

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



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
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)
- 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 +175	°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 I _T (mA)	Reverse Stand-Off Voltage V _{RWM} (V)	Reverse Leakage @ V _{RWM} I _R (μA)	Maximum Clamping Voltage @I _{PP} V _C (V)	Peak Pulse Current I _{PP} (A)
Unidirectional	Bidirectional		V _{BR MIN.} (V)	V _{BR MAX.} (V)					
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
	ATS36C	IR1.0	44.4	49.1	5	40	1.0	64.5	155

Notes: ① Specific code by request.

Part Number		Type ①	Suitable ISO 7637-2 2004 5a test waveform										
Unidirectional	Bidirectional		Voltage level			Resistance Level							
			87V 400mS	174V 350mS	DC(V)	0.5Ω	1Ω	2Ω	3Ω	4Ω	6Ω	8Ω	
ATS22A	ATS22C	2CF	x	--	13.5	--	x	x	x	x	x	x	x
ATS24A	ATS24C	2CF	x	--	13.5	--	x	x	x	x	x	x	x
ATS26A	ATS26C	2CF	x	--	27	--	--	--	--	x	x	x	x
ATS28A	ATS28C	2CF	x	--	27	--	--	--	--	x	x	x	x
ATS30A	ATS30C	2CF	--	x	28	--	--	--	--	x	x	x	x
ATS33A	ATS33C	2CF	--	x	28	--	--	--	--	x	x	x	x
ATS36A	ATS36C	2CF	--	x	28	--	--	--	--	x	x	x	x
ATS40A	ATS40C	2CF	--	x	28	--	--	--	--	x	x	x	x

