Innovative Service Around the Globe YAGEO

DATA SHEET

TRANSIENT VOLTAGE SUPPRESSORS
AC/DC POWER SUPPLY

ATS series

RoHS compliant & Halogen free

Product specification– July 05, 2023 V.3

Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 6000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle): 0.05%
- Fast response time
- High Temperature soldering guaranteed: 265℃/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
- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance

Mechanical Data

- Case: Moulded plastic over glass passivated junction
- Terminal: Plated Axial leads, solderable per MIL-STD-750, Method 2026
- Mounting Position: Any
- Weight: 2.46g

Applications

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

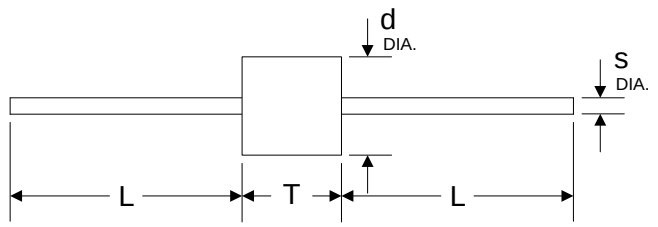
Maximum Ratings and Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000μs waveform (Note1, Fig.2)	P_{PPM}	Minimum 6000	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℃ (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	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	8	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	℃/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25℃ 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℃)

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	Vc(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℃ unless otherwise noted)

