



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)

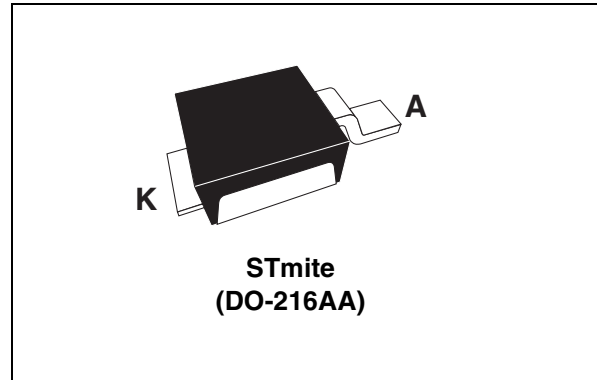


Table 1: Order Code

| Part Number | Marking |
|-------------|---------|
| SMTY18AM | Y18 |

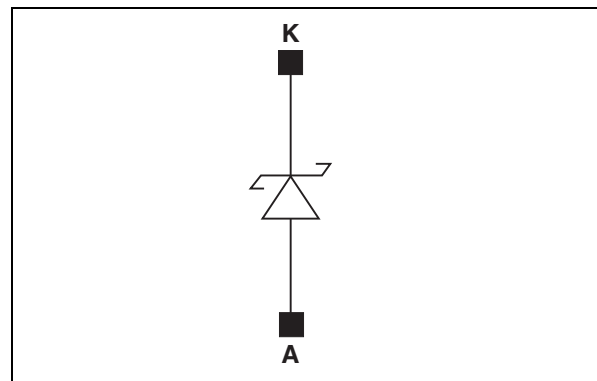


Table 2: Absolute Ratings (limiting values)

| Symbol | Parameter | Value | Unit | |
|-----------|---|---|--------------|----|
| V_{PP} | IEC 61000-4-2 standard | Air discharge | 15 | kV |
| | | Contact discharge | 8 | |
| 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

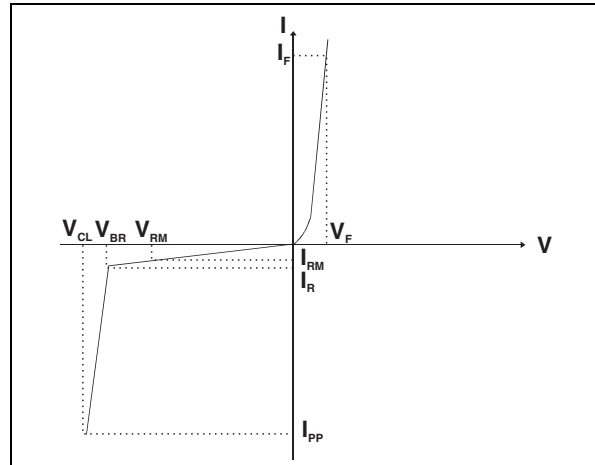
SMTY18AM

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 |



| $I_{RM} \text{ max @ } V_{RM}$ Note 2 | | $V_{CL} \text{ max @ } I_{PP}$ Note 3 | | $V_F \text{ max @ } 0.85\text{A}$ Note 4 | $\alpha T \text{ max}$ | 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 μs pulse waveform

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

Figure 1: Peak pulse power versus exponential pulse duration

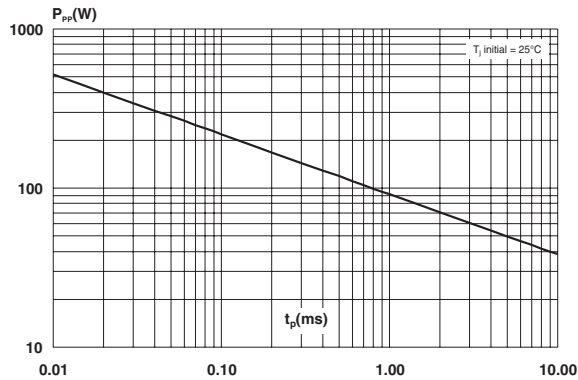


Figure 2: Relative variation of peak pulse power versus initial junction temperature

