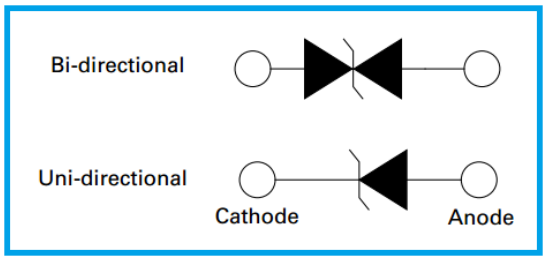
TVS Diode – AMPC-H Series

Features

- Working voltage: 16 to 48 V
- Glass passivated chip
- Excellent voltage clamping capability
- Automotive grade AEC–Q101 qualified
- Meets ISO7637-2 5a surge specification
- 5000W peak pulse power capability on 10/1000 μs waveform
- Low leakage current
- Very fast response time

Applications

- I/O interface, V_{CC} bus
- Automotive
- Industrial and consumer electronic applications
- Relay and electromagnetic valve surge absorption



Mechanical and Physical Data

- Case: DO-218AB molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Heat-sink is anode

Maximum Ratings and Thermal Characteristics

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, Fig.1).	P_{PPM}	Min 5000	Watt
Peak Pulse Current of 10/1000μs waveform (Note 1, Fig.3).	I_{PPM}	See Table	Amp
Power Dissipation on Infinite Heatsink at T_L = 25°C	P_D	5.0	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I_{FSM}	500	Amp
Operating Junction and Storage Temperature Range.	T_J, T_{STG}	-55~175	°C

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig.2.
2. 8.3ms single half sine wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Part Number Code

AMPC □□□ C A - H

- H: High surge capability (5000 W)
- V_{BR} Voltage tolerance (A: 5%; Blank: 10%)
- C: Bi-directional; Blank: Uni-directional
- Reverse Stand-Off Voltage
- AMPC Series

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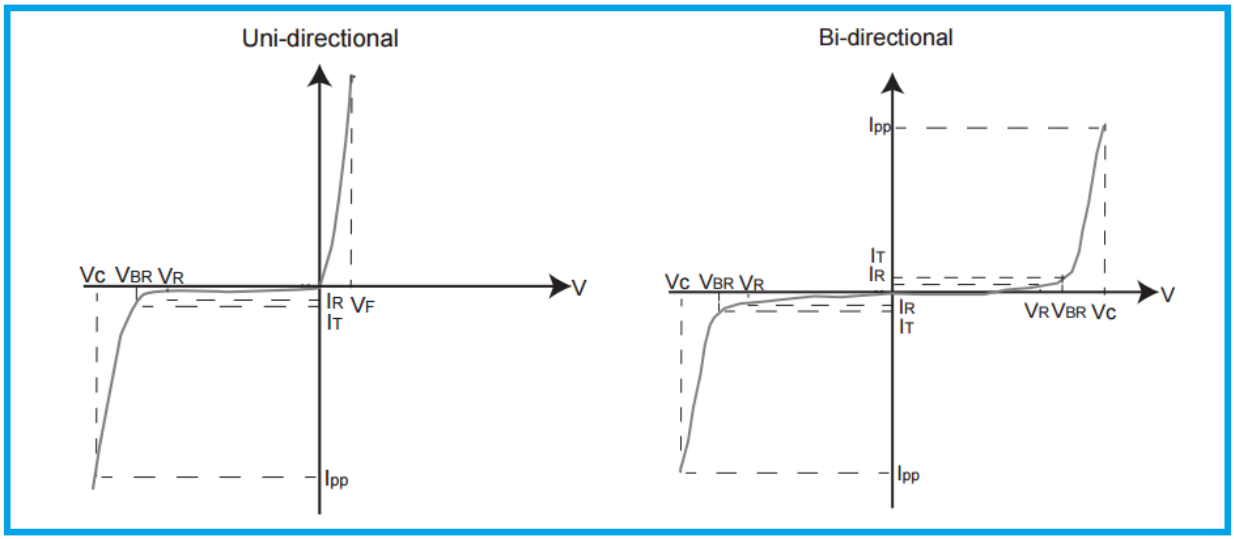
I-V Curve Characteristics



P_{PPM} Peak Pulse Power Dissipation – Maximum power dissipation

V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current (I_T)

V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (Peak Impulse Current)

I_R Reverse Leakage Current – Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

