

Transient Voltage Suppressors (TVS) Data Sheet

Features

- High current transient suppressor
- Glass passivated junction.
- Low leakage current
- Excellent Clamping Capability.
- 8000W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Uni-directional polarity
- Halogen free and RoHS compliant
- Meets MSL level 1, per J-STD-020
- Meets AEC-Q101 requirement

Mechanical Data

- Case: DO-218AB
- Polarity: Heatsink is anode
- Epoxy: UL 94V-0 rate flame retardant

Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings and Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000 μ s waveform (Note1)	P _{PPM}	Minimum 8000	Watts
Peak pulse current of at 10/1000 μ s waveform (Note 1)	I _{PPM}	See Table	Amps
Power dissipation on infinite heatsink at T _L =25°C P	D	8	Watts
Peak forward surge current, 8.3ms single half sine-wave	I _{FSM}	700	Amps
Operating junction and Storage Temperature Rang	T _J , T _{STG}	-55 to +150	°C

Note: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.

Dimensions (DO-218AB)

Symbol	Millimeters		
	Min.	Nom.	Max.
A	4.8	5.3	5.8
B	4.9	5.0	5.2
C	1.7	2.0	2.3
D	2.8	3.3	3.8
E	8.3	8.5	8.7
F	2.3	2.6	2.9
G	0.5	0.6	0.7
H	13.3	13.5	13.7
I	8.7	9.0	9.3
J	9.7	10.0	10.3
K	9.5	10.0	10.5
L	1.5	2.0	2.5
M	15.0	15.5	16.0

Electrical Characteristics_A (25 °C)

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Surge Discharge current	Maximum Clamping Voltage	Reverse Leakage
	$V_{RWM}(V)$	$V_{BR}(V)$ MIN.@ I_T	$V_{BR}(V)$ MAX.@ I_T	I_T (mA)	$I_{PP}(A)$ @10/1000 μ s	$V_C(V)$ @ I_{PP}	$I_R(\mu A)$ @ V_{RWM}
SMEJ10A	10.0	11.1	12.3	5	475.0	17.5	15
SMEJ11A	11.0	12.2	13.5	5	443.8	18.7	15
SMEJ12A	12.0	13.3	14.7	5	405.0	20.5	10
SMEJ13A	13.0	14.4	15.9	5	373.8	22.1	10
SMEJ14A	14.0	15.6	17.2	5	345.0	23.9	10
SMEJ15A	15.0	16.7	18.5	5	327.5	25.1	10
SMEJ16A	16.0	17.8	19.7	5	307.5	26.8	10
SMEJ17A	17.0	18.9	20.9	5	288.8	28.4	10
SMEJ18A	18.0	20.0	22.1	5	272.5	30.1	10
SMEJ20A	20.0	22.2	24.5	5	245.0	33.4	10
SMEJ22A	22.0	24.4	26.9	5	222.5	36.6	10
SMEJ24A	24.0	26.7	29.5	5	202.5	40.1	10
SMEJ26A	26.0	28.9	31.9	5	186.3	43.4	10
SMEJ28A	28.0	31.1	34.4	5	171.3	46.8	10

Electrical Characteristics $A @ 25^{\circ}C$

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Surge Discharge current	Maximum Clamping Voltage	Reverse Leakage
	$V_{RWM}(V)$	$V_{BR}(V)$ MIN.@ I_T	$V_{BR}(V)$ MAX.@ I_T	$I_T (mA)$	$I_{PP}(A)$ @10/1000 μs	$V_C(V)$ @ I_{PP}	$I_R(\mu A)$ @ V_{RWM}
SMEJ30A	30.0	33.3	36.8	5	160.0	50.1	10
SMEJ33A	33.0	36.7	40.6	5	145.0	55.2	10
SMEJ36A	36.0	40.0	44.2	5	132.5	60.4	10
SMEJ40A	40.0	44.4	49.1	5	117.5	68.3	10
SMEJ43A	43.0	47.8	52.8	5	108.9	73.8	10
SMEJ48A	48.0	53.2	58.7	5	93.5	85.6	10

Ratings and Characteristic Curves ($T_A=25^{\circ}C$ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

