

Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 10000W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.05%
- Fast response time
- High Temperature soldering guaranteed: 265°C/10 seconds/.375", (9.5mm) lead length, 5lbs (2.3kg) tension
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020



Mechanical Data

- Case: Moulded plastic over glass passivated junction
- Terminal: Plated Axial leads, solderable per MIL-STD-750, Method 2026
- Mounting Position: Any

Applications

- I/O interface
- Low frequency signal transmission line (RS232, RS485, etc.)
- AC/DC power supply
- Meets ISO7637-2 surge spec.

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, Fig.1)	P_{PPM}	Minimum 10000	Watts
Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_L=75^\circ\text{C}$ (Fig.5)	$P_{M(AV)}$	8.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2, Fig.6)	I_{FSM}	300	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +150	°C
Typical thermal resistance junction to lead	$R_{\theta JL}$	8	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	°C/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.2.

2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Dimensions (P600)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	25.40	-	1.000	-
T	8.60	9.10	0.340	0.360
d	8.60	9.10	0.340	0.360
s	1.19	1.32	0.047	0.052

Electrical Characteristics (T_A=25°C)

Part Number		Breakdown Voltage @I _T		Test Current	Reverse Stand-Off Voltage	Reverse Leakage @ V _{RWM}	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current					
Unidirectional	Bidirectional	V _{BR MIN.} (V)	V _{BR MAX.} (V)	I _T (mA)	V _{RWM} (V)	I _R (μA)	V _C (V)	I _{PP} (A)					
ATS16A	ATS16C	17	20	5	16	1.8	28	214					
ATS20A	ATS20C	21	25	5	20	1.8	33	182					
ATS22A	ATS22C	24.2	26.9	5	22	1.8	35.5	169					
ATS24A	ATS24C	25	30	5	24	1.8	39	154					
ATS26A	ATS26C	28.9	32	5	26	1.8	42.1	142					
ATS28A	ATS28C	31.1	34.5	5	28	1.8	45.4	132					
ATS30A	ATS30C	33	38	5	30	1.8	50	126					
ATS33A	ATS33C	36.7	40.6	5	33	1.8	53	115					
ATS36A	ATS36C	40	44.2	5	36	1.8	58.1	106					
Part Number		Suitable ISO 7637-2 2004 5a test waveform											
		Maximum Clamping Voltage	Voltage level			Resistance Level							
Unidirectional	Bidirectional	V _C (V)	87V 400mS	174V 350mS	DC(V)	0.5Ω	1Ω	2Ω	3Ω	4Ω	6Ω	8Ω	
ATS16A	ATS16C	28	×	--	13.5	--	×	×	×	×	×	×	
ATS20A	ATS20C	33	×	--	13.5	--	×	×	×	×	×	×	
ATS22A	ATS22C	35.5	×	--	13.5	--	--	×	×	×	×	×	
ATS24A	ATS24C	39	×	--	13.5	--	--	×	×	×	×	×	
ATS26A	ATS26C	42.1	--	×	27	--	--	--	--	×	×	×	
ATS28A	ATS28C	45.4	--	×	27	--	--	--	--	×	×	×	
ATS30A	ATS30C	50	--	×	27	--	--	--	--	×	×	×	
ATS33A	ATS33C	53	--	×	27	--	--	--	--	-	×	×	
ATS36A	ATS36C	58.1	--	×	27	--	--	--	--	-	×	×	

Note: 'x' representatives meets this test condition;