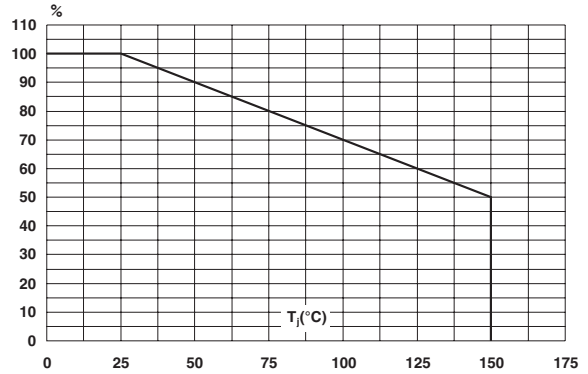


Figure 3: Average power dissipation versus ambient temperature

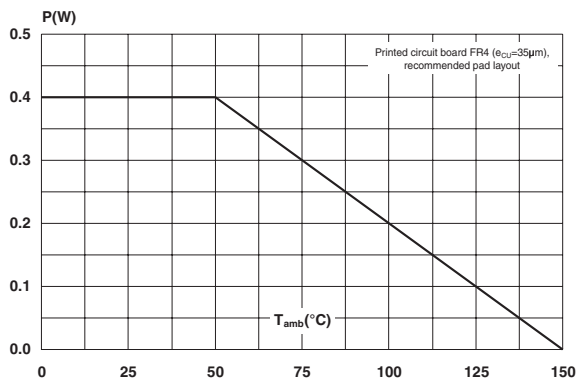


Figure 4: Variation of thermal impedance junction to ambient versus pulse duration (Epoxy FR4, e_cu=35µm)

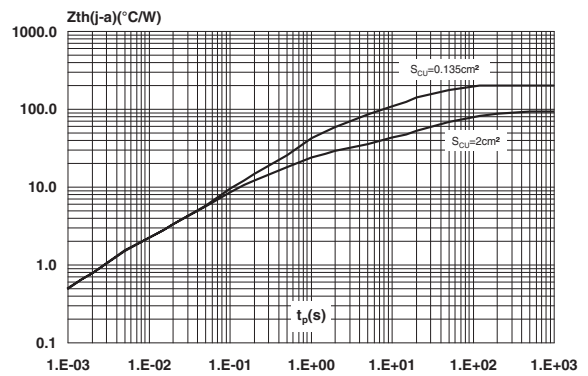


Figure 5: Thermal resistance junction to ambient versus copper surface under tab

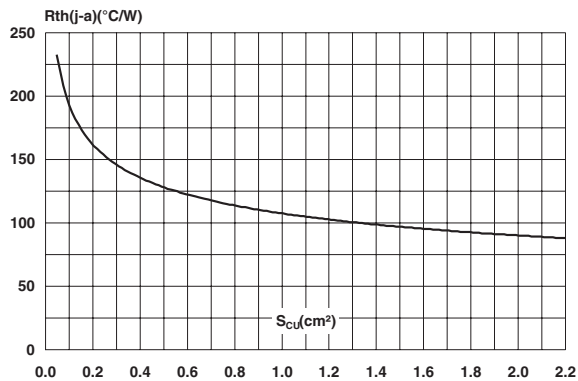


Figure 6: Reverse leakage current versus junction temperature (typical values)

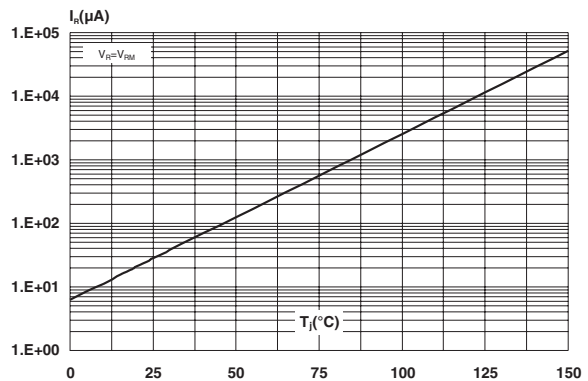


Figure 7: Clamping voltage versus peak pulse current (typical values)

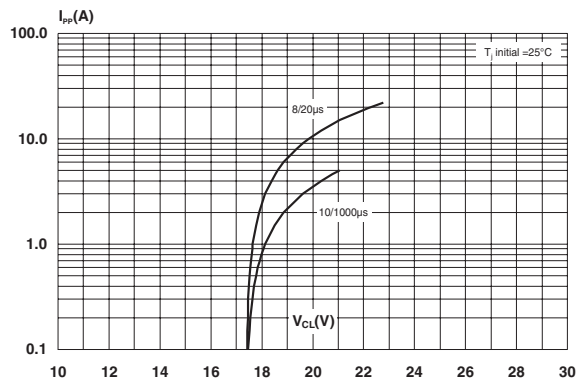


Figure 8: Junction capacitance versus reverse voltage applied (typical values)