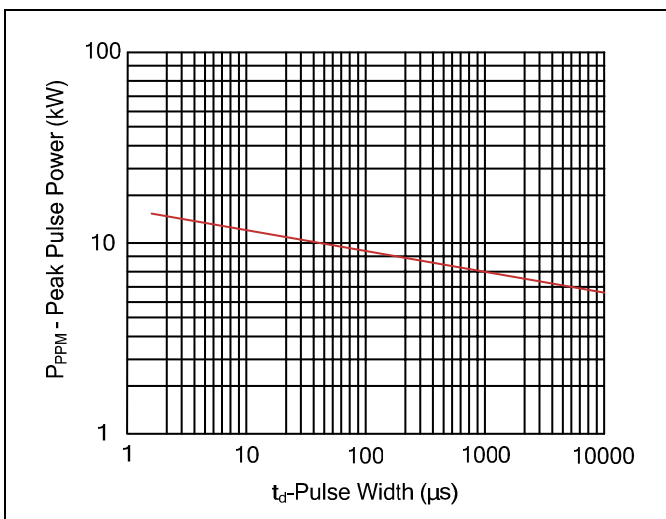


Figure 2. Pulse Derating Curve

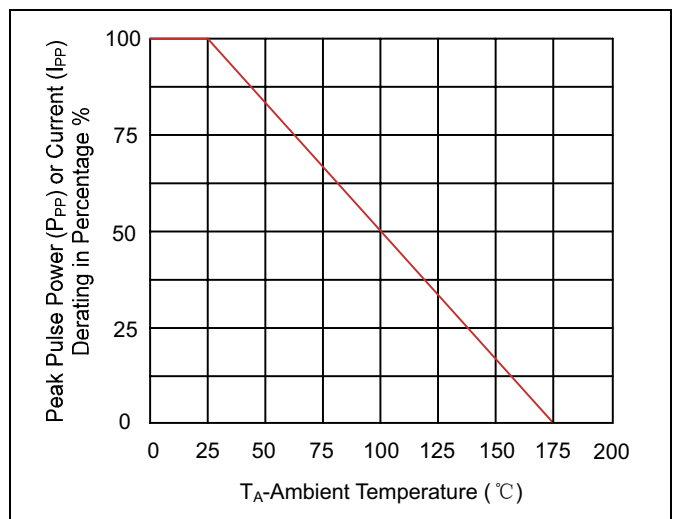


Figure 3. Pulse Waveform