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

Figure 1. ISO 7637-2 5a Test pulse

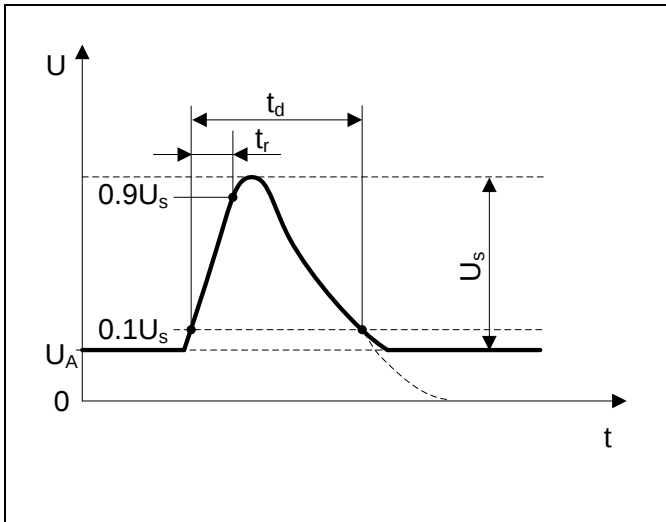


Figure 2. Peak Pulse Power Rating Curve

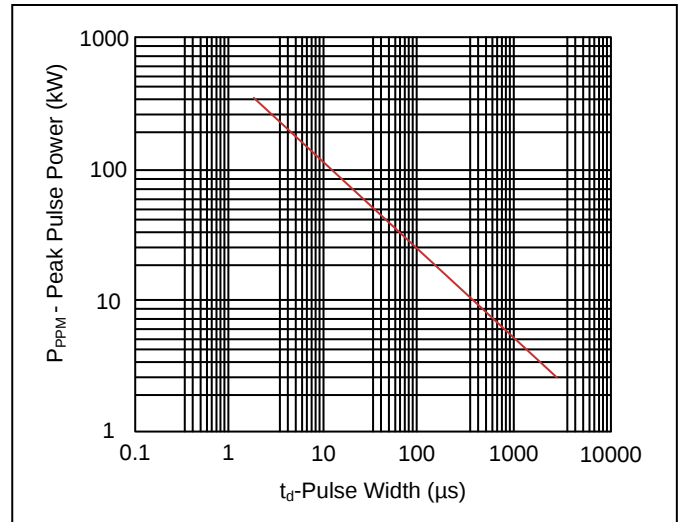


Figure 3. Pulse Waveform

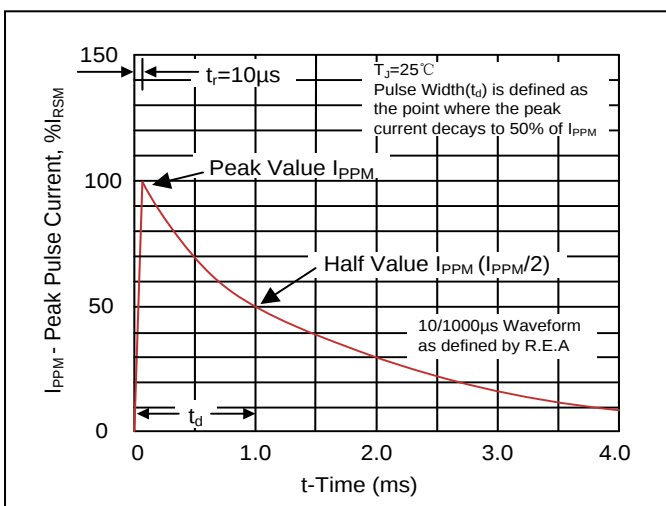


Figure 4. Pulse Derating Curve

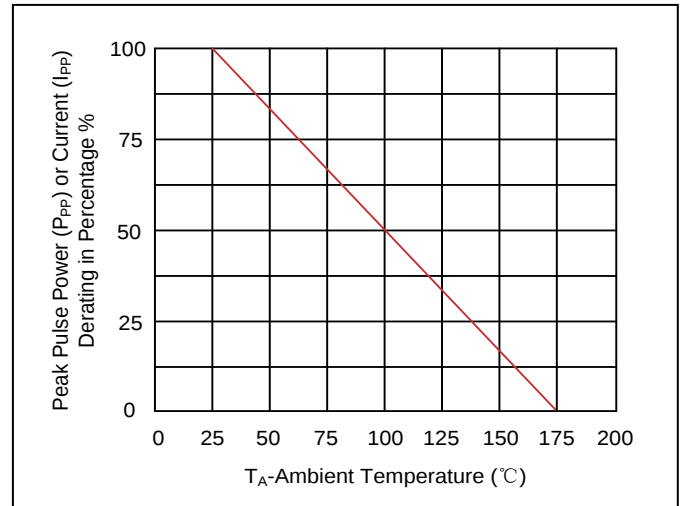
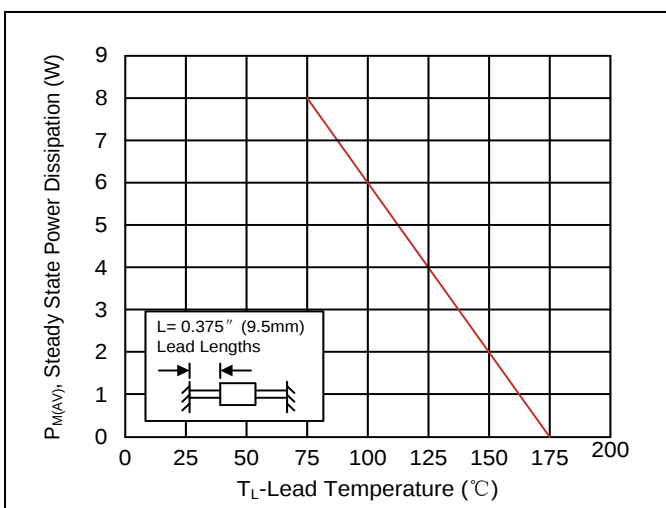
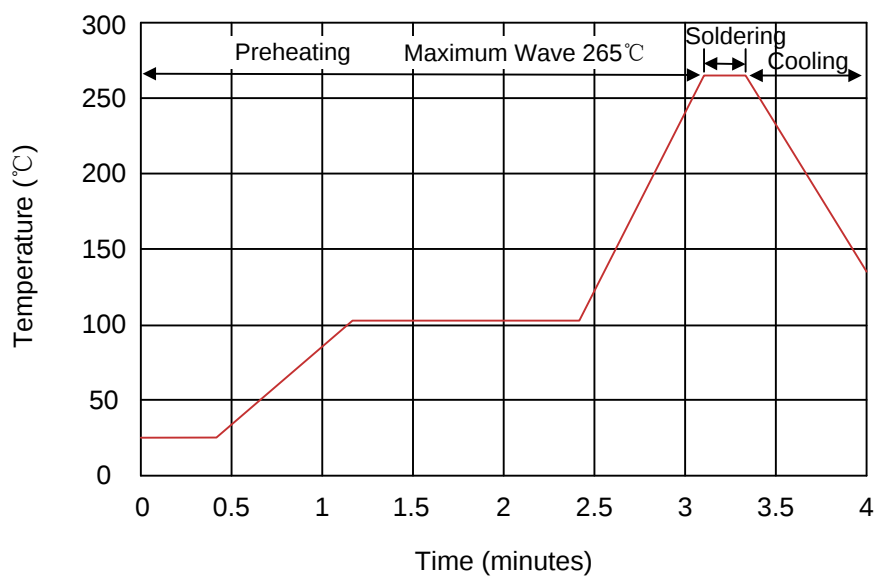


