

Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 10000W peak pulse power capability at 10/1000μs 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
- AEC-Q101 qualified



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 10/1000μs waveform (Note1, Fig.1)	P_{PPM}	Minimum 10000	Watts
Peak pulse current of at 10/1000μs 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		Type ①	Breakdown Voltage @I _T		Test Current	Reverse Stand-Off Voltage	Reverse Leakage @ V _{RWM}	Maximum Clamping Voltage @I _{PP}	Peark 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)
ATS22A	ATS22C	2CF	24.2	26.9	5	22	1.8	35.5	287
ATS24A	ATS24C	2CF	26.7	29.6	5	24	1.8	39	257
ATS26A	ATS26C	2CF	28.9	32	5	26	1.8	42.1	237
ATS28A	ATS28C	2CF	31.1	34.5	5	28	1.8	45.4	220
ATS30A	ATS30C	2CF	33	38	5	30	1.8	50	250
ATS33A	ATS33C	2CF	36.7	40.6	5	33	1.8	53	190
ATS36A	ATS36C	2CF	40	44.2	5	36	1.8	58.1	174
ATS40A	ATS40C	2CF	44.4	49.1	5	40	1.8	64.5	155

Notes: ① Specific code by request.

Part Number		Type ①	Suitable ISO 7637-2 2004 5a test waveform									
			Maximum Clamping Voltage	Voltage level			Resistance Level					
Unidirectional	Bidirectional		Vc(V)	87V 400mS	174V 350mS	DC(V)	0.5Ω	1Ω	2Ω	3Ω	4Ω	8Ω
ATS22A	ATS22C	2CF	35.5	×	--	13.5	--	×	×	×	×	×
ATS24A	ATS24C	2CF	39	×	--	13.5	--	×	×	×	×	×
ATS26A	ATS26C	2CF	42.1	×	--	27	--	--	--	--	×	×
ATS28A	ATS28C	2CF	45.4	×	--	27	--	--	--	--	×	×
ATS30A	ATS30C	2CF	50	--	×	28	--	--	--	--	×	×
ATS33A	ATS33C	2CF	53	--	×	28	--	--	--	--	×	×
ATS36A	ATS36C	2CF	58.1	--	×	28	--	--	--	--	×	×
ATS40A	ATS40C	2CF	64.5	--	×	28	--	--	--	--	×	×