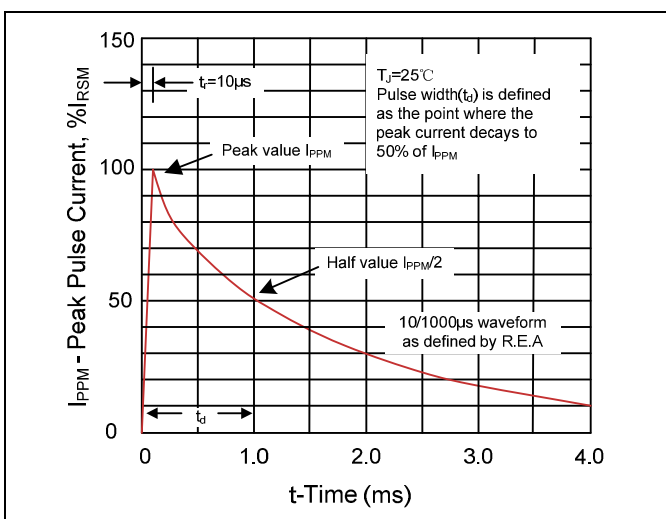
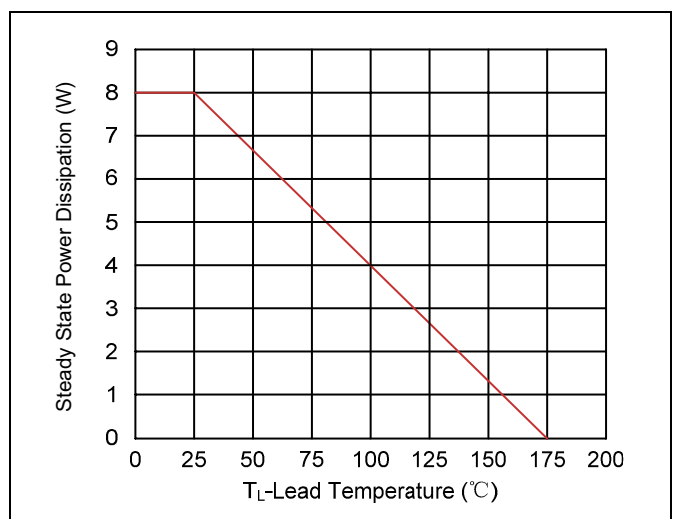
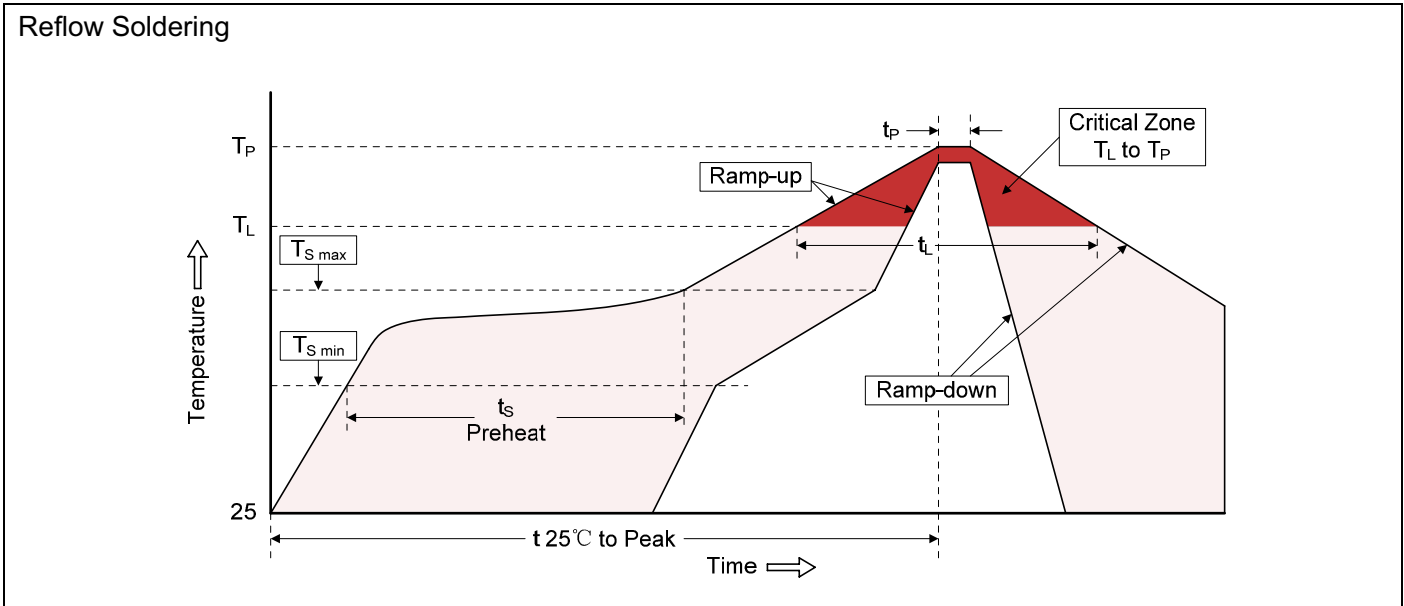