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

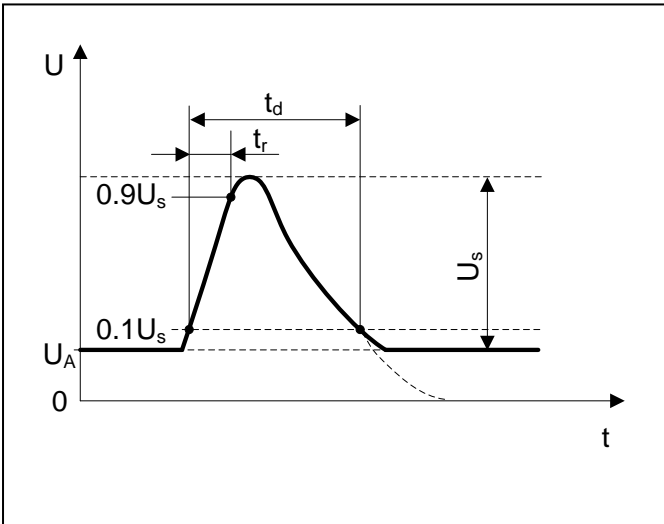


Figure 2. Peak Pulse Power Rating Curve

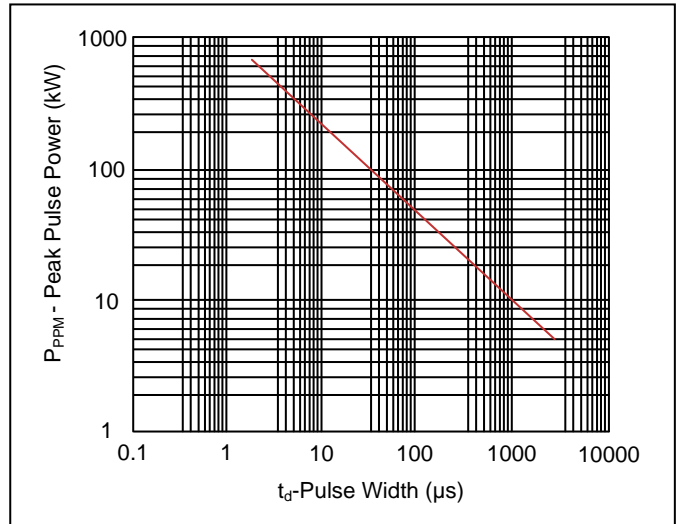


Figure 3. Pulse Waveform

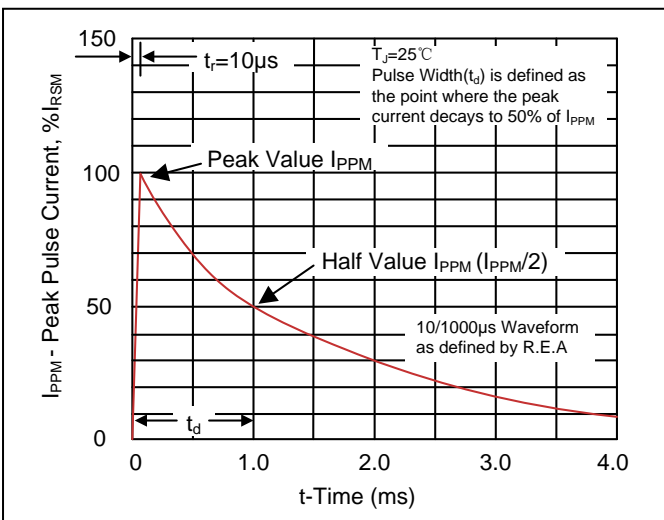


Figure 4. Pulse Derating Curve

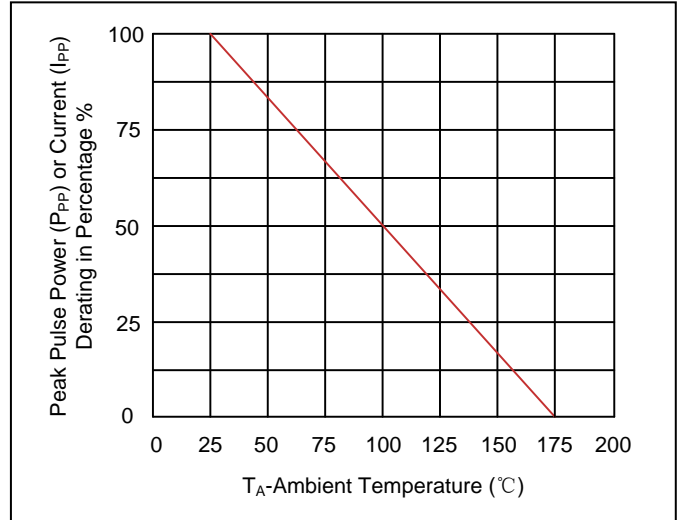
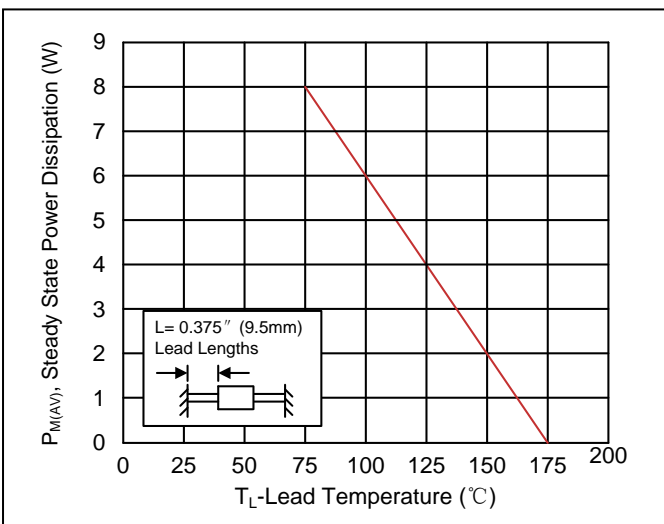
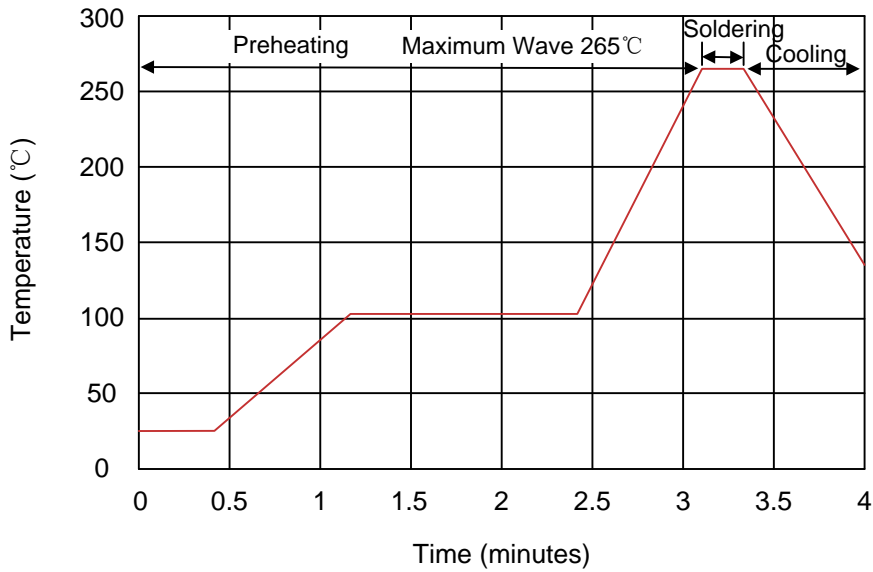