Electrical Characteristics

Part Number (Uni)		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) @ I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μA) @ V_R	Maximum I_R (μA) @ V_R T_J = 175°C
Uni	Bi		Min.	Max.					
AMPC16A-H	AMPC16CA-H	16.0	17.8	19.7	5	26.0	193.0	10	150
AMPC17A-H	AMPC17CA-H	17.0	18.9	20.9	5	27.6	181.0	10	150
AMPC18A-H	AMPC18CA-H	18.0	20.0	22.1	5	29.2	172.0	10	150
AMPC20A-H	AMPC20CA-H	20.0	22.2	24.5	5	32.4	155.0	10	150
AMPC22A-H	AMPC22CA-H	22.0	24.4	26.9	5	35.5	141.0	10	150
AMPC24A-H	AMPC24CA-H	24.0	26.7	29.5	5	38.9	129.0	10	150
AMPC26A-H	AMPC26CA-H	26.0	28.9	31.9	5	42.1	119.0	10	150
AMPC28A-H	AMPC28CA-H	28.0	31.1	34.4	5	45.4	110.0	10	150
AMPC30A-H	AMPC30CA-H	30.0	33.3	36.8	5	48.4	103.0	10	150
AMPC33A-H	AMPC33CA-H	33.0	36.7	40.6	5	53.3	93.9	10	150
AMPC36A-H	AMPC36CA-H	36.0	40.0	44.2	5	58.1	86.1	10	150
AMPC40A-H	AMPC40CA-H	40.0	44.4	49.1	5	64.5	77.6	10	150
AMPC43A-H	AMPC43CA-H	43.0	47.8	52.8	5	69.4	72.1	10	150
AMPC45A-H	AMPC45CA-H	45.0	50.0	55.3	5	72.7	68.8	10	150
AMPC48A-H	AMPC48CA-H	48.0	53.3	58.9	5	77.4	64.6	10	150

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Ratings and Characteristic Curves

Fig 1 - Pulse Derating Curve

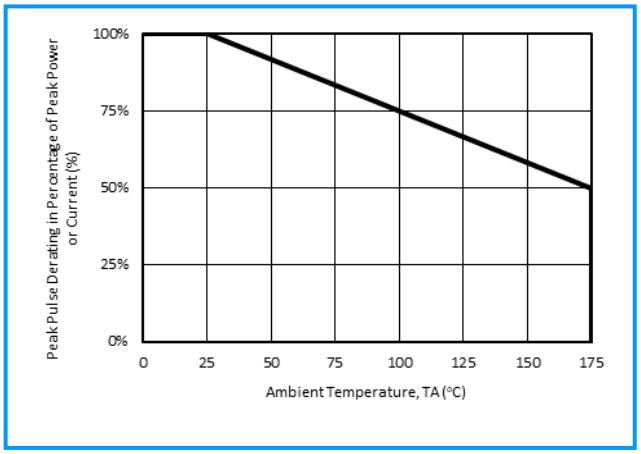


Fig 2 - Pulse Waveform

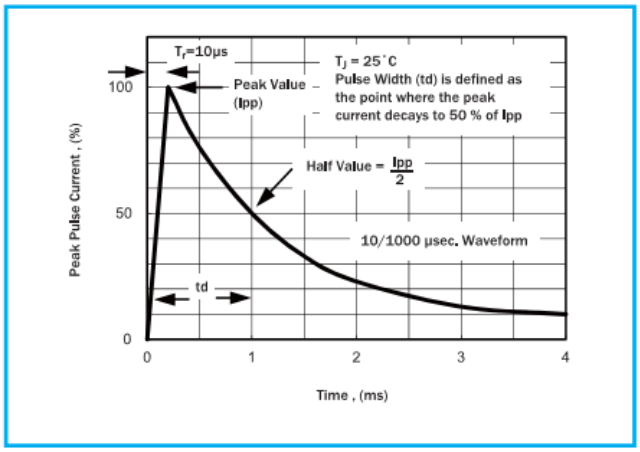
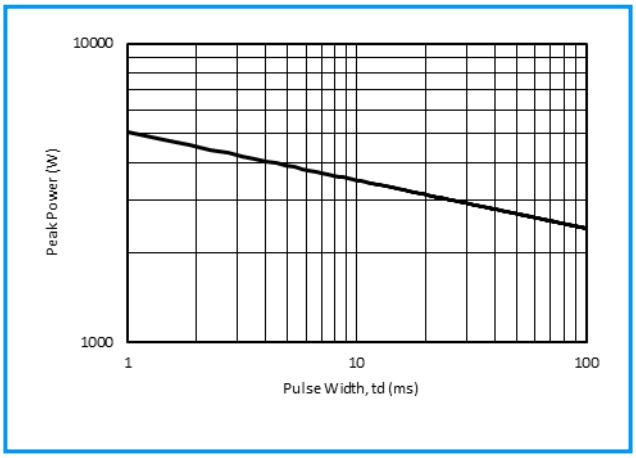