Figure 4. Steady State Power Dissipation Derating Curve



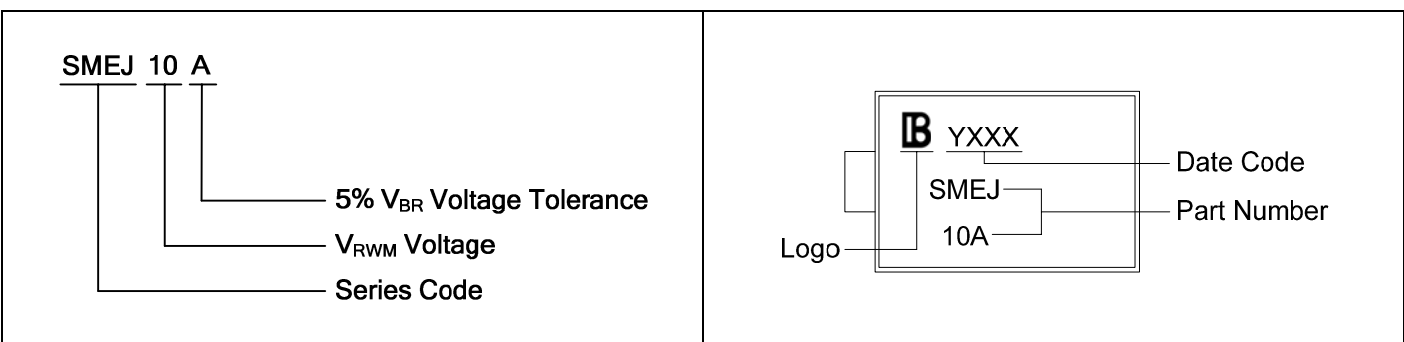
Recommended Soldering Conditions



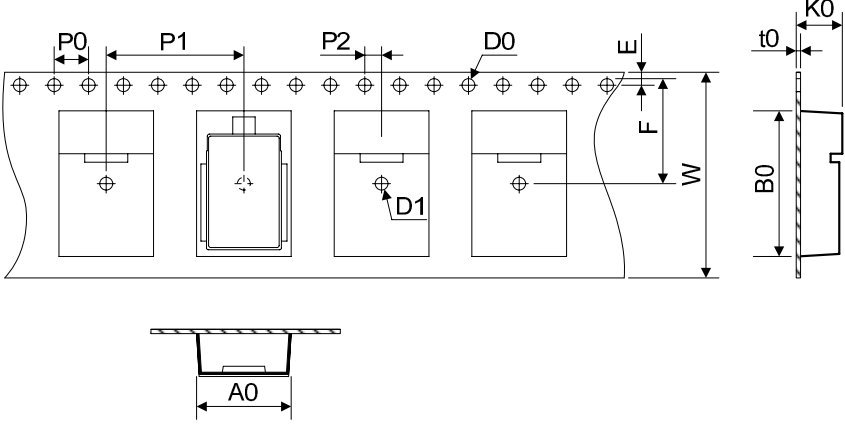
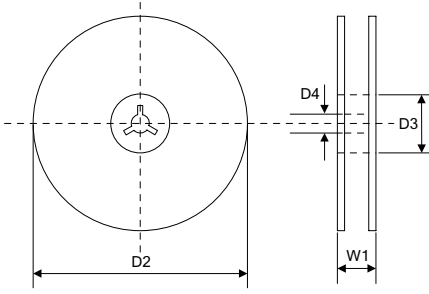
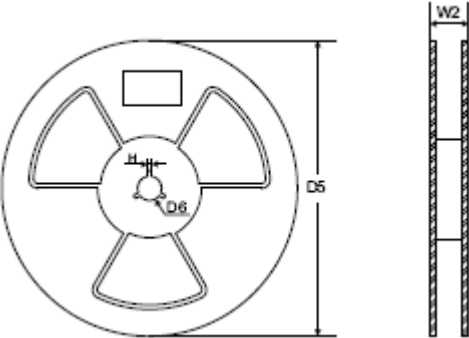
Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Part Number Code and Marking



Packaging

Tape	Symbol Dimension (mm)		
	W	24.00±0.20	
	P0	4.00±0.10	
	P1	16.00±0.10	
	P2	2.00±0.10	
	D0	Φ1.5±0.10	
	D1	Φ1.5±0.10	
	E	1.50±0.10	
	F	12.25±0.10	
	A0	11.0±0.10	
	B0	17.0±0.10	
	K0	6.05±0.15	
	t0	0.40±0.05	
	7" Reel	D2	Φ178.0±2.0
		D3	Φ50.0Min.
D4		Φ13.0±0.5	
W1		29.0±2.0	
Quantity: 150PCS			
13" Reel	D5	Φ330.0±2.0	
	D6	Φ13.5±0.5	
	H	2.5±1.0	
	W2	29.0±2.0	
	Quantity: 700PCS		