Figure 1. ISO 7637-2 5a Test pulse

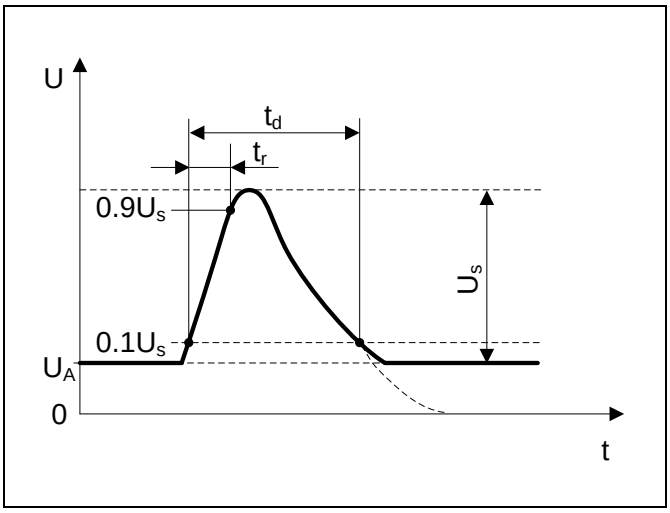


Figure 2. Peak Pulse Power Rating Curve

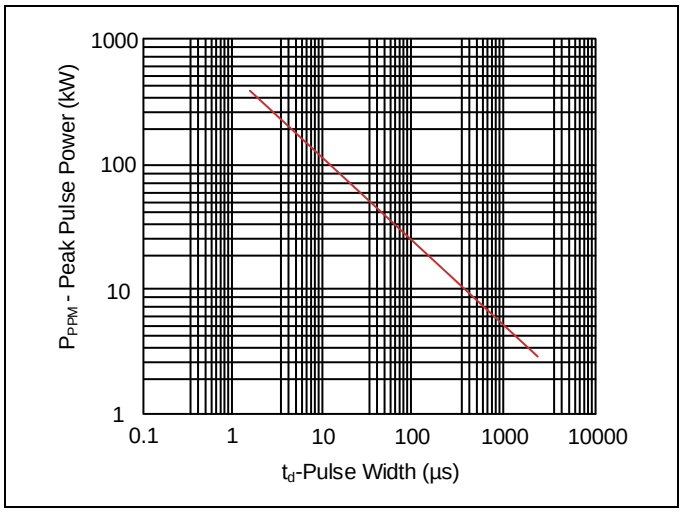


Figure 3. Pulse Waveform

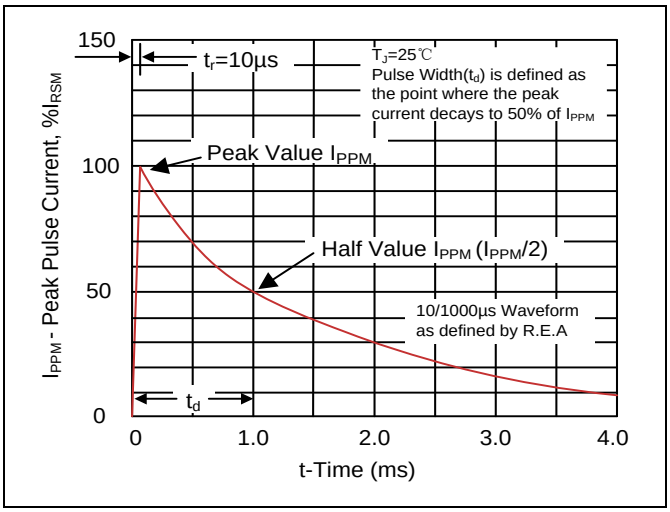


Figure 4. Pulse Derating Curve

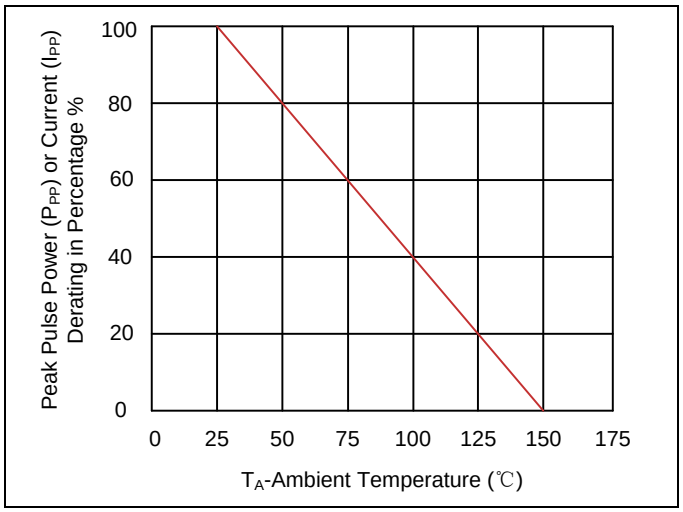


Figure 5. Steady State Power Dissipation Derating Curve

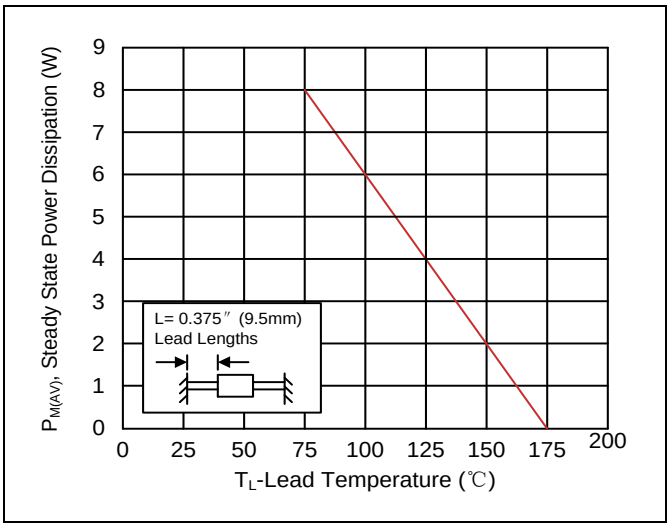
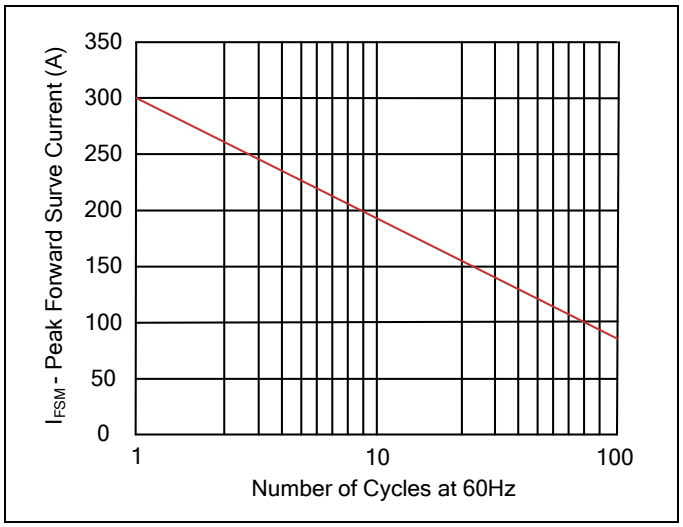
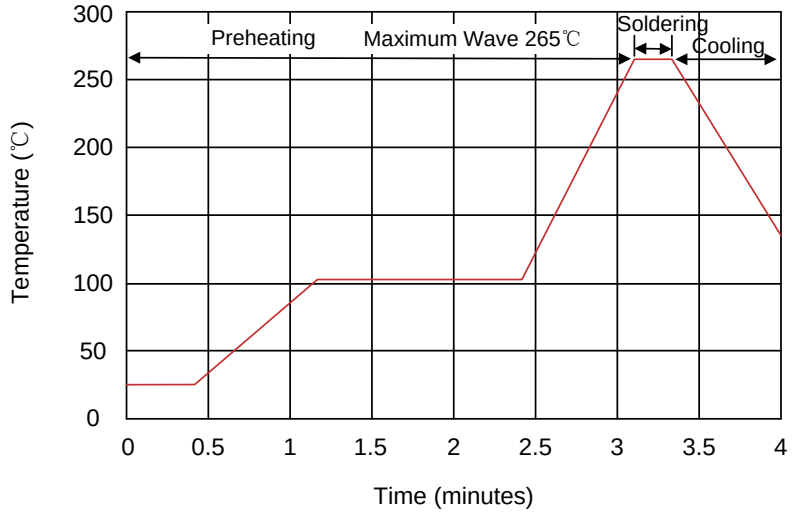


