



SMTY18AM

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)

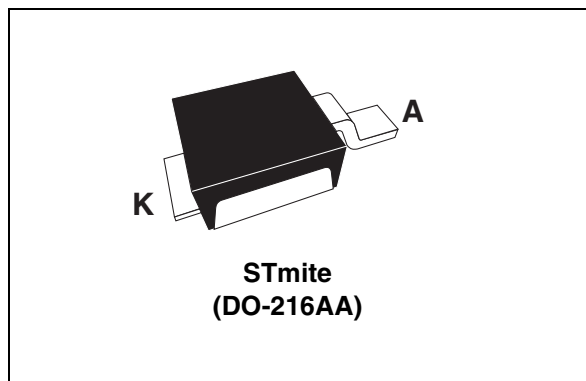


Table 1: Order Code

Part Number	Marking
SMTY18AM	Y18

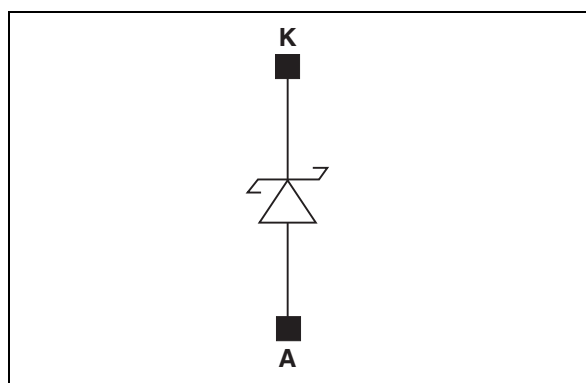


Table 2: Absolute Ratings (limiting values)

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)	$T_j \text{ initial} = T_{amb}$	400	W
I_{FSM}	Non repetitive surge peak forward current	$T_p = 10 \text{ ms}$ $T_j = \text{initial} = T_{amb}$	25	A
T_{stg}	Storage temperature range		-65 to + 175	°C
T_j	Maximum operating junction temperature		150	°C

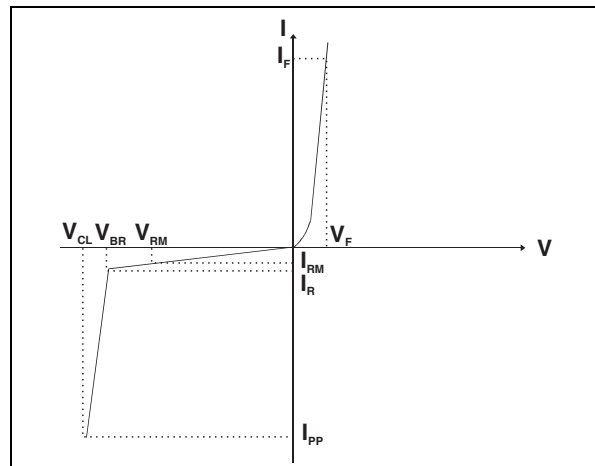
Note 1: 8/20μs pulse waveform

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}		V_{CL} max @ I_{PP}		V_F max @ 0.85A	αT max	C typ @ 0V
Note 2		Note 3		Note 4		
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

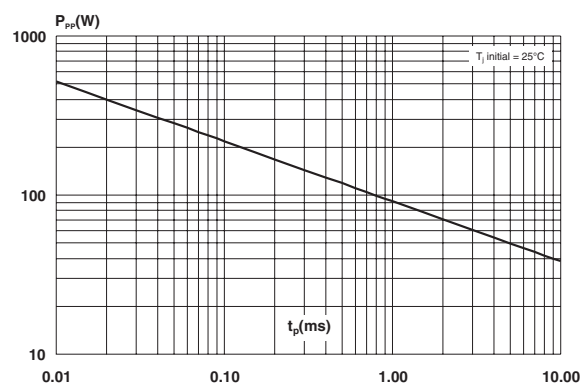


Figure 2: Relative variation of peak pulse power versus initial junction temperature

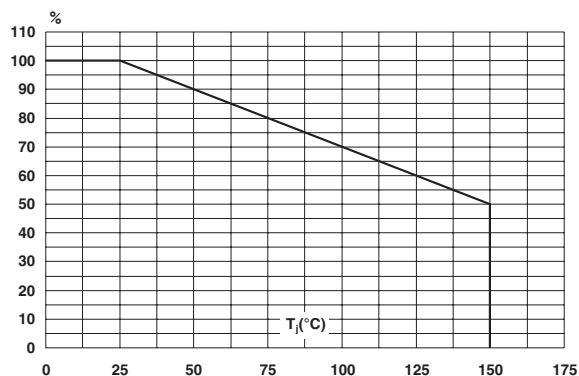


Figure 3: Average power dissipation versus ambient temperature

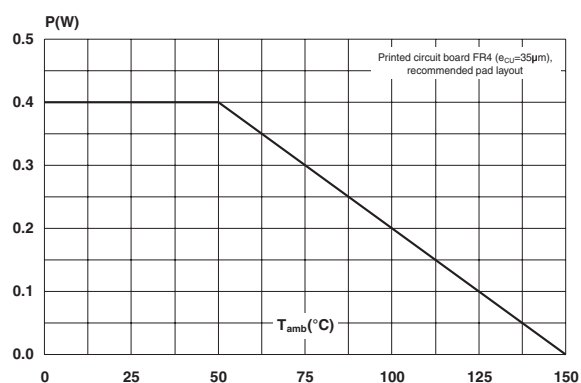


Figure 4: Variation of thermal impedance junction to ambient versus pulse duration (Epoxy FR4, $e_{cu}=35\mu m$)