Fig 3 –Peak Pulse Power Rating Curve



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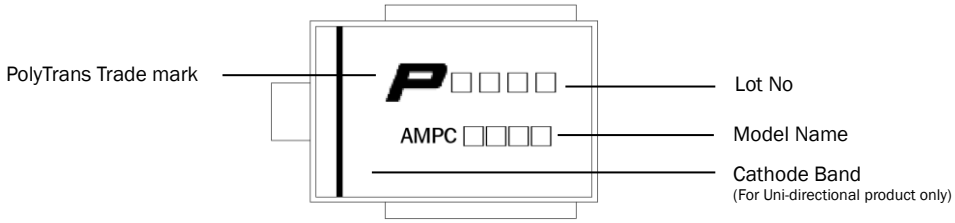
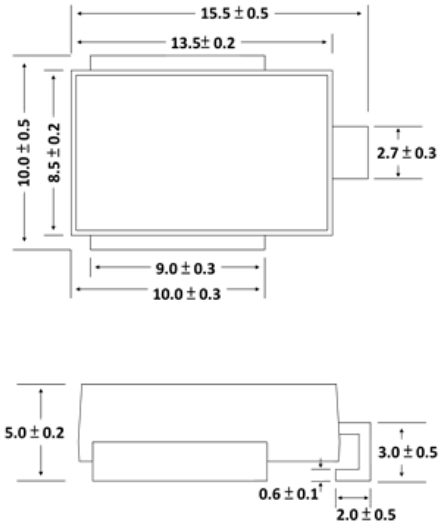
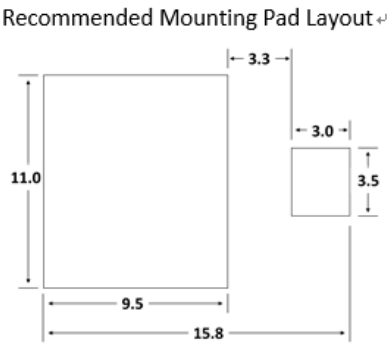
Marking Definitions



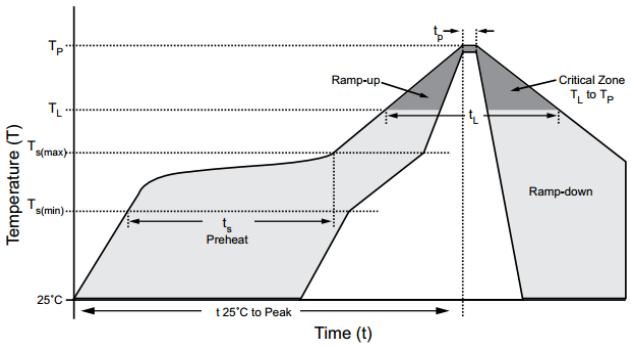
Physical Dimensions (Millimeters)





Lead Free Reflow Soldering Recommendations

Preheat - Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (Tsmin to Tsmax) - Average Ramp-Up Rate	 150°C 200°C 60-180 seconds 1~3°C/second
Peak Temperature	260°C max.
Time within 5°C of actual Peak Temperature (t_p)	30 seconds max.
Ramp-Down Rate	6 °C /second max.



Note: If the soldering temperatures exceed the recommended profile, devices may not meet the performance requirements.

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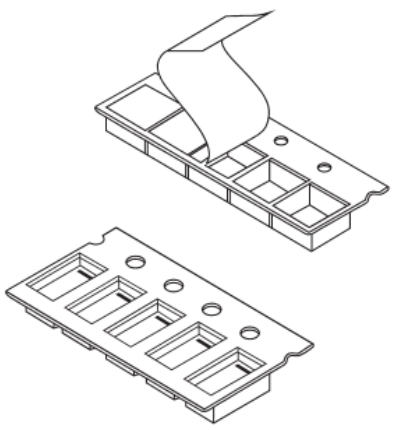
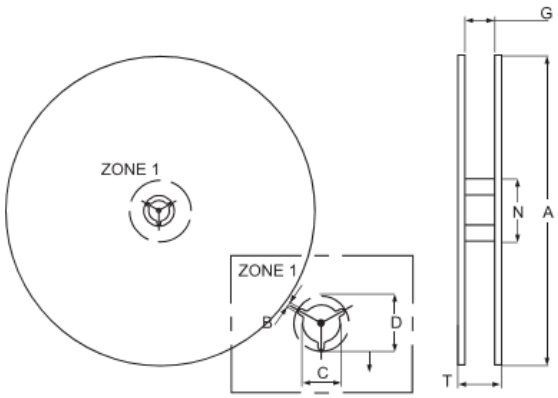
Packaging Information

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
AMPC-H Series	DO-218AB	750	Tape & Reel – 24mm tape/13" reel	EIA STD RS-481

Tape and Reel Specifications





Symbol	A	B (Min.)	C	D (Min.)	N (Min.)	G (Max.)	T (Max.)
Spec	330±2.0	1.5	13.0±0.2	20.2	50.0	26.4	30.4

*Dimension in mm