Figure 5. Steady State Power Dissipation Derating Curve



Recommended Soldering Conditions

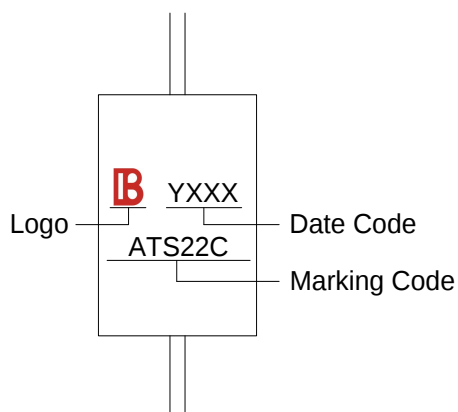
Wave Soldering



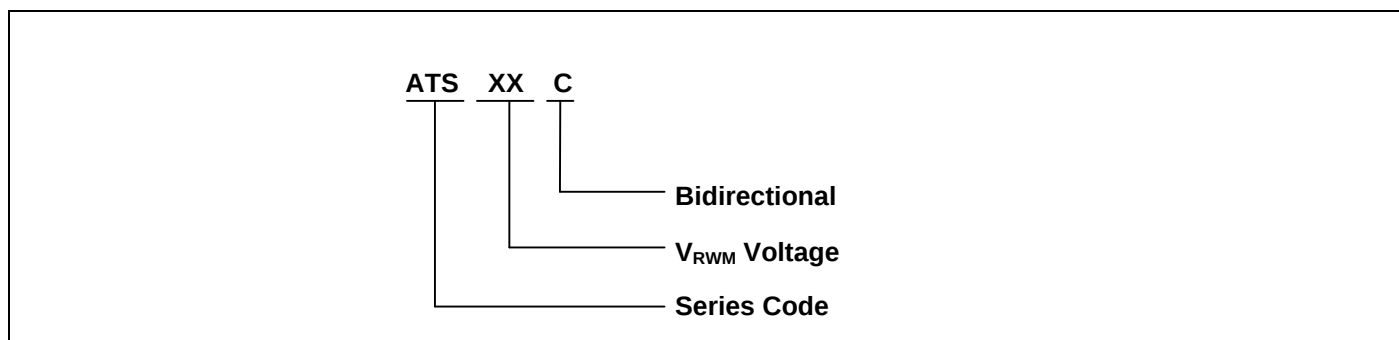
Recommended Conditions

Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time

Marking Code



Part Number Code



Packaging

Tape	Symbol	Dimension (mm)
	A	10.0±0.5
	B	53.0±1.0
	Z	1.2Max.
	T	6.0±0.4
	E	0.8Max.
	L1-L2	1.0Max.
Box	L	250.0±5.0
	W	75.0±5.0
	H	114.0±5.0
	Quantity: 300PCS	
Reel	D	330.0±3.0
	D0	16.4±2.0
	D1	86.0±2.0
	W1	76.0±3.0
	Quantity: 800PCS	