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

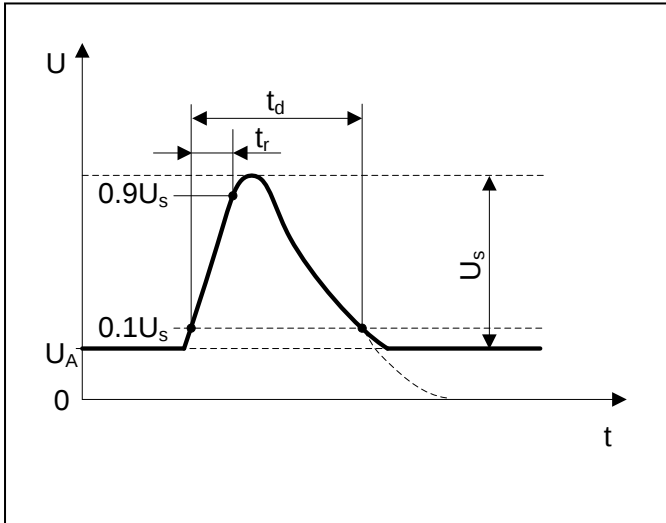


Figure 2. Peak Pulse Power Rating Curve

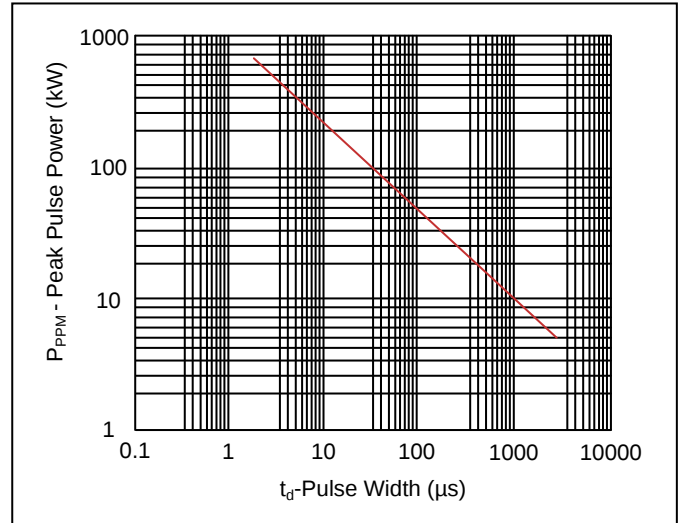


Figure 3. Pulse Waveform

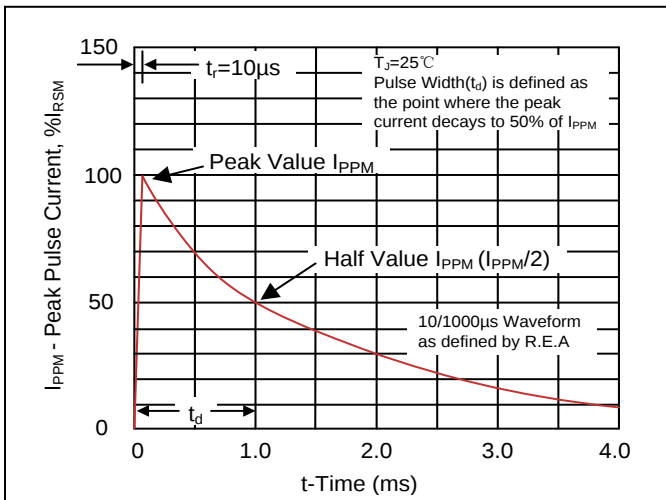


Figure 4. Pulse Derating Curve

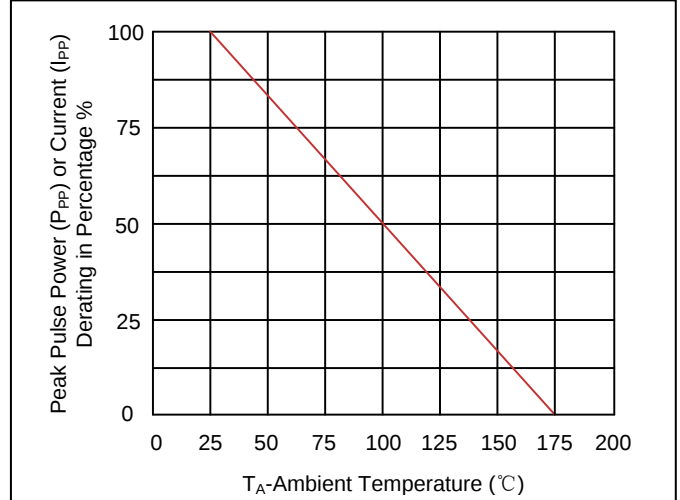
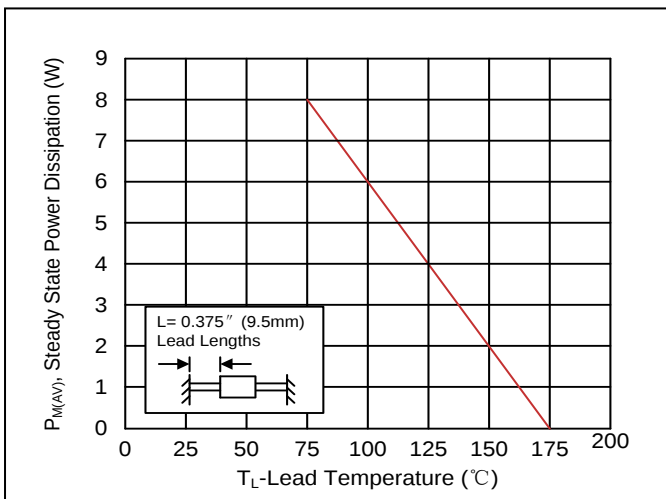
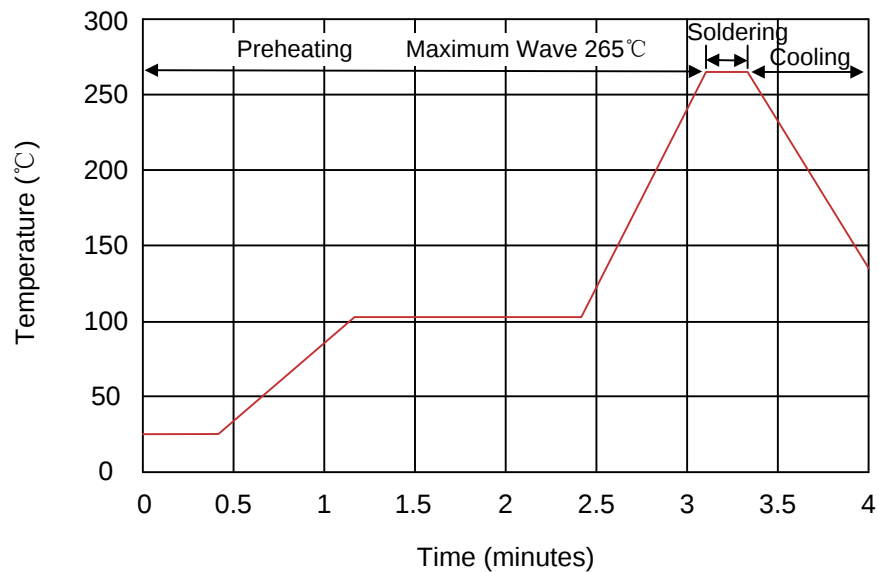