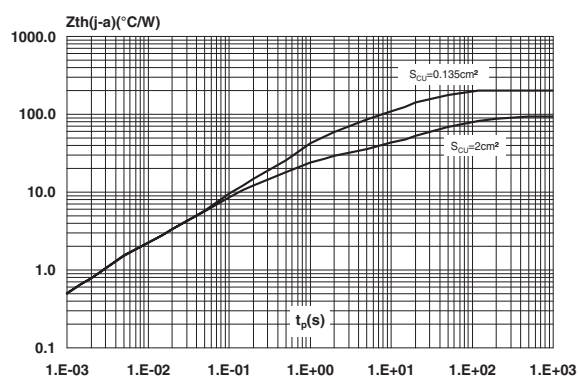


Figure 5: Thermal resistance junction to ambient versus copper surface under tab

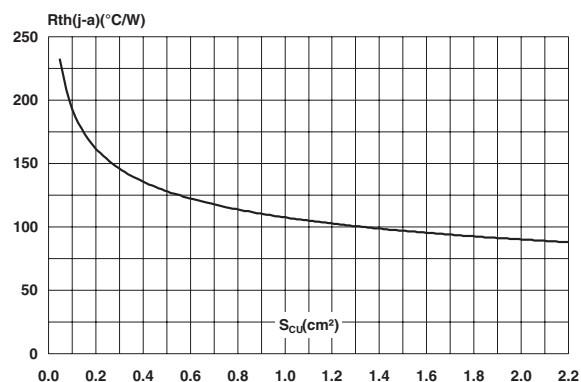


Figure 6: Reverse leakage current versus junction temperature (typical values)

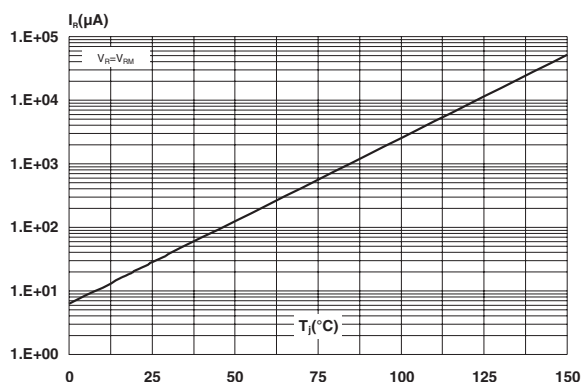


Figure 7: Clamping voltage versus peak pulse current (typical values)

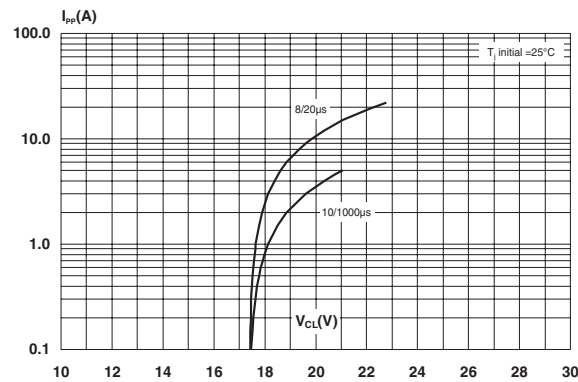


Figure 8: Junction capacitance versus reverse voltage applied (typical values)

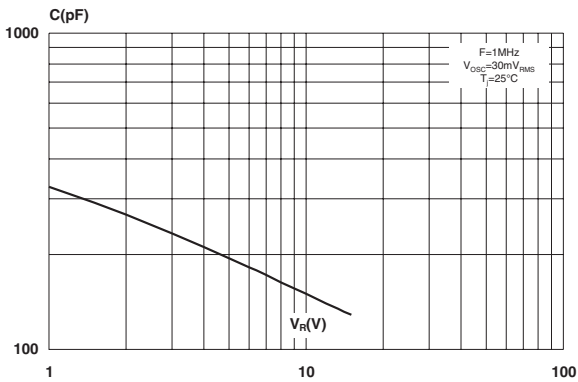
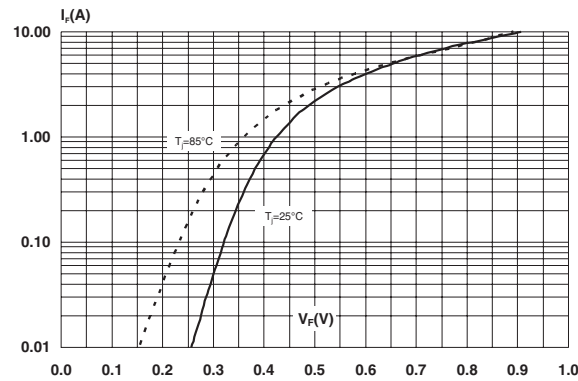


Figure 9: Forward voltage drop versus forward current (typical values)



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