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



Recommended Soldering Conditions

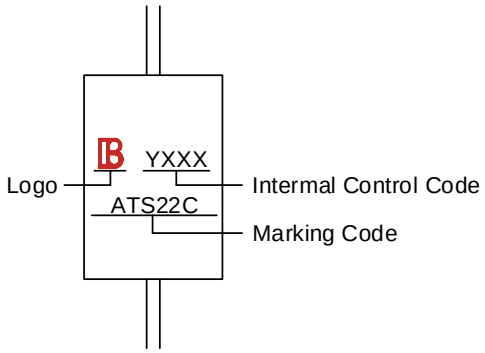
Wave Soldering



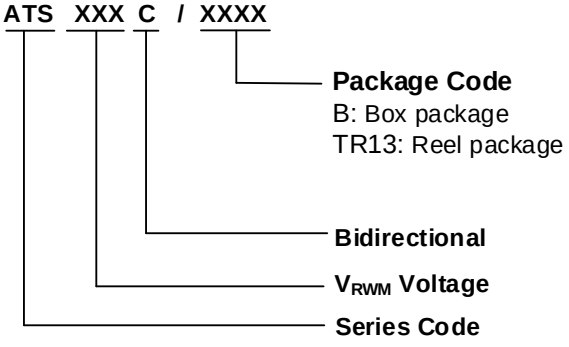
Recommended Conditions

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

Marking Code



Part Number Code

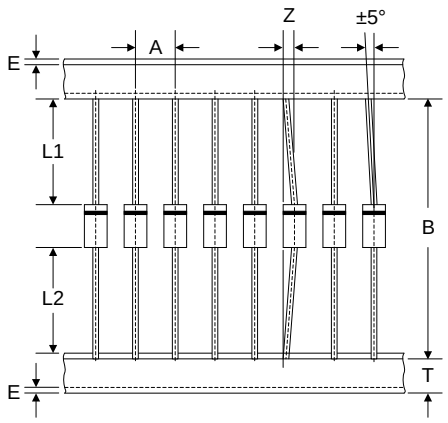


Ordering Code for Different Package

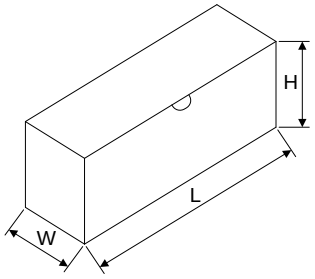
Box package: Add suffix “/B” at the end of the part number, such as ATSXXC/B
Reel package: Add suffix “/TR13” at the end of the part number, such as ATSXXC/TR13

Packaging

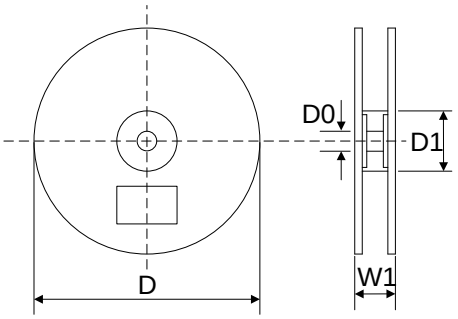
Tape



Box



Reel



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
D0	16.4±2.0
D1	86.0±2.0
W1	76.0±3.0
Quantity: 800PCS	

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