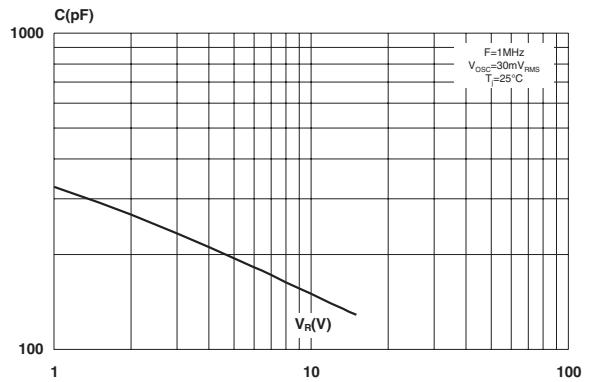


Figure 9: Forward voltage drop versus forward current (typical values)

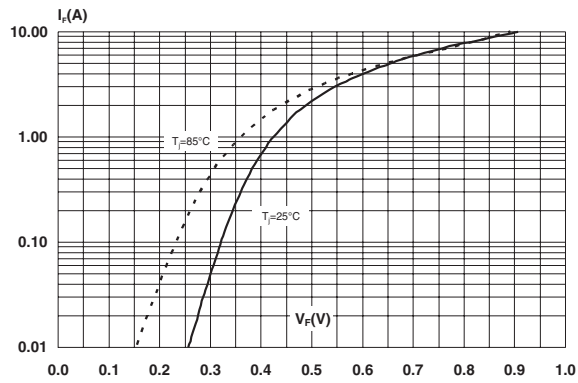


Figure 10: STmite Package Mechanical Data

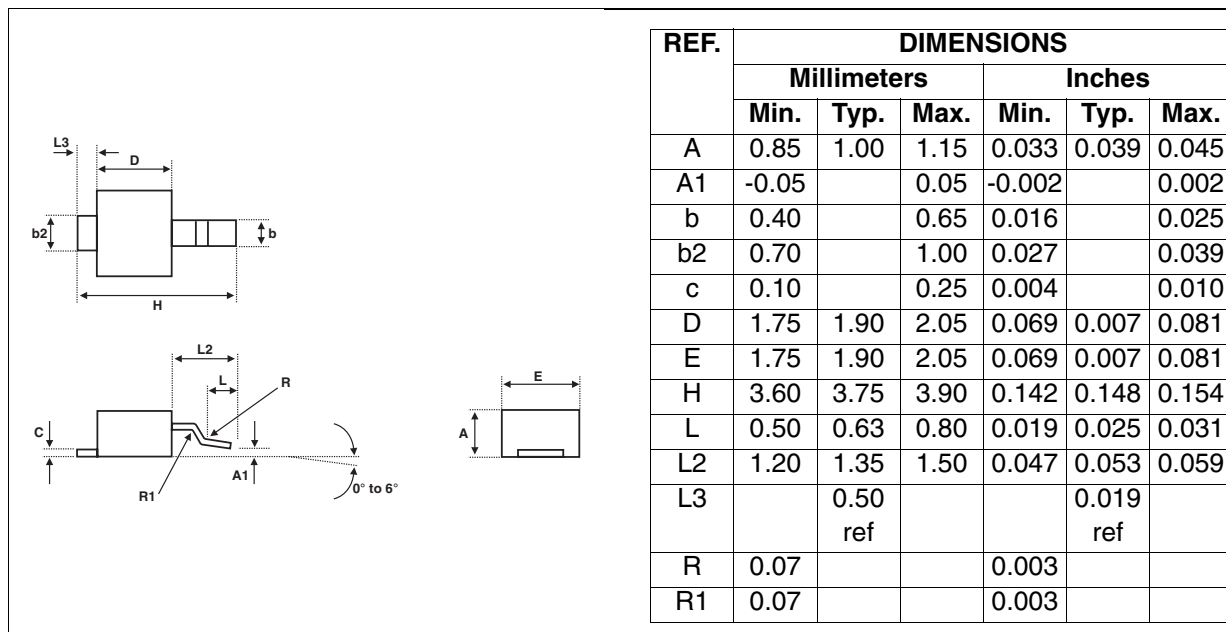


Figure 11: Foot Print Dimensions (in millimeters)

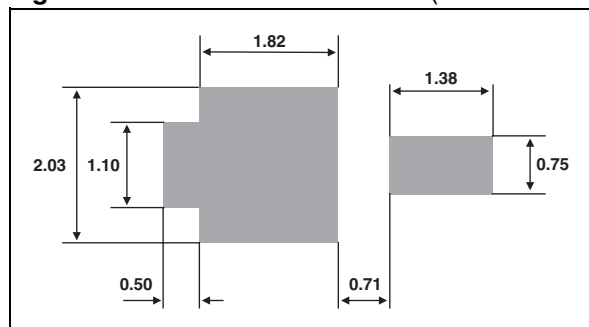


Table 5: Ordering Information

| 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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