Figure 5. Steady State Power Dissipation Derating Curve



Recommended Soldering Conditions

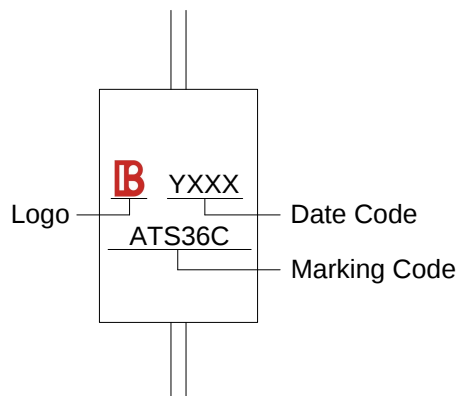
Wave Soldering



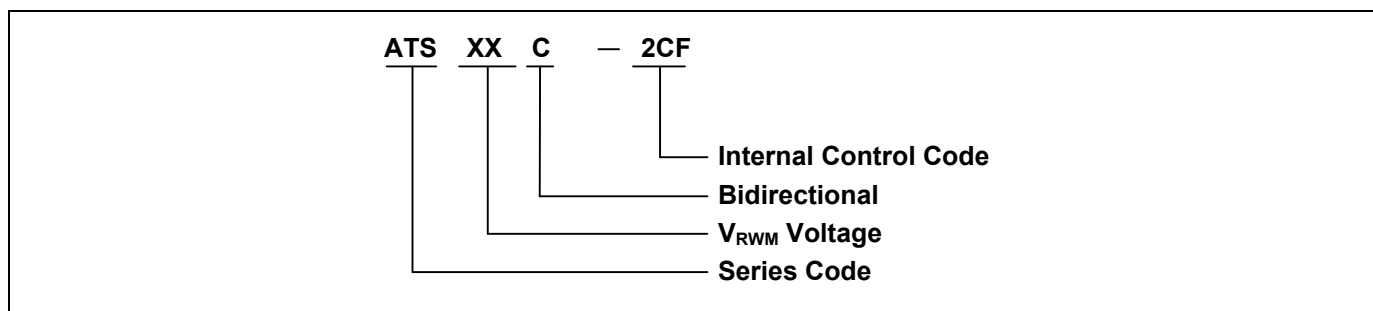
Recommended Conditions

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

Marking Code



Part Number Code



Ordering Code for Different Package

Box package: Add suffix "/B" at the end of the part number, such as ATS28A-2CF/B

Reel package: Add suffix "/TR13" at the end of the part number, such as ATS36C-2CF/TR13

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	