Figure 5. Steady State Power Dissipation Derating Curve



Recommended Soldering Conditions

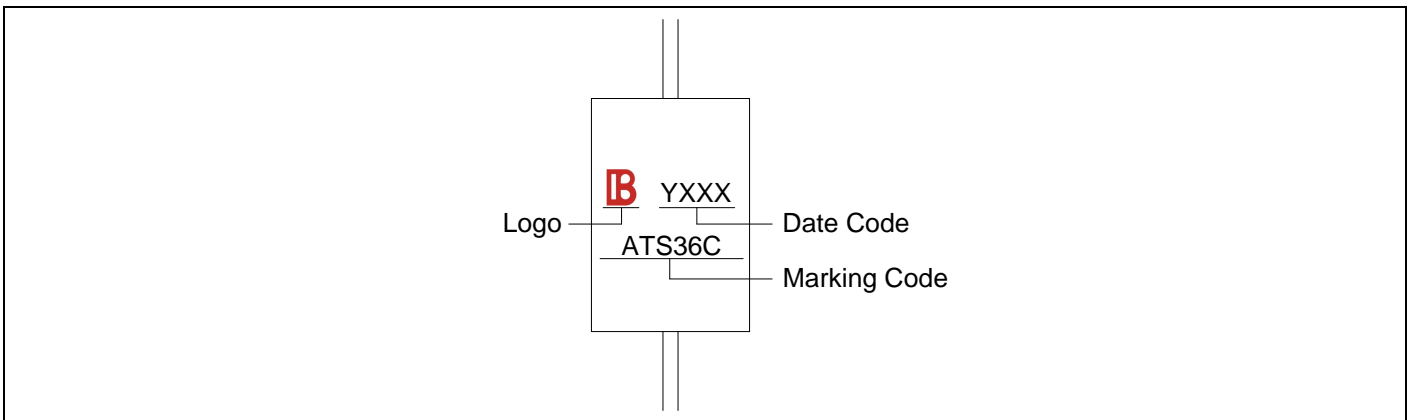
Wave Soldering



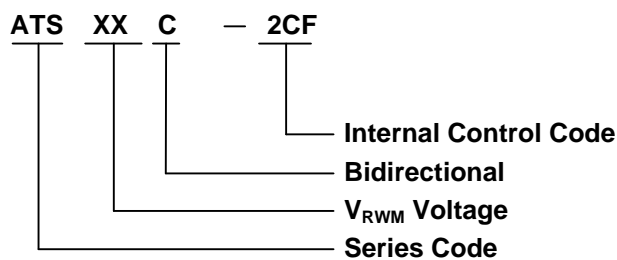
Recommended Conditions

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

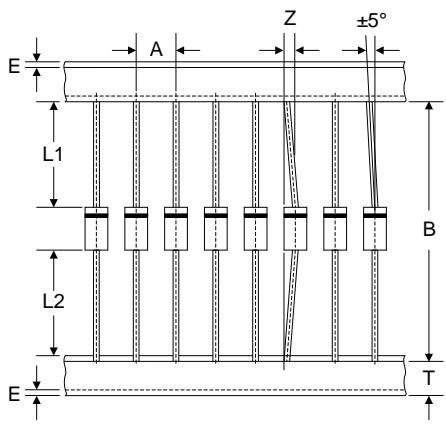
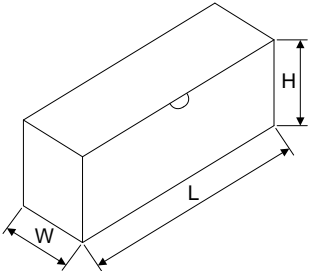
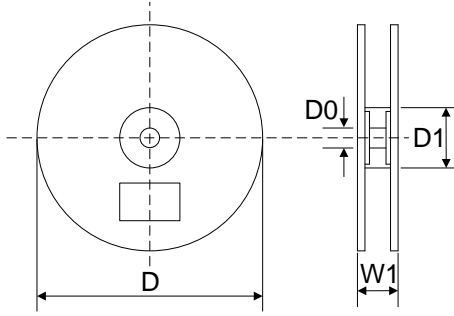
Marking Code



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.
		L		250.0±5.0	
		W		75.0±5.0	
		H		114.0±5.0	
		Quantity: 300PCS			
				D	330.0±3.0
D1	86.0±2.0			W1	76.0±3.0
Quantity: 800PCS					