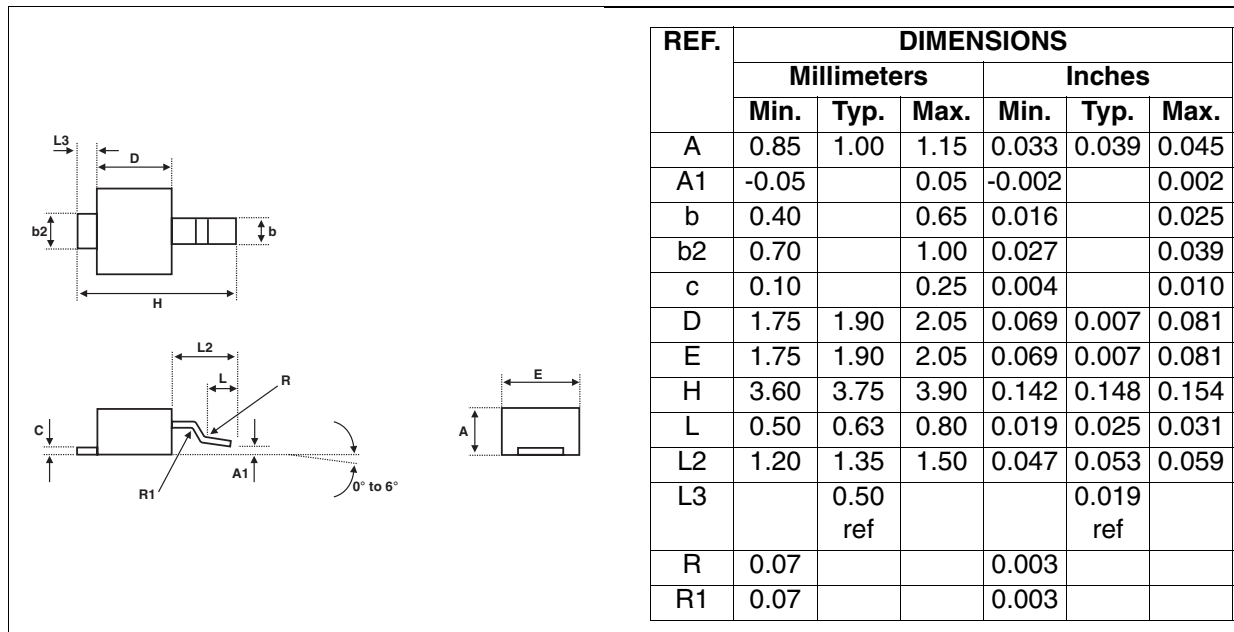


Figure 11: Foot Print Dimensions (in millimeters)

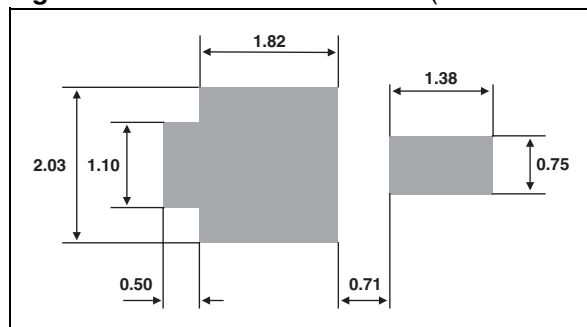


Table 5: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
SMTY18AM	Y18	STmite	15.5 mg	12000	Tape & reel

Table 6: Revision History

Date	Revision	Description of Changes
09-Jul-2004	1	First issue
13-Sep-2004	2	STmite package dimensions reference A1 change: from blank (min) to -0.05mm and from 0.10 (max) to 0.05mm.

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